Final

Data Summary Report

2011

Environmental Monitoring

Upper Blackfoot Mining Complex

Lewis and Clark County, Montana

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ACRONYMS AND ABBREVIATIONS

DO	Dissolved Oxygen
DQO	Data Quality Objective
DSR	Data Summary Report
famsl	Feet Above Mean Sea Level
MDEQ	Montana Department of Environmental Quality
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
USEPA	US Environmental Protection Agency

1. INTRODUCTION

Portage, Inc. (Portage) has prepared this Data Summary Report (DSR) for the Montana Department of Environmental Quality (MDEQ) under MDEQ Contract Number 407025, Task Order 11. 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. The site is located within Sections 27 and 28, Township 15 North, Range 6 West. 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 6,000 feet in the gulch.

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. The tailings contain sulfide minerals that oxidize when not in a reducing environment and then release heavy metals to the streams (TerraGraphics 2010).

1.2 2011 Sampling Activities

The purpose of the 2011 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 2011 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. Sampling at the UBMC was coordinated with sampling at Section 35 (performed under a separate MDEQ Task Order to document baseline environmental conditions at a potential repository site) and the results of Section 35 sampling is detailed in a separate DSR. Figure 1 shows the location of the UBMC in relation to 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, 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 MDEQ Purge Water Disposal Flowchart.
- Appendix H contains an electronic copy of the DSR and data logger electronic files on compact disk.

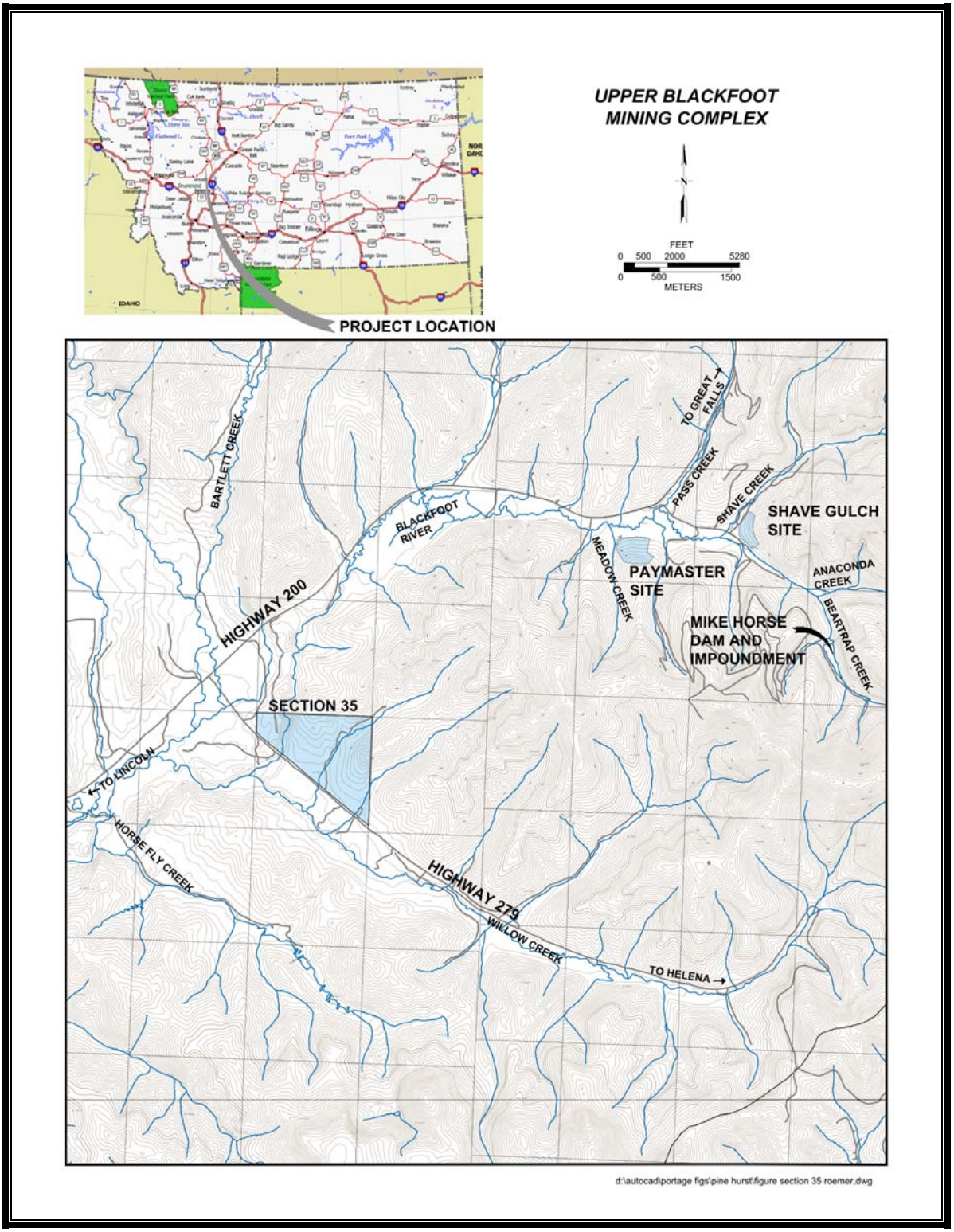

Figure 1. UBMC general location map

2. SAMPLING AND ANALYSIS PROCEDURES

2011 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* (MDEQ, 2010a).

Sediment sampling results are screened against the ecological risk based screening values from the *Draft Remedial Investigation Report* for the UBMC (TetraTech, 2008). 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. Sediment sample results are also screened against United States Environmental Protection Agency (USEPA) human health regional screening levels (RSLs) for residential use (USEPA, 2010) with the exception of arsenic. Arsenic is screened against the MDEQ residential action level for arsenic (MDEQ, 2005).

Other sampling activities at the UBMC include measuring groundwater elevation with a hand held electronic water meter and dedicated continuous data loggers, and measuring surface water flows. All field activities were performed in accordance with the SAP for the UBMC, Lewis and Clark County, Montana. 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 2011 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 MDEQ's low flow sampling guidelines (MDEQ, 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 instrumentation. Prior to well purging, the static water level and total depth of each well were measured with a water level meter. All field measurements were recorded in field logbooks and 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 instrumentation is installed for the purpose of continuously monitoring changes in groundwater elevation. This data was collected during each sampling event and provided to MDEQ's project engineer for analysis. Groundwater elevation data may be used to develop an understanding of seasonal groundwater elevation and flow regimes at the site. 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 2011 for the purpose of continued measurement and tracking of surface water quality at the site. For the second quarter sampling event three additional surface water stations and seeps associated with the Mike Horse impounded tailings were also monitored. Surface water samples were collected using the direct method to collect water samples directly into sample containers. 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 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), 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 seven instances in which site monitoring wells were dry and the scheduled samples could not be collected. There were

also 15 instances of field water quality parameters not collected because of malfunctioning field equipment. During the first quarter 2011 sampling effort, monitoring well TDMW-3S was buried in deep snow and could not be found. Static water level and water quality data was therefore not collected from TDMW-3S in the first quarter. Also during the first quarter, the data logger in PZ-03S was stuck in the well casing and could not be retrieved. Static water level information only was collected from this piezometer in 2011. During the second quarter sampling event (high flow), Portage staff sampled surface water, sediment, and measured stream discharge at three additional stations at the request of MDEQ. There were no other deviations from the SAP during the 2011 sampling.

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

Sample Number	Laboratory Analyses	Sample Location Description
GROUNDWATER (Monitoring Well)		
TDMW01	Dissolved metals, dissolved cations, acidity, total alkalinity, hardness, chloride, carbonate, bicarbonate, sulfate, pH, conductivity	North Side of the Dam
TDMW2D	Same as above	North Side of the Dam
TDMW2S	Same as above	North Side of the Dam
TDMW3D	Same as above	West Side of Impoundment
TDMW3S	Same as above	West Side of Impoundment
TDMW4D	Same as above	West Side of Impoundment
TDMW4S	Same as above	West Side of Impoundment
TDMW05	Same as above	West Side of Impoundment
TDMW06	Same as above	Duplicate of MW4D
TDMW07	Same as above	Blank
TDMW08	Same as above	Rinsate of sampling equipment
GROUNDWATER (Piezometers)		
SUMP-S-a	None (transducer data only)	Top of tailings impoundment sump
SUMP-S-b	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-2a	None (transducer data only)	West bank of tailings impoundment
GW-2	None (transducer data only)	West bank of tailings impoundment
PZ-02b-c	None (transducer data only)	Middle of tailings impoundment
PZ-03a-a	None (transducer data 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-01b	None (transducer data only)	North end of tailings impoundment
P-5	None (transducer data only)	Top of dam
PZ-11-b	None (transducer data only)	Top of dam
SURFACE WATER (Non-seeps)		
BRSW1	Dissolved aluminum, total metals, conductivity pH, hardness, total dissolved solids, total suspended solids, acidity, total alkalinity, bicarbonate, carbonate, total and dissolved chloride, total and dissolved sulfate, dissolved cations	Beartrap Creek above impoundment

Table 1. continued

Sample Number	Laboratory Analyses	Sample Location Description
BRSW2	Same as above	Impoundment (north end)
BRSW3A	Same as above	Seepage channel (downstream)
BRSW3B	Same as above	Seepage channel (upstream)
BRSW22	Same as above	Mike Horse Creek (upstream of confluence with Beartrap Creek)
BRSW23	Same as above	Beartrap Creek (below confluence with Mike Horse creek)
BRSW38	Same as above	Beartrap Creek (upstream of confluence with Anaconda creek)
BRSW48	Same as above	Beartrap Creek (below dam)
BRSW24	Same as above	Duplicate of BRSW22
BRSW25	Same as above	Blank
SURFACE WATER (Seeps)		
MHTDS-1	Dissolved aluminum, total metals, conductivity, pH, hardness, total dissolved solids, total suspended solids, acidity, total alkalinity, bicarbonate, carbonate, total and dissolved chloride, total and 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
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		
BRSD1	Total metals	Beartrap Creek above impoundment
BRSD2	Same as above	Impoundment (north end)
BRSD3A	Same as above	Seepage channel (downstream)

Table 1. continued

Sample Number	Laboratory Analyses	Sample Location Description
BRSD3B	Same as above	Seepage channel (upstream)
BRSD22	Same as above	Mike Horse Creek (upstream of confluence with Beartrap Creek)
BRSD23	Same as above	Beartrap Creek (below confluence with Mike Horse creek)
BRSD38	Same as above	Beartrap Creek (upstream of confluence with Anaconda creek)
BRSD48	Same as above	Beartrap Creek (below dam)
BRSD24	Same as above	Duplicate of BRSD22

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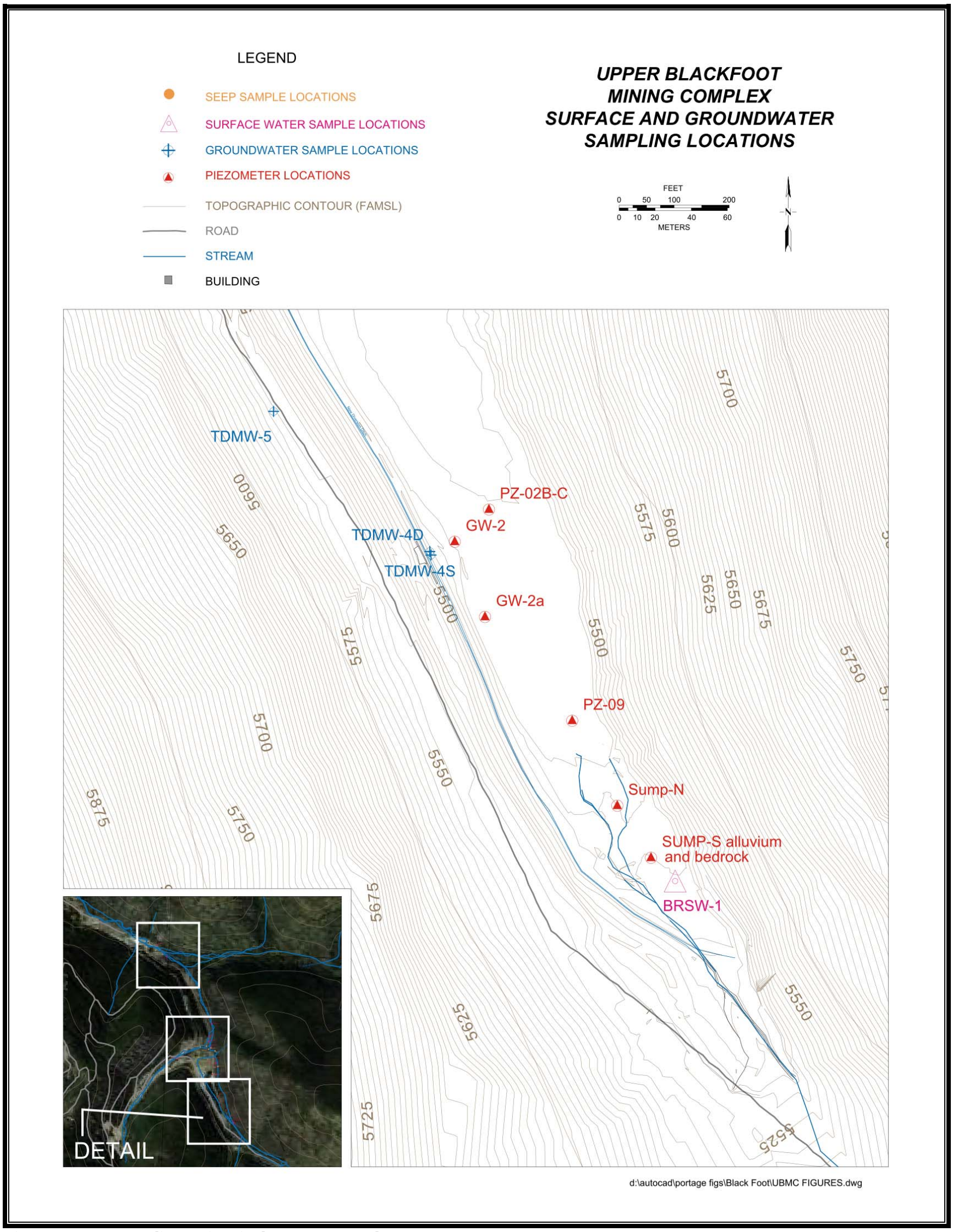

Figure 2. UBMC sampling stations in the Beartrap Creek area

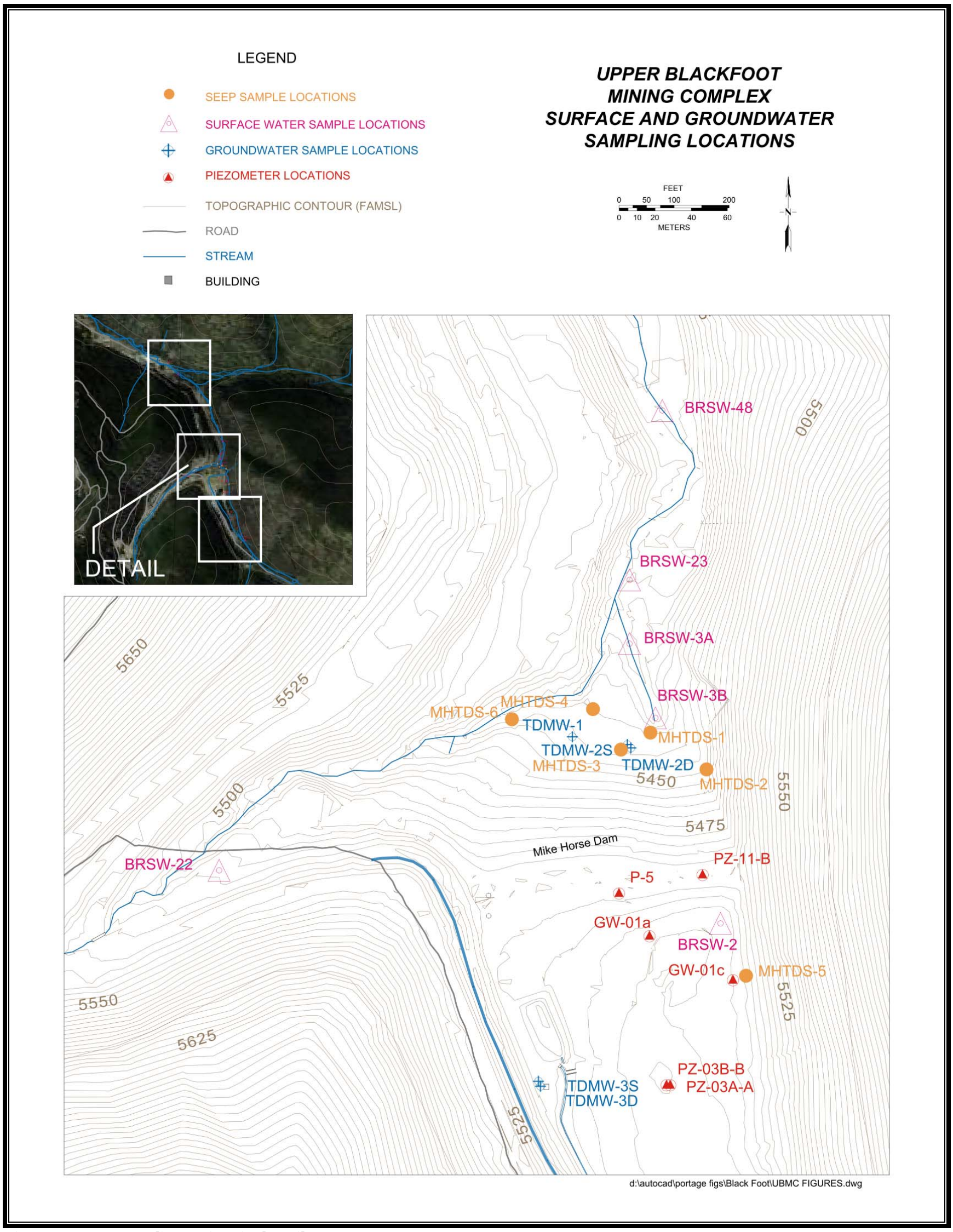

Figure 3. UBMC sampling stations in the Mike Horse Dam area

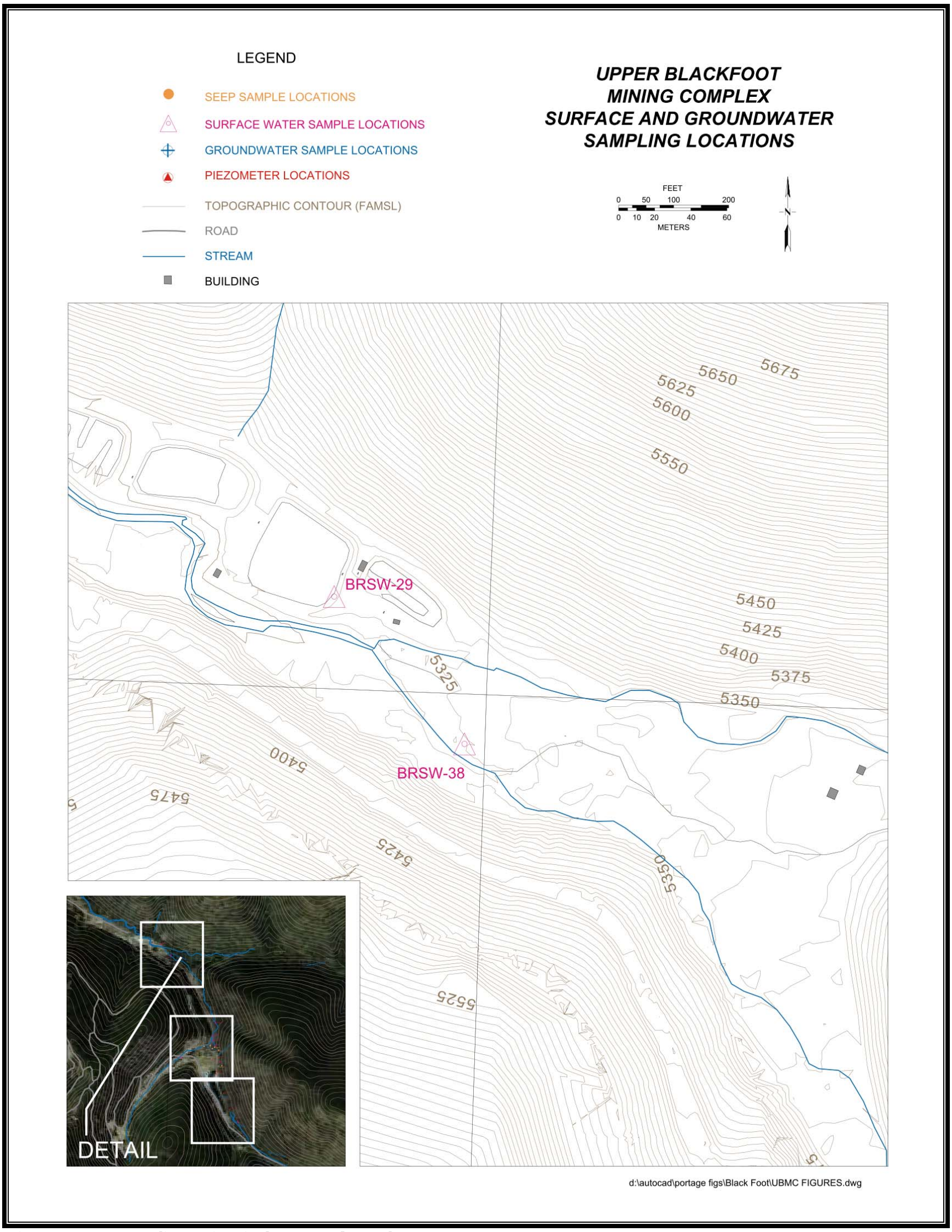

Figure 4. UBMC sampling stations in the Anaconda Creek area

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3. DATA QUALITY ASSESSMENT

Section 4 of the UBMC SAP presents the Quality Assurance Project Plan (QAPP) for 2011 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 USEPA guidance for the DQO process (USEPA 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 2011 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]USEPA 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 MDEQ requirements (MDEQ, 2010b)

3.1 Quality Assurance Objectives

The overall QA objective for the site 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 97.51%, resulting in 97.51% precision. For field duplicate samples there were 196 duplicate data points analyzed for the four quarters of sampling. Of the 196 field duplicate results, 11 (5.6% of the duplicate results) duplicate points exhibited RPDs outside the prescribed <20% acceptance criteria, and 185 (94.4% of the duplicate results) exhibited RPDs within the prescribed acceptance criteria, resulting in 94.4% precision.

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 97.45% 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 2,028 data points associated with the four quarters of sampling in 2011. Of the 2,028 data points: 165 (8.1% of the total) were qualified either with a "J-," "J+," or "UJ" validation flag due to missed holding times or poor MS/MSD recoveries, and 1,863 (91.9% of the total) were left unqualified, resulting in 91.9% 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 2011 UBMC monitoring, the QA objective for sample collection and laboratory data degree of completeness was >90%. A total of 92 water samples, 43 sediment samples, 420 field water quality measurements and 87 data logger download/static water level measurements were scheduled for 2011 field sampling. Site monitoring wells were dry in seven instances, reducing the total water samples collected to 85, resulting 92.4% completeness for water sampling. During scheduled sampling and data collection, there were 15 instances of scheduled field water quality parameters not being collected because of malfunctioning equipment. This results in a field parameter collection completeness of 96.4%. All scheduled data logger downloads/static water measurements were collected resulting in a water level data completeness of 100%. For the combined sampling effort, a total of 642 samples/measurements were scheduled and 620 were collected, resulting in an overall project completeness of 96.6%. 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	97.51	94.4%	----	----
Accuracy	97.45	----	91.9%	----
Completeness	----	----	100%	96.6%

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 and all TRLs for sediment are Energy Laboratories standard reporting limits for soil/sediment 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 (USEPA 1994).The TRL is defined as the lowest concentration that needs to be reported for undiluted samples to obtain project objectives. For UBMC, 2011 sampling, the contract laboratory achieved all project TRLs.

Table 4. UBMC target reporting limits for water analysis

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

[1]DEQ-7 required reporting value.

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 2011 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 USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004); USEPA Publication SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (USEPA 2008a); and *USEPA Guidance on Environmental Data Verification and Data Validation* (USEPA 2002a). The data validation reports also conform to MDEQ Data Validation Guidelines (MDEQ, 2010b).

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.

3.2.1 First Quarter Summary

Four sample delivery groups (SDGs) were analyzed in the May 2011 sampling effort: H11050107, H11050018, H11050029, and H11050051. Eight sediment, ten surface water, and nine groundwater samples were collected on 04/28/2011, 04/29/2011, 04/30/2011, and 05/04/2011. 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 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.

The sulfate results for samples UBMCTDMW4D, UBMCTDMW06, UBMCTDMW05, UBMCTDMW03, UBMCTDMW01, UBMCTDMW2D, UBMCTDMW23, UBMCBRSW3B, UBMCBRSW01, and UBMCBRSD02, have been qualified with a "J+" validation flag to denote the reported results are estimated with a high bias due to high MS and/or MSD recoveries.

The aluminum result for sample UBMCTDMW4D and the calcium results for samples UBMC TDMW4D and UBMCTDMW06 have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS/MSD recoveries.

The aluminum results for samples UBMCTDMW06 and UBMCTDMW08 and the calcium result in UBMCTDMW08 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.

The lead and zinc sediment results for samples UBMCBRSD22, UBMCBRSD22A, UBMCBRSD48, UBMCBRSD23, UBMCBRSD3A, UBMCBRSW3B, UBMCBRSD38, and UBMCBRSD01 have been qualified with a "J+" validation flag to denote the reported results are estimates with a high bias due to high MS recovery and/or a high MSD RPD.

The following results have been qualified with a "U" validation flag to denote the reported concentration is non-detect due to method blank detections:

- Copper for UBMCTDMW4D and UBMCTDMW06.
- Sodium for UBMCTDMW2D, UBMCTDMW2S, UBMCBRSW48, UBMCBRSW23, UBMCBRSW3B, UBMCBRSW38, and UBMCBRSW01.
- Zinc for UBMCTDMW5.

A total of 59 sample data points have been qualified during data validation. Of the qualified sample data points: Ten were assessed and qualified with a "U" validation flag, three were assessed and qualified with a "UJ" validation flag, 24 were assessed and qualified with a "J+" validation flag, and 22 were assessed and qualified with a "J-" validation flag. The ten data points qualified with a "U" validation flag are considered to be enforcement quality data. The 49 field sample data points that have been qualified with a "J+", "J-", or a "UJ" validation flag are considered to be estimated quantities. No data was rejected or deemed unusable in this validation effort.

3.2.2 Second Quarter Summary

Five SDGs were analyzed in the June/July 2011 sampling effort: H11060292, H11060298, H11060302, H11060303, and H11060352. 11 sediment, 18 surface water, and nine groundwater samples were collected on 06/13/2011, 06/14/2011, 06/16/2011, and 06/17/2011 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 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.

The cadmium result for sample UBMCBRSD23 has been qualified with a "J" validation flag to denote the reported result is an estimate due to low MS and high MSD recoveries.

The cadmium result for sample UBMCBRSD3A has been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MSD recovery.

The copper results for samples UBMCBRSW3A, UBMCMHTDS1, UBMCMHTDS2M, UBMCMHTDS4, and UBMCMHTDS5 have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS recoveries.

The TDS result for sample UBMCTDMW08 has been qualified with a "UJ" validation flag to denote the data is non-detect, and the reported concentration is an estimate due to exceeded holding times.

The following sample results have been qualified with a "U" validation flag to denote the reported data is non-detect due to positive method blank detections:

- Sodium for samples UBMCTDMW01, UBMCTDMW02D, UBMCTDMW02S, and UBMCTDMW3D.

A total of 39 sample data points have been qualified during data validation. Of the qualified sample data points: Four were assessed and qualified with a "U" validation flag, one was assessed and qualified with a "UJ" validation flag, one was assessed and qualified with a "J" validation flag, and 33 were assessed and qualified with a "J-" validation flag. The four data points qualified with a "U" validation flag are considered to be enforcement quality data. The 35 field sample data points that have been qualified with a "J," "J-," or a "UJ" validation flag are considered to be estimated quantites. No data was rejected or deemed unusable in this validation.

3.2.3 Third Quarter Summary

Two SDGs were analyzed in the September/October 2011 sampling effort: H11090333 and H11090404. Nine sediment, 11 surface water, and nine groundwater samples were collected 09/19/2011 to 09/22/2011. 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 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.

The sulfate results for samples UBMCBRSW01, UBMCBRSW22, UBMCBRSW24, UBMCBRSW02, UBMCBRSW29, UBMCBRSW38, UBMCBRSW48, UBMCBRSW23, UBMCBRSW3A, and UBMCBRSW3B have been qualified with a "J+" validation flag to denote the reported result is an estimate with a high bias due to high MS/MSD recoveries.

The total arsenic results for samples UBMCBRSD01, UBMCBRSD22, UBMCBRSD24, UBMCBRSD29, UBMCBRSD38, UBMCBRSD48, UBMCBRSD23, UBMCBRSD3A, and UBMCBRSD3B 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 cadmium result for sample UBMCBRSD01 has been qualified with a "UJ" validation flag to denote the data is non-detect, and the reported concentration is an estimate due to low MSD recovery.

The total cadmium results for samples UBMCBRSD22, UBMCBRSD24, UBMCBRSD29, UBMCBRSD38, UBMCBRSD48, UBMCBRSD23, UBMCBRSD3A, and UBMCBRSD3B have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MSD recovery.

A total of 47 sample data points have been qualified during data validation. Of the qualified sample data points: Ten were assessed and qualified with a "J+" validation flag, and 37 were assessed and qualified with a "J-" validation flag. The 47 field sample data points that have been qualified with a "J+" or a "J-" validation flag are considered to be estimated quantities. No data was rejected or deemed unusable in this validation.

3.2.4 Fourth Quarter Summary

Two SDGs were analyzed in the December 2011 sampling effort: H11120149 and H11120229. Eight sediment, nine surface water, and nine groundwater samples were collected on 12/11/2011 and 12/14/2011. 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 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.

The total lead and total manganese results for samples UBMCBRSD38, UBMCBRSD48, UBMCBRSD23, UBMCBRSD3A, UBMCBRSD3B, UBMCBRSD22, UBMCBRSD24, and UBMCBRSD1 have been qualified with a "J+" validation flag to denote the reported result is an estimate with a high bias due to high MS/MSD recoveries.

The total recoverable copper results for samples UBMCBRSW38, UBMCBRSW23, UBMCBRSW3A, and UBMCBRSW3B have been qualified with a "U" validation flag to denote the reported data is non-detect due to positive method blank detections.

A total of 38 sample data points have been qualified during data validation. Of the qualified sample data points: Four were assessed and qualified with a "U" validation flag, 16 were assessed and qualified with a "J+" validation flag, and 18 were assessed and qualified with a "J-" validation flag. The four data points qualified with a "U" validation flag are considered to be enforcement quality data. The 34 field sample data points that have been qualified with a "J+" or a "J-" validation flag are considered to be estimated quantities. 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 was 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 Draft Remedial Investigation Report for the UBMC (Tetra Tech, 2008). 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 TDMW2S for the fourth quarter sampling event. The cadmium concentration in TDMW2S has increased during each sampling event in 2011. Iron was exceeded the DEQ-7 human health standard during the fourth quarter sampling event in TDMW4D. Manganese exceeded the DEQ-7 human health standard in TDMW01 during the third quarter sampling event and in TDMW2S during all sampling events. Zinc exceeded the DEQ-7 human health standard in TDMW2S for the fourth quarter sampling event. Although several other metals were detected in UBMC groundwater monitoring wells, no other DEQ-7 human health standards were exceeded.

These results appear consistent with historic groundwater monitoring results from 2001 to 2009, (TerraGraphics 2011) in which there were also exceedances of the iron and manganese standards in TDMW2S and TDMW4D. In well TDMW2S, conductivity and dissolved solids increased substantially over prior quarters. The increase physiochemical parameter concentrations may be due to the seasonal drop in water level observed in the well resulting in increased turbidity in the sample and a subsequent increase in metals concentrations.

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, pH values were all within an acceptable range for human health. Table 7 shows field water quality measurements recorded during groundwater sampling. Field water quality measurements are not compared to standards (DEQ-7 standard for pH only), but provide additional information on groundwater quality.

Table 5. 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	0.300	0.015	0.050	2
UBMC TDMW01	5/5/2011	<0.03	<0.003	0.00036	<0.001	<0.05	<0.0005	<0.005	0.26
UBMC TDMW01	6/16/2011	<0.03	<0.003	0.00035	<0.001	<0.05	<0.0005	<0.005	0.35
UBMC TDMW01	9/22/2011	<0.03	<0.003	0.00461	<0.001	<0.05	<0.0005	**1.25**	1.18
UBMC TDMW01	12/14/2011	<0.03	<0.003	0.00026	<0.001	<0.05	<0.0005	<0.005	0.21
UBMC TDMW2S	5/5/2011	<0.03	<0.003	0.00048	<0.001	<0.05	0.0005	**1.42**	0.51
UBMC TDMW2S	6/16/2011	<0.03	<0.003	0.00088	<0.001	<0.05	<0.0005	**1.21**	0.62
UBMC TDMW2S	9/22/2011	<0.03	<0.003	0.00208	<0.001	<0.05	<0.0005	**2.66**	1.33
UBMC TDMW2S	12/14/2011	<0.03	<0.003	**0.00943**	0.001	<0.05	<0.0005	**16.0**	**7.42**
UBMC TDMW2D	5/5/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW2D	6/16/2011	<0.03	<0.003	<0.00008	0.001	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW2D	9/22/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW2D	12/14/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW3D	5/5/2011	<0.03	<0.003	0.00013	<0.001	<0.05	<0.0005	0.005	0.03
UBMC TDMW3D	6/16/2011	<0.03	<0.003	0.00012	<0.001	<0.05	<0.0005	<0.005	0.03
UBMC TDMW3D	9/22/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	0.0005	0.006	<0.01
UBMC TDMW3D	12/14/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW4D	5/4/2011	0.04	<0.003	<0.00008	0.001U	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW06	5/4/2011	0.03U	<0.003	<0.00008	0.001U	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW4D	6/16/2011	0.04	<0.003	<0.00008	0.001	<0.05	<0.0005	0.005	<0.01
UBMC TDMW06	6/16/2011	0.05	<0.003	<0.00008	0.001	<0.05	<0.0005	<0.005	<0.01
UBMC TDMW4D	9/22/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	0.012	<0.01
UBMC TDMW06	9/22/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	0.009	<0.01
UBMC TDMW4D	12/14/2011	0.83	<0.003	0.00031	0.042	**1.15**	0.0097	**0.253**	0.02
UBMC TDMW06	12/14/2011	0.83	<0.003	0.00029	0.042	**1.25**	0.0097	**0.270**	0.02
UBMC TDMW5	5/5/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	0.01U
UBMC TDMW5	6/16/2011	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	0.006	<0.01
UBMC TDMW5	9/22/2011	<0.03	<0.003	0.00008	<0.001	<0.05	<0.0005	<0.005	0.02
UBMC TDMW5	12/14/2011	<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, 2010, human health standard
Groundwater standards are for dissolved metals only
---- DEQ-7 No standard
Duplicate of UBMC TDMW4D
mg/l = milligrams per liter
U = Flagged as non-detect during data validation

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

		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*	*Chloride*	*Sulfate*	*Calcium (D)*	*Magnesium (D)*	*Potassium (D)*	*Sodium (D)*
	*Standard	6.5 - 8.5	----	----	----	----	----	----	----	----	----	----
UBMC TDMW01	5/5/2011	6.8	482	247	<10	350	<1	180	45	33	<1	2
UBMC TDMW01	6/16/2011	7.4	418	206	<10	286	<1	170	38	27	<1	1U
UBMC TDMW01	9/22/2011	7.5	717	438	<10	588	<1	370	71	63	2	2
UBMC TDMW01	12/14/2011	6.9	640	320	<10	428	<1	240	61	41	1	2
UBMC TDMW2S	5/5/2011	7.3	258	132	286	180	<1	55	27	16	<1	1U
UBMC TDMW2S	6/16/2011	7.8	255	124	<10	148	<1	53	25	15	<1	1
UBMC TDMW2S	9/22/2011	7.8	406	238	<10	286	<1	140	43	32	<1	2
UBMC TDMW2S	12/14/2011	7.2	1060	681	12	1080	1	1400	119	93	1	2
UBMC TDMW2D	5/5/2011	7.4	224	110	<10	141	<1	33	23	13	<1	1U
UBMC TDMW2D	6/16/2011	8.0	209	106	<10	118	<1	28	22	13	<1	1U
UBMC TDMW2D	9/22/2011	8.0	206	119	<10	124	<1	23	23	15	<1	2
UBMC TDMW2D	12/14/2011	7.4	260	128	<10	154	<1	29	27	15	<1	1
UBMC TDMW3D	5/5/2011	7.4	540	275	12	434	<1	250	64	28	<1	2
UBMC TDMW3D	6/16/2011	7.8	325	154	<10	218	<1	110	36	16	<1	1U
UBMC TDMW3D	9/22/2011	7.9	230	116	<10	146	<1	59	26	12	<1	2
UBMC TDMW3D	12/14/2011	7.6	420	196	<10	256	<1	140	47	19	<1	2
UBMC TDMW4D	5/4/2011	7.5	221	101	32	139	<1	37	21	12	<1	2
UBMC TDMW06	5/4/2011	7.6	214	102	30	149	<1	37	21	12	<1	2
UBMC TDMW4D	6/16/2011	8.2	249	87	60	152	<1	27	17	11	<1	5
UBMC TDMW06	6/16/2011	8.2	244	86	60	156	<1	26	17	11	<1	5
UBMC TDMW4D	9/22/2011	8.3	289	143	58	174	<1	26	25	19	<1	14
UBMC TDMW06	9/22/2011	8.3	290	138	40	166	<1	27	24	19	<1	13
UBMC TDMW4D	12/14/2011	8.0	320	135	56	172	<1	26	25	17	<1	11
UBMC TDMW06	12/14/2011	8.0	320	135	56	184	<1	26	25	17	<1	11
UBMC TDMW5	5/5/2011	8.2	247	120	18	163	<1	47	26	14	<1	2
UBMC TDMW5	6/16/2011	7.7	208	95	14	132	<1	65	24	9	<1	2
UBMC TDMW5	9/22/2011	8.2	285	155	<10	182	<1	46	35	17	<1	3
UBMC TDMW5	12/14/2011	8.0	280	132	14	158	<1	46	29	14	<1	2

Note:

< Indicates the concentration is less than the reporting limit
* Montana Numeric Water Quality Standards Circular 7, 2010, human health standard
---- No DEQ-7 standard
Duplicate of UBMC TDMW4D
mg/l = milligrams per liter
D = Dissolved
umhos/cm = micromhos/centimeter
U = Flagged as non-detect during data validation

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Table 7. UBMC groundwater field water quality measurements

Sample ID	Collection Date	pH	Conductivity, umhos/cm	Temperature, °C	Dissolved Oxygen, % Saturation	Dissolved Oxygen, mg/l	Oxidation Reduction Potential, mv
UBMC TDMW01	5/5/2011	6.54	371	7.78	NC	6.11	202.4
UBMC TDMW01	6/16/2011	6.66	345	7.65	62.61	7.49	302.7
UBMC TDMW01	9/22/2011	6.77	811	6.77	82.1	8.71	178.9
UBMC TDMW01	9/14/2012	6.61	624	5.35	26.5	3.34	278.7
UBMC TDMW2S	5/5/2011	7.06	212	7.64	NC	4.02	202.5
UBMC TDMW2S	6/16/2011	7.01	259	8.07	10.8	1.27	399.9
UBMC TDMW2S	9/22/2011	7.23	458	15.92	87.4	8.63	177.4
UBMC TDMW2S	12/14/2011	6.41	1297	3.41	6.1	0.81	287.8
UBMC TDMW2D	5/5/2011	7.15	188	7.86	NC	7.25	188.5
UBMC TDMW2D	6/16/2011	7.28	219	8.57	52.2	6.08	412.3
UBMC TDMW2D	9/22/2011	7.4	236	12.22	95.2	10.24	171.1
UBMC TDMW2D	12/14/2011	7.13	257	4.8	47.5	6.08	272.1
UBMC TDMW3D	5/5/2011	7.19	488	6.8	NC	9.55	205.5
UBMC TDMW3D	6/16/2011	7.23	335	6.88	78.5	9.54	340.8
UBMC TDMW3D	9/22/2011	7.52	248	9.46	101.4	11.57	214.9
UBMC TDMW3D	12/14/2011	7.47	400	4.67	57.2	7.35	281.6
UBMC TDMW4D	5/4/2011	7.39	347	5.7	NC	7.87	172.2
UBMC TDMW06	5/4/2011	7.39	347	5.7	NC	7.87	172.2
UBMC TDMW4D	6/16/2011	8.04	309	5.79	16.61	2.09	284.8
UBMC TDMW06	6/16/2011	8.04	309	5.79	16.61	2.09	284.8
UBMC TDMW4D	9/22/2011	8.07	316	7.44	83.6	10.03	196.3
UBMC TDMW06	9/22/2011	8.07	316	7.44	83.6	10.03	196.3
UBMC TDMW4D	12/14/2011	7.91	319	4.24	10.8	1.41	275.5
UBMC TDMW06	12/14/2011	7.91	319	4.24	10.8	1.41	275.5
UBMC TDMW5	5/5/2011	7.89	221	5.16	NC	10.37	223.6
UBMC TDMW5	6/16/2011	7.51	217	5.4	80.9	10.22	299
UBMC TDMW5	9/22/2011	8.04	306	5.93	101.8	12.69	174.9
UBMC TDMW5	12/14/2011	7.92	272	4.52	76.2	9.84	277.3

Note:

NC = not collected
---- No DEQ-7 standard
Duplicate of UBMC TDMW4D
°C = degrees Celsius
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 second quarter of 2011. Table 8 shows the measured static water levels and the groundwater elevation in feet above mean sea level (famsl).

Table 8. UBMC Groundwater elevation data

Station ID	Date	SWL (ft below measuring point)	Groundwater Elevation (famsl)
TDMW01	5/5/2011	9.04	5434.24
	6/16/2011	3.82	5439.46
	9/22/2011	16.38	5426.90
	12/14/2011	17.50	5425.78
TDMW2S	5/5/2011	7.77	5431.47
	6/16/2011	5.49	5433.75
	7/21/2011	9.96	5429.28
	9/22/2011	11.40	5427.84
	12/14/2011	14.75	5425.49
TDMW2D	5/5/2011	8.01	5433.24
	6/16/2011	5.38	5435.87
	7/21/2011	10.02	5431.23
	9/22/2011	11.56	5429.69
	12/14/2011	14.12	5427.13
TDMW03S	5/5/2011	Well buried in snow	----
	6/16/2011	Dry	----
	9/22/2011	32.15	5465.29
	12/14/2011	Dry	----
TDMW03D	5/5/2011	44.78	5452.71
	6/16/2011	45.21	5452.28
	9/22/2011	47.53	5449.96
	12/14/2011	49.59	5447.90
TDMW4S	5/4/2011	Dry	----
	6/16/2011	Dry	----
	7/21/2011	Dry	----
	9/22/2011	Dry	----

Table 8. continued

Station ID	Date	SWL (ft below measuring point)	Groundwater Elevation (famsl)
	12/14/2011	Dry	----
TDMW4D	5/4/2011	31.90	5464.84
	6/16/2011	26.58	5470.16
	7/21/2011	35.73	5461.01
	9/22/2011	39.54	5457.20
	12/14/2011	41.56	5455.18
TDMW5	5/5/2011	71.73	5468.48
	6/16/2011	53.40	5486.81
	9/22/2011	73.63	5466.58
	12/14/2011	74.30	5465.91
Sump-S-b	5/4/2011	5.03	5490.89
	6/15/2011	2.61	5493.31
	7/21/2011	6.23	5489.69
	9/22/2011	7.19	5488.73
	12/13/2011	7.59	5488.33
Sump-S-a	5/4/2011	7.42	5488.51
	6/15/2011	11.09	5484.84
	7/21/2011	11.18	8484.75
	9/22/2011	9.35	5486.58
	12/13/2011	8.60	5487.33
Sump-N	5/4/2011	14.24	5477.62
	6/15/2011	13.68	5478.18
	7/21/2011	9.57	5482.29
	9/22/2011	11.00	5480.86
	12/13/2011	11.78	5480.08
PZ-09	5/4/2011	12.13	5474.11
	6/15/2011	12.25	5473.99
	7/21/2011	10.51	5475.73
	7/29/2011	13.30	5472.94
	12/13/2011	13.62	5472.62
GW-2a	5/4/2011	21.40	5464.60
	6/15/2011	14.90	5471.1
	7/21/2011	24.83	5461.17
	9/22/2011	28.71	5457.29
	12/13/2011	30.51	5455.49

Table 8. continued

Station ID	Date	SWL (ft below measuring point)	Groundwater Elevation (famsl)
GW-2	5/4/2011	21.42	5464.67
	6/15/2011	15.35	5470.74
	7/21/2011	25.30	5460.79
	9/22/2011	29.10	5456.99
	12/13/2011	31.03	5455.06
PZ-02b-c	5/4/2011	20.00	5464.95
	6/15/2011	14.45	5470.50
	7/21/2011	44.11	5440.84
	9/22/2011	43.81	5441.14
	12/13/2011	31.08	5453.87
P-5	5/4/2011	47.05	5452.77
	6/15/2011	43.00	5456.82
	7/21/2011	44.60	5455.22
	9/22/2011	47.20	5452.62
	12/14/2011	47.45	5452.37
GW-1a	5/4/2011	26.50	5458.08
	6/15/2011	21.50	5463.08
	7/21/2011	31.28	5453.3
	9/22/2011	35.60	5448.98
	12/14/2011	38.78	5445.80
PZ-03 (b-b)	5/5/2011	19.92	5464.43
	6/15/2011	16.85	5467.50
	7/21/2011	40.04	5444.31
	9/22/2011	31.49	5452.86
	12/14/2011	33.60	5450.75
PZ-03S (a-a)	5/5/2011	Casing blocked	----
	6/15/2011	7.60	5476.18
	7/21/2011	9.74	5474.04
	9/22/2011	11.37	5472.41
	12/14/2011	12.70	5471.08
GW-01-c	5/5/2011	20.70	5466.27
	6/15/2011	16.14	5470.83
	7/21/2011	28.21	5458.76
	9/22/2011	34.30	5452.67
	12/14/2011	41.19	5445.78

Table 8. continued

Station ID	Date	SWL (ft below measuring point)	Groundwater Elevation (famsl)
PZ-11b	5/5/2011	46.60	5456.16
	6/15/2011	42.65	5460.11
	7/21/2011	58.70	5444.06
	9/22/2011	57.63	5445.13
	12/14/11	Piez. removed	----

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 2011 data are also 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 BRSW1 which exhibits good water quality and met all DEQ-7 standards during 2011 sampling. These results are consistent with historic surface water sampling results reported by TerraGraphics for 1993 through 2009 (TerraGraphics 2011). Exceedances of human health standards were primarily observed for cadmium, iron, lead, manganese, and zinc.

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 BRSW1 which exhibits good water quality and met all DEQ-7 standards during 2011 sampling. These results are consistent with historic surface water sampling results reported by TerraGraphics for 1993 through 2009 (TerraGraphics 2011). Cadmium, copper and zinc frequently exceed acute standards while iron and lead exceed chronic standards.

As shown in table 12, there were also several exceedances of the DEQ-7 aluminum aquatic life standards. These exceedances are primarily associated with the spring sampling event. The April 30, 2011 sample at site UBMC BRSW3B (seepage channel at toe of Mike Horse Dam) is not shown as an exceedance because the sample pH was less than 6.5.

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 values were all within an acceptable range for human use. 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 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)

Sample ID	Collection Date	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Zinc
	*Standard	0.010	0.005	1.3	0.300	0.015	0.050	2
UBMC BRSW1	4/29/2011	<0.003	<0.00008	0.001	0.13	<0.0005	<0.005	<0.01
UBMC BRSW1	6/13/2011	<0.003	<0.00008	0.001	0.10	<0.0005	0.006	<0.01
UBMC BRSW1	9/19/2011	<0.003	<0.00008	<0.001	0.25	<0.0005	0.008	<0.01
UBMC BRSW1	12/11/2011	<0.003	<0.00008	<0.001	0.08	<0.0005	0.006	<0.01
UBMC BRSW2	4/29/2011	<0.003	**0.0188**	0.022	0.14	**0.0160**	**6.14**	**3.16**
UBMC BRSW2	6/13/2011	<0.003	**0.00700**	0.009	**0.40**	**0.0442**	**2.36**	1.75
UBMC BRSW2	9/19/2011	<0.003	0.00027	0.006	**0.31**	**0.0213**	**0.139**	0.06
UBMC BRSW3A	4/30/2011	<0.003	**0.0292**	0.314	**0.52**	0.0028	**8.76**	**6.45**
UBMC BRSW3A	6/14/2011	<0.003	**0.0242**	0.168	**0.90**	**0.0201**	**7.43**	**5.22**
UBMC BRSW3A	9/20/2011	<0.003	0.00236	0.035	**0.56**	0.0108	**0.723**	0.52
UBMC BRSW3A	12/11/2011	<0.003	0.00083	0.001U	0.08	0.0023	**0.595**	0.48
UBMC BRSW3B	4/30/2011	0.003	**0.291**	**4.75**	**4.46**	**0.0177**	**116**	**46.7**
UBMC BRSW3B	6/14/2011	<0.003	**0.0488**	0.447	**2.26**	**0.0432**	**18.0**	**10.3**
UBMC BRSW3B	9/20/2011	<0.003	0.00056	0.002	<0.03	<0.0005	0.045	0.79
UBMC BRSW3B	12/11/2011	<0.003	0.00080	0.004U	**0.31**	0.0115	**0.303**	0.49
UBMC BRSW22	4/30/2011	<0.003	**0.0308**	0.031	<0.03	0.0119	**0.439**	**6.84**
UBMC BRSW24	4/30/2011	<0.003	**0.0314**	0.033	<0.03	0.0116	**0.448**	**6.85**
UBMC BRSW22	6/13/2011	<0.003	**0.00958**	0.195	0.12	**0.0175**	**0.424**	1.57
UBMC BRSW24	6/13/2011	<0.003	**0.00975**	0.200	0.17	**0.0202**	**0.425**	1.57
UBMC BRSW22	9/19/2011	<0.003	**0.0104**	0.082	<0.03	0.0085	**0.169**	1.51
UBMC BRSW24	9/19/2011	<0.003	**0.0105**	0.087	<0.03	0.0083	**0.168**	1.56
UBMC BRSW22	12/11/2011	<0.003	**0.00958**	0.018	<0.03	0.0054	<0.005	**2.11**
UBMC BRSW24	12/11/2011	<0.003	**0.00964**	0.018	<0.03	0.0054	<0.005	**2.13**
UBMC BRSW23	4/30/2011	<0.003	**0.00739**	0.049	**1.18**	**0.0291**	**1.06**	1.71
UBMC BRSW23	6/14/2011	<0.003	0.00394	0.077	0.22	0.0122	**0.448**	0.74
UBMC BRSW23	9/20/2011	<0.003	0.00203	0.008	0.12	**0.128**	**0.377**	0.47
UBMC BRSW23	12/11/2011	<0.003	0.00175	0.005U	0.11	0.0073	**0.553**	0.56
UBMC BRSW29	6/13/2011	<0.003	0.00188	0.013	0.13	0.0087	**0.171**	0.32
UBMC BRSW29	9/20/2011	<0.003	0.00291	0.003	0.08	0.0057	**0.315**	0.71
UBMC-BRSW34	6/13/2011	<0.003	0.00302	0.021	0.22	**0.0174**	**0.336**	0.47
UBMC BRSW38	4/30/2011	<0.003	**0.0174**	0.094	**2.38**	**0.0376**	**2.67**	**3.86**
UBMC BRSW38	9/20/2011	<0.003	0.00462	0.005	0.13	0.0087	**0.672**	1.05
UBMC BRSW38	6/13/2011	<0.003	0.00434	0.027	0.19	**0.0212**	**0.352**	0.75
UBMC BRSW38	12/11/2011	<0.003	0.00467	0.004U	0.17	0.0065	**0.775**	1.22
UBMC-BRSW45	6/13/2011	<0.003	**0.00713**	0.205	0.10	**0.0168**	**0.370**	0.98
UBMC BRSW48	4/30/2011	<0.003	**0.0163**	0.122	**3.11**	**0.0317**	**3.04**	**3.51**
UBMC BRSW48	6/13/2011	<0.003	0.00290	0.040	0.20	**0.0202**	**0.316**	0.51
UBMC BRSW48	9/20/2011	<0.003	0.00277	0.008	**0.38**	0.0131	**0.779**	0.58
UBMC BRSW48	12/11/2011	<0.003	0.00296	0.009	**0.80**	**0.0191**	**1.41**	0.80
UBMC MHTDS1	6/14/2011	<0.003	**0.248**	**1.70**	**8.80**	**0.184**	**71.1**	**37.8**
UBMC MHTDS2	6/14/2011	<0.003	**0.0191**	0.205	**0.67**	**0.0678**	**3.98**	**3.42**
UBMC MHTDS3	6/14/2011	**0.016**	**0.220**	**2.38**	**5.82**	**0.185**	**47.3**	**47.6**
UBMC MHTDS4	6/14/2011	<0.003	**0.00710**	0.037	**0.80**	0.0141	**0.928**	1.41
UBMC MHTDS5	6/14/2011	<0.003	**0.00593**	0.032	0.11	0.0073	**2.02**	1.26

Note: < Indicates the concentration is less than the reporting limit

Exceeds standard

* Montana Numeric Water Quality Standards Circular 7, 2010, human health standard

---- No DEQ-7 standard

Duplicate of UBMC BRSW22

mg/l = milligrams per liter

U = Flagged as non-detect during data validation

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

Sample ID	Collection Date	Arsenic	**Cadmium	**Copper	Iron	**Lead	Manganese	**Zinc
	*Standard (acute/chronic)	0.34/0.15	See Table 11	See Table 11	----/1.0	See Table 11	----	See Table 11
UBMC BRSW01	4/29/2011	<0.003	<0.00008	0.001	0.13	<0.0005	<0.005	<0.01
UBMC BRSW01	6/13/2011	<0.003	<0.00008	0.001	0.10	<0.0005	0.006	<0.01
UBMC BRSW01	9/19/2011	<0.003	<0.00008	<0.001	0.25	<0.0005	0.008	<0.01
UBMC BRSW01	12/11/2011	<0.003	<0.00008	<0.001	0.08	<0.0005	0.006	<0.01
UBMC BRSW02	4/29/2011	<0.003	**0.0188**	0.022	0.14	0.0160	6.14	**3.16**
UBMC BRSW02	6/13/2011	<0.003	**0.00700**	0.009	0.40	**0.0442**	2.36	**1.75**
UBMC BRSW02	9/19/2011	<0.003	0.00027	0.006	0.31	0.0213	0.139	0.06
UBMC BRSW3A	4/30/2011	<0.003	**0.0292**	**0.314**	0.52	0.0028	8.76	**6.45**
UBMC BRSW3A	6/14/2011	<0.003	**0.0242**	**0.168**	0.90	**0.0201**	7.43	**5.22**
UBMC BRSW3A	9/20/2011	<0.003	**0.00236**	**0.035**	0.56	**0.0108**	0.723	**0.52**
UBMC BRSW3A	12/11/2011	<0.003	**0.00083**	0.001U	0.08	0.0023	0.595	**0.48**
UBMC BRSW3B	4/30/2011	0.003	**0.291**	**4.75**	**4.46**	0.0177	116	**46.7**
UBMC BRSW3B	6/14/2011	<0.003	**0.0488**	**0.447**	**2.26**	**0.0432**	18.0	**10.3**
UBMC BRSW3B	9/20/2011	<0.003	**0.00056**	0.002	<0.03	<0.0005	0.045	**0.79**
UBMC BRSW3B	12/11/2011	<0.003	**0.00080**	0.004U	0.31	**0.0115**	0.303	**0.49**
UBMC BRSW22	4/30/2011	<0.003	**0.0308**	**0.031**	<0.03	0.0119	0.439	**6.84**
UBMC BRSW24	4/30/2011	<0.003	**0.0314**	**0.033**	<0.03	0.0116	0.448	**6.85**
UBMC BRSW22	6/13/2011	<0.003	**0.00958**	**0.195**	0.12	**0.0175**	0.424	**1.57**
UBMC BRSW24	6/13/2011	<0.003	**0.00975**	**0.200**	0.17	**0.0202**	0.425	**1.57**
UBMC BRSW22	9/19/2011	<0.003	**0.0104**	**0.082**	<0.03	**0.0085**	0.169	**1.51**
UBMC BRSW24	9/19/2011	<0.003	**0.0105**	**0.087**	<0.03	**0.0083**	0.168	**1.56**
UBMC BRSW22	12/11/2011	<0.003	**0.00958**	**0.018**	<0.03	0.0054	<0.005	**2.11**
UBMC BRSW24	12/11/2011	<0.003	**0.00964**	**0.018**	<0.03	0.0054	<0.005	**2.13**
UBMC BRSW23	4/30/2011	<0.003	**0.00739**	**0.049**	**1.18**	**0.0291**	1.06	**1.71**
UBMC BRSW23	6/14/2011	<0.003	**0.00394**	**0.077**	0.22	**0.0122**	0.448	**0.74**
UBMC BRSW23	9/20/2011	<0.003	**0.00203**	0.008	0.12	**0.128**	0.377	**0.47**
UBMC BRSW23	12/11/2011	<0.003	**0.00175**	0.005U	0.11	**0.0073**	0.553	**0.56**
UBMC BRSW29	6/13/2011	<0.003	**0.00188**	**0.013**	0.13	**0.0087**	0.171	**0.32**
UBMC BRSW29	9/20/2011	<0.003	**0.00291**	0.003	0.08	**0.0057**	0.315	**0.71**
UBMC BRSW34	6/13/2011	<0.003	**0.00302**	**0.021**	0.22	**0.0174**	0.336	**0.47**
UBMC BRSW38	4/30/2011	<0.003	**0.0174**	**0.094**	**2.38**	**0.0376**	2.67	**3.86**
UBMC BRSW38	6/13/2011	<0.003	**0.00434**	**0.027**	0.19	0.0212	0.352	**0.75**
UBMC BRSW38	9/20/2011	<0.003	**0.00462**	0.005	0.13	**0.0087**	0.672	**1.05**
UBMC BRSW38	12/11/2011	<0.003	**0.00467**	0.004U	0.17	**0.0065**	0.775	**1.22**
UBMC BRSW45	6/13/2011	<0.003	**0.00713**	**0.205**	0.10	**0.0168**	0.370	**0.98**
UBMC BRSW48	4/30/2011	<0.003	**0.0163**	**0.122**	**3.11**	**0.0317**	3.04	**3.51**
UBMC BRSW48	6/13/2011	<0.003	**0.00290**	**0.040**	0.20	0.0202	0.316	**0.51**
UBMC BRSW48	9/20/2011	<0.003	**0.00277**	0.008	0.38	**0.0131**	0.779	**0.58**
UBMC BRSW48	12/11/2011	<0.003	**0.00296**	0.009	0.80	**0.0191**	1.41	**0.80**
UBMC MHTDS1	6/14/2011	<0.003	**0.248**	**1.70**	**8.80**	**0.184**	71.1	**37.8**
UBMC MHTDS2	6/14/2011	<0.003	**0.0191**	**0.205**	0.67	**0.0678**	3.98	**3.42**
UBMC MHTDS3	6/14/2011	0.016	**0.220**	**2.38**	**5.82**	**0.185**	47.3	**47.6**
UBMC MHTDS4	6/14/2011	<0.003	**0.00710**	**0.037**	0.80	**0.0141**	0.928	**1.41**
UBMC MHTDS5	6/14/2011	<0.003	**0.00593**	**0.032**	0.11	**0.0073**	2.02	**1.26**

Note: < Indicates the concentration is less than the reporting limit

Exceeds acute standard

Exceeds chronic standard

* Montana Numeric Water Quality Standards Circular 7, 2010, aquatic life standards

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

---- No DEQ-7 standard

Duplicate of UBMC BRSW22

mg/l = milligrams per liter

U = Flagged as non-detect during data validation

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

Sample ID	Collection Date	Cadmium		Copper		Lead		Zinc	
		Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic
UBMC BRSW01	4/29/2011	0.00131	0.00019	0.00892	0.00620	0.04443	0.00173	0.07991	0.07991
UBMC BRSW01	6/13/2011	0.00166	0.00023	0.01108	0.00754	0.05951	0.00232	0.09707	0.09707
UBMC BRSW01	9/19/2011	0.00220	0.00028	0.01439	0.00957	0.08478	0.00330	0.12286	0.12286
UBMC BRSW01	12/11/2011	0.00215	0.00027	0.01413	0.00941	0.08269	0.00322	0.12083	0.12083
UBMC BRSW02	4/29/2011	0.00991	0.00083	0.05811	0.03392	0.55865	0.02177	0.43095	0.43095
UBMC BRSW02	6/13/2011	0.01567	0.00116	0.08887	0.04986	0.99165	0.03864	0.63140	0.63140
UBMC BRSW02	9/19/2011	0.03143	0.00192	0.16939	0.08950	2.37075	0.09238	1.12785	1.12785
UBMC BRSW3A	4/30/2011	0.00405	0.00043	0.02538	0.01600	0.18236	0.00711	0.20456	0.20456
UBMC BRSW3A	6/14/2011	0.00421	0.00044	0.02626	0.01651	0.19105	0.00744	0.21099	0.21099
UBMC BRSW3A	9/20/2011	0.00335	0.00038	0.02128	0.01364	0.14381	0.00560	0.17464	0.17464
UBMC BRSW3A	12/11/2011	0.00333	0.00037	0.02116	0.01357	0.14263	0.00556	0.17369	0.17369
UBMC BRSW3B	4/30/2011	0.01196	0.00095	0.06917	0.03973	0.70691	0.02755	0.50404	0.50404
UBMC BRSW3B	6/14/2011	0.00252	0.00031	0.01636	0.01075	0.10079	0.00393	0.13785	0.13785
UBMC BRSW3B	9/20/2011	0.00377	0.00041	0.02372	0.01505	0.16646	0.00649	0.19251	0.19251
UBMC BRSW3B	12/11/2011	0.00322	0.00037	0.02051	0.01319	0.13680	0.00533	0.16893	0.16893
UBMC BRSW22	4/30/2011	0.00623	0.00059	0.03780	0.02297	0.31247	0.01218	0.29274	0.29274
UBMC BRSW24	4/30/2011	0.00610	0.00058	0.03706	0.02256	0.30418	0.01185	0.28754	0.28754
UBMC BRSW22	6/13/2011	0.00218	0.00027	0.01426	0.00949	0.08373	0.00326	0.12184	0.12184
UBMC BRSW24	6/13/2011	0.00215	0.00027	0.01413	0.00941	0.08269	0.00322	0.12083	0.12083
UBMC BRSW22	9/19/2011	0.00318	0.00036	0.02025	0.01304	0.13448	0.00524	0.16702	0.16702
UBMC BRSW24	9/19/2011	0.00320	0.00036	0.02038	0.01312	0.13564	0.00529	0.16798	0.16798
UBMC BRSW22	12/11/2011	0.00429	0.00045	0.02677	0.01680	0.19605	0.00764	0.21465	0.21465
UBMC BRSW24	12/11/2011	0.00432	0.00045	0.02690	0.01687	0.19731	0.00769	0.21557	0.21557
UBMC BRSW23	4/30/2011	0.00274	0.00032	0.01766	0.01152	0.11179	0.00436	0.14769	0.14769
UBMC BRSW23	6/14/2011	0.00196	0.00025	0.01294	0.00869	0.07342	0.00286	0.11164	0.11164
UBMC BRSW23	9/20/2011	0.00292	0.00034	0.01870	0.01213	0.12076	0.00471	0.15548	0.15548
UBMC BRSW23	12/11/2011	0.00302	0.00035	0.01935	0.01251	0.12644	0.00493	0.16031	0.16031
UBMC BRSW29	6/13/2011	0.00146	0.00021	0.00987	0.00679	0.05091	0.00198	0.08749	0.08749
UBMC BRSW29	9/20/2011	0.00248	0.00030	0.01610	0.01059	0.09862	0.00384	0.13587	0.13587
UBMC BRSW34	6/13/2011	0.00166	0.00023	0.01108	0.00754	0.05951	0.00232	0.09707	0.09707
UBMC BRSW38	4/30/2011	0.00355	0.00039	0.02244	0.01431	0.15445	0.00602	0.18314	0.18314
UBMC BRSW38	6/13/2011	0.00166	0.00023	0.01108	0.00754	0.05951	0.00232	0.09707	0.09707
UBMC BRSW38	9/20/2011	0.00296	0.00034	0.01896	0.01228	0.12303	0.00479	0.15741	0.15741
UBMC BRSW38	12/11/2011	0.00322	0.00037	0.02051	0.01319	0.13680	0.00533	0.16893	0.16893
UBMC BRSW45	6/13/2011	0.00177	0.00024	0.01175	0.00796	0.06440	0.00251	0.10232	0.10232
UBMC BRSW48	4/30/2011	0.00340	0.00038	0.02154	0.01379	0.14616	0.00570	0.17654	0.17654
UBMC BRSW48	6/13/2011	0.00177	0.00024	0.01175	0.00796	0.06440	0.00251	0.10232	0.10232
UBMC BRSW48	9/20/2011	0.00298	0.00035	0.01909	0.01236	0.12416	0.00484	0.15838	0.15838
UBMC BRSW48	12/11/2011	0.00324	0.00037	0.02064	0.01327	0.13796	0.00538	0.16989	0.16989
UBMC MHTDS1	6/14/2011	0.01549	0.00115	0.08792	0.04938	0.97747	0.03809	0.62538	0.62538
UBMC MHTDS2	6/14/2011	0.00342	0.00038	0.02167	0.01387	0.14734	0.00574	0.17748	0.17748
UBMC MHTDS3	6/14/2011	0.01726	0.00124	0.09720	0.05408	1.11939	0.04362	0.68443	0.68443
UBMC MHTDS4	6/14/2011	0.00440	0.00046	0.02741	0.01716	0.20234	0.00789	0.21921	0.21921
UBMC MHTDS5	6/14/2011	0.00394	0.00042	0.02474	0.01563	0.17621	0.00687	0.19994	0.19994

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

Sample ID	Collection Date	Aluminum
	*Standard (acute/chronic)	0.75/0.087
UBMC BRSW1	4/29/2011	**12**
UBMC BRSW1	6/13/2011	<0.03
UBMC BRSW1	9/19/2011	<0.03
UBMC BRSW1	12/11/2011	<0.03
UBMC BRSW2	4/29/2011	**104**
UBMC BRSW2	6/13/2011	<0.03
UBMC BRSW2	9/19/2011	<0.03
UBMC BRSW3A	4/30/2011	<0.03
UBMC BRSW3A	6/14/2011	<0.03
UBMC BRSW3A	9/20/2011	<0.03
UBMC BRSW3A	12/11/2011	<0.03
UBMC BRSW3B	4/30/2011	50.2
UBMC BRSW3B	6/14/2011	<0.03
UBMC BRSW3B	9/20/2011	<0.03
UBMC BRSW3B	12/11/2011	<0.03
UBMC BRSW22	4/30/2011	<0.03
UBMC BRSW24	4/30/2011	<0.03
UBMC BRSW22	6/13/2011	0.08
UBMC BRSW24	6/13/2011	**0.09**
UBMC BRSW22	9/19/2011	<0.03
UBMC BRSW24	9/19/2011	<0.03
UBMC BRSW22	12/11/2011	<0.03
UBMC BRSW24	12/11/2011	<0.03
UBMC BRSW23	4/30/2011	**0.15**
UBMC BRSW23	6/14/2011	0.04
UBMC BRSW23	9/20/2011	<0.03
UBMC BRSW23	12/11/2011	<0.03
UBMC-BRSW29	6/13/2011	0.04
UBMC BRSW29	9/20/2011	<0.03
UBMC-BRSW34	6/13/2011	0.05
UBMC BRSW38	4/30/2011	**0.12**
UBMC BRSW38	6/13/2011	0.05
UBMC BRSW38	9/20/2011	<0.03
UBMC BRSW38	12/11/2011	<0.03
UBMC-BRSW45	6/13/2011	**0.12**
UBMC BRSW48	4/30/2011	<0.03
UBMC BRSW48	6/13/2011	0.05
UBMC BRSW48	9/20/2011	<0.03
UBMC BRSW48	12/11/2011	<0.03

Table 12. continued

Sample ID	Collection Date	Aluminum
	*Standard (acute/chronic)	0.75/0.087
UBMC MHTDS-1	6/14/2011	**9.20**
UBMC MHTDS-2	6/14/2011	**0.21**
UBMC MHTDS-3	6/14/2011	**0.38**
UBMC MHTDS-4	6/14/2011	<0.03
UBMC MHTDS-5	6/14/2011	0.04

Note:
< Indicates the concentration is less than the reporting limit
Exceeds acute standard
Exceeds chronic standard
* Montana Numeric Water Quality Standards Circular 7, 2010, aquatic life standards
The aluminum standard is for dissolved metals only per Circular 7
The dissolved aluminum standard is only applicable when pH is between 6.5 and 9
---- No DEQ-7 standard
Duplicate of UBMC BRSW22
mg/l = milligrams per liter

Table 13. UBMC surface water physiochemical, anions, cations

		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*	*Acidity*	*Alkalinity*	*Bicarbonate*	*Carbonate*	*Chloride*	*Sulfate*	*Calcium (D)*	*Magnesium (D)*	*Potassium (D)*	*Sodium (D)*
	*Standard	6.5 - 8.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----
UBMC BRSW01	4/29/2011	8.2	118	62	<10	70		74	<4	<1	3	62	12	8	<1	1
UBMC BRSW01	6/13/2011	8.2	148	78	<10	54		82	100	<4	<1	2	16	9	<1	<1
UBMC BRSW01	9/19/2011	8.3	187	103	<10	109		110	130	<4	<1	4	22	12	<1	1
UBMC BRSW01	12/11/2011	8.3	190	101	<10	110		110	130	<4	<1	5	21	12	<1	1
UBMC BRSW02	4/29/2011	7.4	836	453	<10	657		16	<4	<1	460	453	104	47	1	<1
UBMC BRSW02	6/13/2011	7.7	1230	711	<10	978		29	36	<4	<1	720	139	89	2	<1
UBMC BRSW02	9/19/2011	**8.9**	1850	1410	<10	2120		34	29	7	<1	1400	265	181	2	<1
UBMC BRSW3A	4/30/2011	7.5	411	188	<10	278		44	54	<4	<1	170	38	23	<1	2
UBMC BRSW3A	6/14/2011	7.5	468	195	<10	296		44	53	<4	<1	170	37	25	<1	1
UBMC BRSW3A	9/20/2011	7.9	298	156	<10	178		96	120	<4	<1	60	32	18	<1	1
UBMC BRSW3A	12/11/2011	8.0	299	155	<10	204		110	130	<4	<1	55	34	17	<1	1
UBMC BRSW3B	4/30/2011	**4.3**	1430	545	22	1490	340				<1	1000	110	66	3	1
UBMC BRSW3B	6/14/2011	7.4	401	118	22	242		44	54	<4	<1	150	23	15	<1	1
UBMC BRSW3B	9/20/2011	7.8	333	175	<10	223		100	130	<4	<1	79	36	21	1	1
UBMC BRSW3B	12/11/2011	7.9	301	150	<10	192		110	130	<4	<1	51	33	16	<1	1
UBMC BRSW22	4/30/2011	7.8	545	287	<10	400		62	76	<4	<1	240	72	26	1	2
UBMC BRSW24	4/30/2011	7.8	544	281	<10	364		63	77	<4	<1	230	71	25	1	2
UBMC BRSW22	6/13/2011	8.0	214	102	<10	98		69	84	<4	<1	32	25	10	<1	<1
UBMC BRSW24	6/13/2011	8.0	206	101	<10	112		70	85	<4	<1	32	25	10	<1	<1
UBMC BRSW22	9/19/2011	8.1	276	148	<10	194		89	110	<4	<1	65	37	13	<1	1
UBMC BRSW24	9/19/2011	8.1	265	149	<10	188		89	110	<4	<1	66	37	13	<1	<1
UBMC BRSW22	12/11/2011	7.9	400	199	<10	280		87	110	<4	<1	120	53	16	<1	1
UBMC BRSW24	12/11/2011	7.9	402	200	<10	278		87	110	<4	<1	120	53	16	<1	1
UBMC BRSW23	4/30/2011	8.0	223	128	19	133		60	73	<4	<1	50	26	16	<1	1
UBMC BRSW23	6/14/2011	8.1	195	92	<10	80		74	90	<4	<1	21	19	11	<1	<1
UBMC BRSW23	9/20/2011	8.2	258	136	<10	161		99	120	<4	<1	39	28	16	<1	1
UBMC BRSW23	12/11/2011	8.0	291	141	<10	182		100	130	<4	<1	50	29	16	<1	1
UBMC BRSW29	6/13/2011	8.0	136	69	<10	84		63	77	<4	<1	8	16	7	<1	<1
UBMC BRSW29	9/20/2011	8.0	216	116	<10	142		87	110	<4	2	30	25	13	<1	1
UBMC BRSW34	6/13/2011	8.0	165	78	<10	90		63	77	<4	<1	17	17	9	<1	2
UBMC BRSW38	4/30/2011	7.7	343	165	<10	238		43	52	<4	<1	130	33	20	<1	1
UBMC BRSW38	6/13/2011	8.0	159	78	<10	88		65	79	<4	<1	15	17	9	<1	<1
UBMC BRSW38	9/20/2011	7.9	264	138	<10	176		86	110	<4	2	30	29	16	<1	1
UBMC BRSW38	12/11/2011	7.8	317	150	<10	206		82	100	<4	<1	79	32	17	<1	1
UBMC BRSW45	6/13/2011	8.1	172	83	<10	64		72	87	<4	<1	13	19	9	<1	<1

Table 13. continued

		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*	*Acidity*	*Alkalinity*	*Bicarbonate*	*Carbonate*	*Chloride*	*Sulfate*	*Calcium (D)*	*Magnesium (D)*	*Potassium (D)*	*Sodium (D)*
	*Standard	6.5 - 8.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----
UBMC BRSW48	4/30/2011	7.6	339	158	16	227		45	55	<4	<1	120	32	19	<1	1
UBMC BRSW48	6/13/2011	8.1	178	83	<10	88		72	88	<4	<1	13	18	10	<1	<1
UBMC BRSW48	9/20/2011	8.1	264	139	<10	166		97	120	<4	<1	45	29	16	<1	1
UBMC BRSW48	12/11/2011	8.0	301	151	<10	202		98	120	<4	<1	64	31	18	<1	1
UBMC MHTDS1	6/14/2011	**3.8**	1650	703	32	1450	260				<1	970	118	99	1	2
UBMC MHTDS2	6/14/2011	6.9	387	159	<10	230		15	19	<4	<1	160	32	19	<1	1
UBMC MHTDS3	6/14/2011	6.6	1570	782	146	1380		6	8	<4	<1	870	157	107	3	2
UBMC MHTDS4	6/14/2011	7.6	457	204	<10	256		34	42	<4	<1	170	35	29	<1	1
UBMC MHTDS5	6/14/2011	7.4	420	183	<10	232		37	46	<4	<1	150	32	25	<1	1

Note: < Indicates the concentration is less than the reporting limit
Exceeds standard
* Montana Numeric Water Quality Standards Circular 7, 2010, human health standard
---- No standard
Duplicate of UBMC BRSW22
mg/l = milligrams per liter
D = Dissolved
umhos/cm = micromhos/centimeter
Flagged as non-detect during data validation

Table 14. 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
UBMC BRSW01	4/29/2011	7.89	131	2.73	NC	9.22	206.5
UBMC BRSW01	6/13/2011	8.13	157	4.57	77.2	9.97	454
UBMC BRSW01	9/19/2011	8.09	203	6.63	78.1	9.51	217.5
UBMC BRSW01	12/11/2011	8.08	202	0.42	90.2	13.02	261.4
UBMC BRSW02	4/29/2011	6.8	943.7	1.33	NC	0	200.5
UBMC BRSW02	6/13/2011	7.87	1299	14.87	78.6	7.29	337.6
UBMC BRSW02	9/19/2011	9.3	2158	10.63	89.7	9.91	274.3
UBMC BRSW3A	4/30/2011	6.12	428.9	9.51	NC	0.45	224.7
UBMC BRSW3A	6/14/2011	7.1	350	6.54	61.6	7.55	217.8
UBMC BRSW3A	9/20/2011	7.64	301	6.98	85.3	10.23	168.3
UBMC BRSW3A	12/11/2011	7.43	317	4.94	69.8	8.92	204.4
UBMC BRSW3B	4/30/2011	6.13	1628	5.45	NC	0	461
UBMC BRSW3B	6/14/2011	4.53	580	7.2	72.6	9.7	383.5
UBMC BRSW3B	9/20/2011	7.55	342	6.09	80.1	9.54	186.8
UBMC BRSW3B	12/11/2011	7.24	310	5.94	52.3	6.51	213.9
UBMC BRSW22	4/30/2011	6.65	583.3	2.28	NC	0.04	262.3
UBMC BRSW24	4/30/2011	6.65	583.3	2.28	NC	0.04	262.3
UBMC BRSW22	6/13/2011	7.87	217	5.6	77.6	9.75	449.7
UBMC BRSW24	6/13/2011	7.87	217	5.6	77.6	9.75	449.7
UBMC BRSW22	9/19/2011	7.66	308	9.54	80.7	9.14	233.2
UBMC BRSW24	9/19/2011	7.66	308	9.54	80.7	9.14	233.2
UBMC BRSW22	12/11/2011	7.37	398	1.9	86.2	11.92	252
UBMC BRSW24	12/11/2011	7.37	398	1.9	86.2	11.92	252
UBMC BRSW23	4/30/2011	6.29	293.6	4.11	NC	2.9	151
UBMC BRSW23	6/14/2011	7.71	167	4.4	76.9	9.96	306.9
UBMC BRSW23	9/20/2011	7.98	264	6.43	85.3	10.38	144.4
UBMC BRSW23	12/11/2011	7.65	297	1.18	85.4	12.08	197.4
UBMC BRSW29	6/13/2011	7.75	140	5.47	79.8	10.03	431.9
UBMC BRSW29	9/20/2011	7.56	226	5.42	81.9	10.14	225.1
UBMC BRSW34	6/13/2011	7.65	171	5.53	80.6	10.16	430.06
UBMC BRSW38	4/30/2011	5.82	351.5	6.07	NC	NC	160.2
UBMC BRSW38	6/13/2011	7.63	159	5.61	81	10.12	406.6
UBMC BRSW38	9/20/2011	7.46	277	4.23	78.6	10.19	224.1
UBMC BRSW38	12/11/2011	7.22	322	0.62	88	12.63	278.3
UBMC BRSW45	6/13/2011	8.1	175	5.1	79.5	10.09	420.8
UBMC BRSW48	4/30/2011	7.04	353.3	3.59	NC	1.75	95
UBMC BRSW48	6/13/2011	8	180	5.15	79.1	10.05	199.9
UBMC BRSW48	9/20/2011	7.9	273	5.8	135	15.48	87.9
UBMC BRSW48	12/11/2011	7.59	317	0.86	87	12.41	105.1
UBMC MHTDS1	6/14/2011	3.21	1218	9.34	54.7	6.24	463.4
UBMC MHTDS2	6/14/2011	5.79	323	7.35	68.2	8.2	216.2
UBMC MHTDS3	6/14/2011	5.97	1252	18.48	64.1	5.99	234
UBMC MHTDS4	6/14/2011	6.89	374	11.51	77.1	7.81	336.6
UBMC MHTDS5	6/14/2011	6.08	345	6.17	65.1	8.05	331.6

Note: NC = not collected
---- No standard
Duplicate of UBMC BRSW22
°C = degrees Celsius
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 $1/10^{th}$ 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 2011in cubic feet per second (cfs).

Table 15. UBMC surface water discharge

Station	UBMCBRSW01	UBMCBRSW01	UBMCBRSW01	UBMCBRSW01
Date	4/29/2011	6/13/2011	9/19/2011	12/11/2011
Discharge (cfs)	0.46	22.45	0.54	0.19
Station	UBMCBRSW3a	UBMCBRSW3a	UBMCBRSW3a	UBMCBRSW3a
Date				12/11/2011
Discharge (cfs)	Stagnant	Stagnant	Stagnant	0.06
Station	UBMCBRSW3b	UBMCBRSW3b	UBMCBRSW3b	UBMCBRSW3b
Date	4/30/2011	6/14/2011	9/20/2011	12/11/2011
Discharge (cfs)	0.14	0.07	0.18	0.15
Station	UBMCBRSW22	UBMCBRSW22	UBMCBRSW22	UBMCBRSW22
Date	4/30/2011	6/13/2011	9/19/2011	12/11/2011
Discharge (cfs)	0.16	6	0.14	0.01
Station	UBMCBRSW23	UBMCBRSW23	UBMCBRSW23	UBMCBRSW23
Date	4/30/2011	6/14/2011	9/20/2011	12/11/2011
Discharge (cfs)	1.98	29.36	0.69	0.34
Station	Not Sampled	UBMCBRSW29	UBMCBRSW29	Not Sampled
Date		6/13/2011	9/20/2011	
Discharge (cfs)		84.87	1.96	
Station	Not Sampled	UBMCBRSW34	Not Sampled	Not Sampled
Date		6/13/2011		
Discharge (cfs)		74.84		
Station	UBMCBRSW38	UBMCBRSW38	UBMCBRSW38	UBMCBRSW38
Date	4/30/2011	6/13/2011	9/19/2011	12/11/2011
Discharge (cfs)	3.53	36.53	0.96	0.58
Station	Not Sampled	UBMCBRSW45	Not Sampled	Not Sampled
Date		6/13/2011		
Discharge (cfs)		4.13		
Station	UBMCBRSW48	UBMCBRSW48	UBMCBRSW48	UBMCBRSW48
Date	4/30/2011	6/13/2011	9/20/2011	12/11/2011
Discharge (cfs)	1.82	32.36	0.6	0.25

4.2.2 Sediment Sampling

Sediment samples were collected at surface water sampling stations during sampling events (with the exception of seeps sampled during the second quarter) 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 *Draft Remedial Investigation Report* for the UBMC (TetraTech, 2008). 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 and the MDEQ action level for residential arsenic in soils/sediments. Table 17 shows the results of screening total recoverable metals in UBMC mining area sediments against the human health residential RSLs and arsenic action level. As shown in Table 17 there were numerous exceedances of the arsenic action level and RSLs for lead and manganese. The was one exceedance of the RSL noted at station BRSD22 (Mike Horse Creek above confluence with Beartrap Creek) for cadmium; two exceedances of the copper RSL (September 19, 2011 sample and duplicate sample) also at BRSD22; and, three exceedances of the iron RSL at stations located in Beartrap Creek below the Mike Horse Dam.

Table 16. UBMC sediments vs. SSLs (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
UBMC BRSD1	4/29/2011	4460	**11**	<1	12	8210	**269**	16	92
UBMC BRSD1	6/13/2011	6270	**20**	<1	21	21700	**39**	462	**153**
UBMC BRSD1	9/19/2011	5640	**18**	<1	13	13500	**68**	279	120
UBMC BRSD1	12/11/2011	6890	**11**	<1	11	14100	19	257	69
UBMC BRSD3A	4/30/2011	2020	**18**	**20**	**296**	13400	**6210**	251	**2960**
UBMC BRSD3A	6/14/2011	3060	**28**	**31**	**553**	14200	**217**	**17700**	**5290**
UBMC BRSD3A	9/20/2011	4490	**41**	**2**	**137**	38200	**109**	154	**288**
UBMC BRSD3A	12/11/2011	4150	**33**	**40**	**471**	15600	**400**	**10900**	**2880**
UBMC BRSD3B	4/30/2011	6580	**28**	**12**	**522**	16300	**13200**	168	**1940**
UBMC BRSD3B	6/14/2011	3570	**27**	**30**	**534**	17900	**229**	**13700**	**4130**
UBMC BRSD3B	9/20/2011	6930	**30**	**29**	**793**	20300	**368**	**46200**	**4840**
UBMC BRSD3B	12/11/2011	4830	**65**	**7**	**244**	36500	**333**	**5300**	**1380**
UBMC BRSD22	4/30/2011	4280	**25**	**10**	**818**	10800	**1540**	954	**3790**
UBMC BRSD22A	4/30/2011	4050	**24**	**12**	**909**	10400	**2020**	1040	**4050**
UBMC BRSD22	6/13/2011	7080	**56**	**73**	**2030**	42500	**2610**	**17200**	**9960**
UBMC BRSD24	6/13/2011	7880	**232**	**56**	**2010**	38000	**2980**	**10400**	**8400**
UBMC BRSD22	9/19/2011	9410	**57**	**68**	**3370**	34500	**2770**	**14800**	**9640**
UBMC BRSD24	9/19/2011	9810	**59**	**60**	**3940**	37100	**4420**	**17000**	**10700**
UBMC BRSD22	12/11/2011	9130	**49**	**31**	**905**	32800	**2320**	**9280**	**4420**
UBMC BRSD24	12/11/2011	8800	**27**	**26**	**642**	22800	**1480**	**8390**	**3390**
UBMC BRSD23	4/30/2011	2260	**37**	**8**	**221**	12000	**1140**	561	**1890**
UBMC BRSD23	6/14/2011	6550	**111**	**45**	**1570**	45900	**4580**	**10000**	**6630**
UBMC BRSD23	9/20/2011	5740	**66**	**66**	**961**	107000	**8040**	**3630**	**4130**
UBMC BRSD23	12/11/2011	6760	**52**	**16**	**2430**	41400	**2890**	**6200**	**3300**
UBMC BRSD29	6/13/2011	6430	**50**	**23**	**491**	31500	**1730**	**5720**	**3560**
UBMC BRSD29	9/20/2011	6470	**37**	**10**	**228**	29200	**1040**	**2220**	**2040**
UBMC BRSD34	6/13/2011	6240	**28**	**9**	**301**	23800	**956**	**2200**	**1750**
UBMC BRSD38	4/30/2011	5560	**73**	**17**	**372**	34800	**4390**	**1210**	**2930**
UBMC BRSD38	6/13/2011	5960	**80**	**66**	**798**	34000	**21700**	**3270**	**10200**
UBMC BRSD38	9/20/2011	6560	**89**	**15**	**354**	35700	**4020**	**3770**	**2690**
UBMC BRSD38	12/11/2011	6830	**32**	**10**	**258**	25200	**950**	**1930**	**2050**
UBMC BRSD45	6/13/2011	8840	**73**	**25**	**1360**	34600	**1980**	**5100**	**3130**
UBMC BRSD48	4/30/2011	3480	**62**	**34**	**536**	29800	**13000**	**1640**	**4860**
UBMC BRSD48	6/13/2011	4520	**165**	**23**	**663**	64100	**1810**	**6560**	**3900**
UBMC BRSD48	9/20/2011	5760	**62**	**26**	**768**	41900	**5030**	**5250**	**5130**
UBMC BRSD48	12/11/2011	7140	**115**	**52**	**2850**	65800	**15200**	**4190**	**9060**

Note: < Indicates the concentration is less than the reporting limit

Exceeds one or more screening levels

---- No standard

Duplicate of UBMC BRSW22

mg/kg = milligrams per kilogram

[a]The TEL is calculated as the geometric mean of the 15th percentile concentration of the toxic effects data set and the median of the no-effect data set. As such it represents the concentration below which adverse effects are expected to occur only rarely. Freshwater TELs are based on benthic community metrics and toxicity texts results. Adverse biological effects rarely seen below TEL.

[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

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

Sample ID	*Collection Date*	*Aluminum*	*[2]Arsenic*	*Cadmium*	*Copper*	*Iron*	*Lead*	*Manganese*	*Zinc*
[1]Regional Screening Levels		77000	40	70	3100	55000	400	1800	23000
UBMC BRSD1	4/29/2011	4460	11	<1	12	8210	269	16	92
UBMC BRSD1	6/13/2011	6270	20	<1	21	21700	39	**462**	153
UBMC BRSD1	9/19/2011	5640	18	<1	13	13500	68	279	120
UBMC BRSD1	12/11/2011	6890	11	<1	11	14100	19	257	69
UBMC BRSD3A	4/30/2011	2020	18	20	296	13400	**6210**	251	2960
UBMC BRSD3A	6/14/2011	3060	28	31	553	14200	217	**17700**	5290
UBMC BRSD3A	9/20/2011	4490	**41**	2	137	38200	109	154	288
UBMC BRSD3A	12/11/2011	4150	33	40	471	15600	**400**	**10900**	2880
UBMC BRSD3B	4/30/2011	6580	28	12	522	16300	**13200**	168	1940
UBMC BRSD3B	6/14/2011	3570	27	30	534	17900	229	**13700**	4130
UBMC BRSD3B	9/20/2011	6930	30	29	793	20300	368	**46200**	4840
UBMC BRSD3B	12/11/2011	4830	**65**	7	244	36500	333	**5300**	1380
UBMC BRSD22	4/30/2011	4280	25	10	818	10800	**1540**	954	3790
UBMC BRSD22A	4/30/2011	4050	24	12	909	10400	**2020**	1040	4050
UBMC BRSD22	6/13/2011	7080	**56**	**73**	2030	42500	**2610**	**17200**	9960
UBMC BRSD24	6/13/2011	7880	**232**	56	2010	38000	**2980**	**10400**	8400
UBMC BRSD22	9/19/2011	9410	**57**	68	**3370**	34500	**2770**	**14800**	9640
UBMC BRSD24	9/19/2011	9810	**59**	60	**3940**	37100	**4420**	**17000**	10700
UBMC BRSD22	12/11/2011	9130	**49**	31	905	32800	**2320**	**9280**	4420
UBMC BRSD24	12/11/2011	8800	27	26	642	22800	**1480**	**8390**	3390
UBMC BRSD23	4/30/2011	2260	37	8	221	12000	**1140**	561	1890
UBMC BRSD23	6/14/2011	6550	**111**	45	1570	45900	**4580**	**10000**	6630
UBMC BRSD23	9/20/2011	5740	**66**	66	961	**107000**	**8040**	**3630**	4130
UBMC BRSD23	12/11/2011	6760	**52**	16	2430	41400	**2890**	**6200**	3300
UBMC BRSD29	6/13/2011	6430	**50**	23	491	31500	**1730**	**5720**	3560
UBMC BRSD29	9/20/2011	6470	37	10	228	29200	**1040**	**2220**	2040
UBMC BRSD34	6/13/2011	6240	28	9	301	23800	**956**	**2200**	1750
UBMC BRSD38	4/30/2011	5560	**73**	17	372	34800	**4390**	1210	2930
UBMC BRSD38	6/13/2011	5960	**80**	66	798	34000	**21700**	**3270**	10200
UBMC BRSD38	9/20/2011	6560	**89**	15	354	35700	**4020**	**3770**	2690
UBMC BRSD38	12/11/2011	6830	32	10	258	25200	**950**	**1930**	2050
UBMC BRSD45	6/13/2011	8840	**73**	25	1360	34600	**1980**	**5100**	3130
UBMC BRSD48	4/30/2011	3480	**62**	34	536	29800	**13000**	**1640**	4860
UBMC BRSD48	6/13/2011	4520	**165**	23	663	**64100**	**1810**	**6560**	3900
UBMC BRSD48	9/20/2011	5760	**62**	26	768	41900	**5030**	**5250**	5130
UBMC BRSD48	12/11/2011	7140	**115**	52	2850	**65800**	**15200**	**4190**	9060

Note:

Exceeds screening level

< Indicates the concentration is less than the reporting limit

Duplicate of UBMC BRSW22

mg/kg = milligrams per kilogram

[1]USEPA RSLs (USEPA 2010)

[2]MDEQ action level (MDEQ 2005)

4.3 Trend Analysis

2010 and 2011 metals data for groundwater and surface water were evaluated against pH and SC measurements to attempt the visualization of any trends between the physiochemical parameters and metals concentrations. These trends, if identified, may provide field indicators of water quality impacts which would be useful for monitoring and mitigating the impacts of any future construction activities at the site. The data did not exhibit any meaningful trend between the variables. For example, a detection of aluminum is not associated with any significant out-of-range pH or SC value versus a non-detect measurement.

4.4 Water Quantity

A discussion of groundwater quantity at the UBMC may be found in the report: *Mike Horse Impoundment Storm Water and Dewatering Management 2011 Activity Summary* (Spectrum, 2011).

5. CONCLUSIONS

This section presents conclusions relevant to the use of 2011 UBMC monitoring data.

5.1 Groundwater

The 2011 groundwater sampling results were generally consistent with 2010 sampling results which show exceedances of DEQ-7 human health standards for iron and manganese in monitoring wells TDMW2S and TDMW4D. As the water elevation in TDMW2S decreased over the course of 2011, groundwater quality was degraded. During the fourth quarter sampling event, total dissolved solids increased significantly in the well water, and the standards for cadmium and zinc were exceeded. These results appear consistent with historic groundwater monitoring results (TerraGraphics 2011) in which there were also exceedances of the iron and manganese standards in TDMW2S and TDMW4D. Water quality in all other UMBC monitoring wells sampled in 2011 met DEQ-7 human health standards for the constituents analyzed.

5.2 Surface Water

With the exception of upgradient surface water monitoring station BRSW1 (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, iron, lead, manganese, 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 2011). Cadmium, copper, and zinc frequently exceed acute aquatic life standards while iron and lead exceed chronic standards. TerraGrapics reported possible improvement in the water quality at BRSW22 (Mike Horse Creek upstream of its confluence with Beartrap Creek) in 2009. The 2011 data however appears within the range of seasonal fluctuations in metals concentrations measured at BRSW22 since 1993. 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 numerous exceedances of the MDEQ residential human health action level for arsenic, and the USEPA RSLs for lead and manganese.

6. REFERENCES

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

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

MDEQ, 2010a, Circular DEQ-7 Montana Numeric Water Quality Standards.

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

Portage, Inc., 2011, Final Sampling and Analysis Plan for Environmental Monitoring of the Upper Blackfoot Mining Complex Lewis and Clark County, Montana; May 9, 2011.

Spectrum Engineering Inc., 2011, Mike Horse Impoundment Storm Water and Dewatering Management 2011 Activity Summary; August 2011through January 2012.

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

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

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

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

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USEPA, 2010a, Regional Screening Levels for Chemical Contaminants at Superfund Sites, U.S. Environmental Protection Agency Region 9 Superfund Program; November 2010.

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Appendix A

Laboratory Data Reports

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ANALYTICAL SUMMARY REPORT

May 18, 2011

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

Workorder No.: H11050018 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 5/2/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050018-001	UBMC-BRSW 22	04/30/11 9:15	05/02/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11050018-002	UBMC-BRSW 22A	04/30/11 9:30	05/02/11	Surface Water	Same As Above
H11050018-003	UBMC-BRSW 22B	04/30/11 9:45	05/02/11	Surface Water	Same As Above
H11050018-004	UBMC-BRSW 48	04/30/11 10:45	05/02/11	Surface Water	Same As Above
H11050018-005	UBMC-BRSW 23	04/30/11 11:35	05/02/11	Surface Water	Same As Above
H11050018-006	UBMC-BRSW 3A	04/30/11 12:15	05/02/11	Surface Water	Same As Above
H11050018-007	UBMC-BRSW 3B	04/30/11 12:45	05/02/11	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Acidity, Total as CaCO3 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
H11050018-008	UBMC-BRSW 38	04/30/11 14:15	05/02/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended

ANALYTICAL SUMMARY REPORT

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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
Project: UBMC Surface Water
Workorder: H11050018

Report Date: 05/18/11
Date Received: 05/02/11

		Analysis		pH	EC	Solids, Total	Solids, Total	Acidity, Total as	Alkalinity, Total as	Bicarbonate as HCO3	Carbonate as CO3	Cl	SO4	Hardness as CaCO3
		Units		s_u_	umhos/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample ID	Client Sample ID	Up	Low	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
H11050018-001	UBMC-BRSW 22	0	0	7.8	545	< 10	400		62	76	< 4	< 1	240	287
H11050018-002	UBMC-BRSW 22A	0	0	7.8	544	< 10	364		63	77	< 4	< 1	230	281
H11050018-003	UBMC-BRSW 22B	0	0	4.8	10	< 10	< 10		< 4	< 4	< 4	< 1	< 1	< 1
H11050018-004	UBMC-BRSW 48	0	0	7.6	339	16	227		45	55	< 4	< 1	120	158
H11050018-005	UBMC-BRSW 23	0	0	8.0	223	19	133		60	73	< 4	< 1	50	128
H11050018-006	UBMC-BRSW 3A	0	0	7.5	411	< 10	278		44	54	< 4	< 1	170	188
H11050018-007	UBMC-BRSW 3B	0	0	4.3	1430	22	1490	340				< 1	1000	545
H11050018-008	UBMC-BRSW 38	0	0	7.7	343	< 10	238		43	52	< 4	< 1	130	165

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Project: UBMC Surface Water
Workorder: H11050018

Report Date: 05/18/11
Date Received: 05/02/11

		Analysis		Al-D	Ca-D	Mg-D	K-D	Na-D	As-TR	Cd-TR	Cu-TR	Fe-TR	Pb-TR	Mn-TR
		Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample ID	Client Sample ID	Up	Low	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
H11050018-001	UBMC-BRSW 22	0	0	< 0.03	72	26	1	2	< 0.003	0.0308	0.031	< 0.03	0.0119	0.439
H11050018-002	UBMC-BRSW 22A	0	0	< 0.03	71	25	1	2	< 0.003	0.0314	0.033	< 0.03	0.0116	0.448
H11050018-003	UBMC-BRSW 22B	0	0	< 0.03	< 1	< 1	< 1	< 1	< 0.003	< 0.00008	< 0.001	< 0.03	< 0.0005	< 0.005
H11050018-004	UBMC-BRSW 48	0	0	< 0.03	32	19	< 1	1	< 0.003	0.0163	0.122	3.11	0.0317	3.04
H11050018-005	UBMC-BRSW 23	0	0	0.15	26	16	< 1	1	< 0.003	0.00739	0.049	1.18	0.0291	1.06
H11050018-006	UBMC-BRSW 3A	0	0	< 0.03	38	23	< 1	2	< 0.003	0.0292	0.314	0.52	0.0028	8.76
H11050018-007	UBMC-BRSW 3B	0	0	50.2	110	66	3	1	0.003	0.291	4.75	4.46	0.0177	116
H11050018-008	UBMC-BRSW 38	0	0	0.12	33	20	< 1	1	< 0.003	0.0174	0.094	2.38	0.0376	2.67

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Project: UBMC Surface Water
Workorder: H11050018

Report Date: 05/18/11
Date Received: 05/02/11

		Analysis		Zn-TR
		Units		mg/L
Sample ID	**Client Sample ID**	**Up**	**Low**	**Results**
H11050018-001	UBMC-BRSW 22	0	0	6.84
H11050018-002	UBMC-BRSW 22A	0	0	6.85
H11050018-003	UBMC-BRSW 22B	0	0	< 0.01
H11050018-004	UBMC-BRSW 48	0	0	3.51
H11050018-005	UBMC-BRSW 23	0	0	1.71
H11050018-006	UBMC-BRSW 3A	0	0	6.45
H11050018-007	UBMC-BRSW 3B	0	0	46.7
H11050018-008	UBMC-BRSW 38	0	0	3.86

Client: MT DEQ-Site Response
Work Order: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 110503A-COND-PROBE

Run ID :Run Order: **COND_110503A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110503A** Method: **A2510 B**

Analysis Date: **05/03/11 11:03** 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	978	1.0	1000		98	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **COND_110503A: 19** SampType: **Sample Duplicate** Sample ID: **H11050018-003ADUP** Method: **A2510 B**

Analysis Date: **05/03/11 11:33** 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	9.64	1.0						9.6	0.5	10	

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 110512A

Date: *18-May-11*

Run ID :Run Order: **MISC WC_110512A: 2** SampType: **Sample Duplicate** Sample ID: **H11050018-007ADUP** Method: **A2310 B**
Analysis Date: **05/12/11 09:19** 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
Acidity, Total as CaCO3	350	4.0						337.8	2.9	20	

Associated samples: **H11050018-007A**

Run ID :Run Order: **MISC WC_110512A: 3** SampType: **Laboratory Control Sample** Sample ID: **LCS1105120919** Method: **A2310 B**
Analysis Date: **05/12/11 09:19** 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
Acidity, Total as CaCO3	850	4.0	929		92	90	110				

Associated samples: **H11050018-007A**

Run ID :Run Order: **MISC WC_110512A: 4** SampType: **Method Blank** Sample ID: **MBLK1105120919** Method: **A2310 B**
Analysis Date: **05/12/11 09:19** 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
Acidity, Total as CaCO3	ND	3									

Associated samples: **H11050018-007A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 12052

Run ID :Run Order: **ICPMS204-B_110504A: 69** SampType: **Method Blank** Sample ID: **MB-12052** Method: **E200.8**
Analysis Date: **05/04/11 18:23** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0002	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	ND	0.0006									
Lead	ND	2E-05									
Manganese	ND	6E-05									
Zinc	0.0009	0.0003									

Associated samples: **H11050018-005C**

Run ID :Run Order: **ICPMS204-B_110504A: 70** SampType: **Laboratory Control Sample** Sample ID: **LCS-12052** Method: **E200.8**
Analysis Date: **05/04/11 18:28** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.528	0.0050	0.5	0.0001528	106	85	115				
Cadmium	0.264	0.0010	0.25		106	85	115				
Copper	0.530	0.010	0.5		106	85	115				
Iron	2.71	0.030	2.5		108	85	115				
Lead	0.525	0.010	0.5		105	85	115				
Manganese	2.48	0.010	2.5		99	85	115				
Zinc	0.534	0.010	0.5	0.0009246	107	85	115				

Associated samples: **H11050018-005C**

Run ID :Run Order: **ICPMS204-B_110504A: 78** SampType: **Sample Matrix Spike** Sample ID: **H11050015-001CMS3** Method: **E200.8**
Analysis Date: **05/04/11 19:03** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.507	0.0050	0.5	0.001216	101	70	130				
Cadmium	0.253	0.0010	0.25	0.0001095	101	70	130				
Copper	0.511	0.010	0.5	0.007801	101	70	130				
Iron	3.64	0.030	2.5	0.9188	109	70	130				
Lead	0.509	0.010	0.5	0.001487	101	70	130				
Manganese	2.48	0.010	2.5	0.0276	98	70	130				
Zinc	0.518	0.010	0.5	0.02105	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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 12052

Run ID :Run Order: **ICPMS204-B_110504A: 78** SampType: **Sample Matrix Spike** Sample ID: **H11050015-001CMS3** Method: **E200.8**
Analysis Date: **05/04/11 19:03** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

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

Associated samples: **H11050018-005C**

Run ID :Run Order: **ICPMS204-B_110504A: 79** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050015-001CMSD3** Method: **E200.8**
Analysis Date: **05/04/11 19:07** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.507	0.0050	0.5	0.001216	101	70	130	0.507	0.0	20	
Cadmium	0.255	0.0010	0.25	0.0001095	102	70	130	0.2527	0.9	20	
Copper	0.511	0.010	0.5	0.007801	101	70	130	0.5106	0.0	20	
Iron	3.44	0.030	2.5	0.9188	101	70	130	3.645	5.7	20	
Lead	0.512	0.010	0.5	0.001487	102	70	130	0.5087	0.7	20	
Manganese	2.48	0.010	2.5	0.0276	98	70	130	2.478	0.2	20	
Zinc	0.522	0.010	0.5	0.02105	100	70	130	0.5181	0.7	20	

Associated samples: **H11050018-005C**

Run ID :Run Order: **ICPMS204-B_110505A: 46** SampType: **Method Blank** Sample ID: **MB-12052** Method: **E200.8**
Analysis Date: **05/05/11 16:29** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0002	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	0.002	0.0006									
Lead	ND	2E-05									
Manganese	ND	6E-05									
Zinc	0.0009	0.0003									

Associated samples: **H11050018-005C**

Run ID :Run Order: **ICPMS204-B_110509A: 29** SampType: **Method Blank** Sample ID: **MB-12052** Method: **E200.8**
Analysis Date: **05/09/11 16:21** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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									

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 12052

Date: *18-May-11*

Run ID :Run Order: **ICPMS204-B_110509A: 29** SampType: **Method Blank** Sample ID: **MB-12052** Method: **E200.8**

Analysis Date: **05/09/11 16:21** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0005	0.0004									
Iron	0.001	0.0006									
Lead	3E-05	2E-05									
Manganese	0.0002	6E-05									
Zinc	0.002	0.0003									

Associated samples: **H11050018-005C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 12063

Run ID :Run Order: **ACCU-124 (14410200)_110503A: 1** SampType: **Method Blank** Sample ID: **MB-12063** Method: **A2540 D**
Analysis Date: **05/03/11 13:29** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	1									

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110503A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12063** Method: **A2540 D**
Analysis Date: **05/03/11 13:29** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	2060	10	2000		103	70	130				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110503A: 16** SampType: **Sample Duplicate** Sample ID: **H11050018-002ADUP** Method: **A2540 D**
Analysis Date: **05/03/11 13:37** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 12065

Date: *18-May-11*

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 1** SampType: **Method Blank** Sample ID: **MB-12065** Method: **A2540 C**
Analysis Date: **05/03/11 13:55** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	1.0									

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12065** Method: **A2540 C**
Analysis Date: **05/03/11 13:55** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	1860	10	2000		93	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 6** SampType: **Sample Matrix Spike** Sample ID: **H11050015-002AMS** Method: **A2540 C**
Analysis Date: **05/03/11 13:56** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	2120	10	2000	122	100	80	120				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 16** SampType: **Sample Duplicate** Sample ID: **H11050018-002ADUP** Method: **A2540 C**
Analysis Date: **05/03/11 14:01** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	378	10						364	3.8	5	

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70695

Run ID :Run Order: **MAN-TECH_110503A: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **05/03/11 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
Alkalinity, Total as CaCO3	2	0.6									

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-04292011** Method: **A2320 B**
Analysis Date: **05/03/11 16:24** 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
Alkalinity, Total as CaCO3	610	4.0	600	1.94	101	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 26** SampType: **Sample Matrix Spike** Sample ID: **H11050015-005AMS** Method: **A2320 B**
Analysis Date: **05/03/11 17:27** 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	690	4.0	600	122.2	95	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 40** SampType: **Sample Duplicate** Sample ID: **H11050018-003ADUP** Method: **A2320 B**
Analysis Date: **05/03/11 18:04** 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	ND	4.0								20	
Bicarbonate as HCO3	ND	4.0								20	
Carbonate as CO3	ND	4.0								20	

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 63** SampType: **Sample Matrix Spike** Sample ID: **H11050028-003AMS** Method: **A2320 B**
Analysis Date: **05/03/11 19:18** 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	670	4.0	600	51.48	103	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-008A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70695

Run ID :Run Order: **MAN-TECH_110503A: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1-1905** Method: **A4500-H B**
Analysis Date: **05/03/11 15:58** 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	3.91	0.10	4		98	98	102				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1943** Method: **A4500-H B**
Analysis Date: **05/03/11 16:01** 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	6.95	0.10	7		99	98	102				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3-1664** Method: **A4500-H B**
Analysis Date: **05/03/11 16:04** 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	10.0	0.10	10		100	98	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-1942** Method: **A4500-H B**
Analysis Date: **05/03/11 16:07** 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	99	101				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **MAN-TECH_110503A: 41** SampType: **Sample Duplicate** Sample ID: **H11050018-003ADUP** Method: **A4500-H B**
Analysis Date: **05/03/11 18:04** 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	4.58	0.10						4.77	4.1	3	R

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70698

Run ID :Run Order: **IC101-H_110503B: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV050311-12** Method: **E300.0**
Analysis Date: **05/03/11 18:09** 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
Chloride	100	1.0	100		101	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **IC101-H_110503B: 14** SampType: **Method Blank** Sample ID: **ICB050311-13** Method: **E300.0**
Analysis Date: **05/03/11 18:25** 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	0.2									
Sulfate	ND	0.5									

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **IC101-H_110503B: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB050311-14** Method: **E300.0**
Analysis Date: **05/03/11 18:40** 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	48	1.0	50		96	90	110				
Sulfate	200	1.1	200		99	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **IC101-H_110503B: 17** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV050311-15** Method: **E300.0**
Analysis Date: **05/03/11 19:11** 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	100	1.0	100		100	90	110				
Sulfate	400	1.0	400		100	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A**

Run ID :Run Order: **IC101-H_110503B: 25** SampType: **Sample Matrix Spike** Sample ID: **H11050015-006AMS** Method: **E300.0**
Analysis Date: **05/03/11 21:14** 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	49	1.0	50	0.332	97	90	110				
Sulfate	200	1.1	200	2.118	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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70698

Run ID :Run Order: **IC101-H_110503B: 25** SampType: **Sample Matrix Spike** Sample ID: **H11050015-006AMS** Method: **E300.0**
Analysis Date: **05/03/11 21:14** 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

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **IC101-H_110503B: 26** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050015-006AMSD** Method: **E300.0**
Analysis Date: **05/03/11 21:30** 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	50	1.0	50	0.332	98	90	110	48.9	1.4	20	
Sulfate	210	1.1	200	2.118	102	90	110	201.2	2.2	20	

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **IC101-H_110503B: 32** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV050311-30** Method: **E300.0**
Analysis Date: **05/03/11 23:02** 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		100	90	110				
Sulfate	400	1.0	400		101	90	110				

Associated samples: **H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **IC101-H_110503B: 40** SampType: **Sample Matrix Spike** Sample ID: **H11050028-001AMS** Method: **E300.0**
Analysis Date: **05/04/11 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
Chloride	48	1.0	50	0.25	96	90	110				
Sulfate	200	1.1	200	2.679	99	90	110				

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

Run ID :Run Order: **IC101-H_110503B: 41** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050028-001AMSD** Method: **E300.0**
Analysis Date: **05/04/11 01:21** 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	48	1.0	50	0.25	96	90	110	48.32	0.1	20	
Sulfate	200	1.1	200	2.679	99	90	110	201.5	0.0	20	

Associated samples: **H11050018-001A; H11050018-002A; H11050018-003A; H11050018-004A; H11050018-005A; H11050018-006A; H11050018-007A; H11050018-008A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/04/11 09:55** 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	0.255	0.10	0.25		102	90	110				
Arsenic	0.0506	0.0050	0.05		101	90	110				
Cadmium	0.0269	0.0010	0.025		107	90	110				
Calcium	2.64	0.50	2.5		105	90	110				
Copper	0.0515	0.010	0.05		103	90	110				
Iron	0.264	0.030	0.25		106	90	110				
Lead	0.0507	0.010	0.05		101	90	110				
Magnesium	2.58	0.50	2.5		103	90	110				
Manganese	0.253	0.010	0.25		101	90	110				
Potassium	2.62	0.50	2.5		105	90	110				
Sodium	2.61	0.50	2.5		105	90	110				
Zinc	0.0523	0.010	0.05		105	90	110				

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-005C; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

Run ID :Run Order: **ICPMS204-B_110504A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/04/11 10:00** 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	43.0	0.10	40		108	70	130				
Arsenic	0.000190	0.0050									
Cadmium	0.000554	0.0010									
Calcium	129	0.50									
Copper	0.000460	0.010									
Iron	111	0.030	100		111	70	130				
Lead	0.000117	0.010									
Magnesium	44.1	0.50									
Manganese	0.00215	0.010									
Potassium	43.5	0.50									
Sodium	109	0.50									
Zinc	0.00115	0.010									

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-005C; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/04/11 10:04** 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	42.4	0.10	40		106	70	130				
Arsenic	0.0111	0.0050	0.01		111	70	130				
Cadmium	0.0111	0.0010	0.01		111	70	130				
Calcium	128	0.50	120		107	70	130				
Copper	0.0217	0.010	0.02		108	70	130				
Iron	106	0.030	100		106	70	130				
Lead	8.20E-05	0.010				0	0				
Magnesium	43.4	0.50	40		109	70	130				
Manganese	0.0238	0.010	0.02		119	70	130				
Potassium	43.6	0.50	40		109	70	130				
Sodium	109	0.50	100		109	70	130				
Zinc	0.0112	0.010	0.01		112	70	130				

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-005C; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

Run ID :Run Order: **ICPMS204-B_110504A: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **05/04/11 10:31** 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	0.001	0.0002									
Lead	1E-05	1.0E-05									
Magnesium	ND	0.0007									
Manganese	ND	1E-05									
Potassium	ND	0.010									
Sodium	0.004	0.003									
Zinc	0.0007	0.0003									

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **05/04/11 10:36** 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	0.0480	0.10	0.05		96	85	115				
Arsenic	0.0478	0.0050	0.05		96	85	115				
Cadmium	0.0471	0.0010	0.05		94	85	115				
Calcium	47.8	0.50	50		96	85	115				
Copper	0.0464	0.010	0.05		93	85	115				
Iron	4.92	0.030	5	0.001366	98	85	115				
Lead	0.0490	0.010	0.05	0.0000114	98	85	115				
Magnesium	46.7	0.50	50		93	85	115				
Manganese	0.0481	0.010	0.05		96	85	115				
Potassium	47.8	0.50	50		96	85	115				
Sodium	46.2	0.50	50	0.003661	92	85	115				
Zinc	0.0472	0.010	0.05	0.0006697	93	85	115				

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

Run ID :Run Order: **ICPMS204-B_110504A: 56** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/04/11 17:25** 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	0.247	0.10	0.25		99	90	110				
Arsenic	0.0510	0.0050	0.05		102	90	110				
Cadmium	0.0259	0.0010	0.025		104	90	110				
Calcium	2.64	0.50	2.5		106	90	110				
Copper	0.0519	0.010	0.05		104	90	110				
Iron	0.272	0.030	0.25		109	90	110				
Lead	0.0502	0.010	0.05		100	90	110				
Magnesium	2.57	0.50	2.5		103	90	110				
Manganese	0.247	0.010	0.25		99	90	110				
Potassium	2.54	0.50	2.5		101	90	110				
Sodium	2.60	0.50	2.5		104	90	110				
Zinc	0.0522	0.010	0.05		104	90	110				

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-005C; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 57** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/04/11 17:30** 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	38.3	0.10	40		96	70	130				
Arsenic	0.000203	0.0050									
Cadmium	0.000442	0.0010									
Calcium	118	0.50									
Copper	0.000415	0.010									
Iron	97.1	0.030	100		97	70	130				
Lead	0.000120	0.010									
Magnesium	40.5	0.50									
Manganese	0.00196	0.010									
Potassium	39.9	0.50									
Sodium	101	0.50									
Zinc	0.00105	0.010									

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-005C; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

Run ID :Run Order: **ICPMS204-B_110504A: 58** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/04/11 17:34** 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	39.4	0.10	40		99	70	130				
Arsenic	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Calcium	117	0.50	120		98	70	130				
Copper	0.0203	0.010	0.02		101	70	130				
Iron	98.4	0.030	100		98	70	130				
Lead	7.30E-05	0.010				0	0				
Magnesium	40.5	0.50	40		101	70	130				
Manganese	0.0219	0.010	0.02		109	70	130				
Potassium	39.7	0.50	40		99	70	130				
Sodium	101	0.50	100		101	70	130				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-005C; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 118** SampType: **Sample Matrix Spike** Sample ID: **H11050018-004BMS** Method: **E200.8**

Analysis Date: **05/04/11 22:00** 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	0.0654	0.10	0.05	0.01932	92	70	130				
Arsenic	0.0502	0.0050	0.05	0.0000895	100	70	130				
Cadmium	0.0618	0.0010	0.05	0.01472	94	70	130				
Calcium	78.3	1.0	50	31.68	93	70	130				
Copper	0.0666	0.010	0.05	0.01842	96	70	130				
Iron	5.62	0.030	5	0.6163	100	70	130				
Lead	0.0498	0.010	0.05	0.0003037	99	70	130				
Magnesium	67.8	1.0	50	19.19	97	70	130				
Manganese	2.71	0.010	0.05	2.778		70	130				A
Potassium	49.0	1.0	50	0.5766	97	70	130				
Sodium	50.4	1.0	50	1.271	98	70	130				
Zinc	3.20	0.010	0.05	3.237		70	130				A

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

Run ID :Run Order: **ICPMS204-B_110504A: 119** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050018-004BMSD** Method: **E200.8**

Analysis Date: **05/04/11 22:04** 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	0.0658	0.10	0.05	0.01932	93	70	130	0.06538		20	
Arsenic	0.0484	0.0050	0.05	0.0000895	97	70	130	0.05016	3.6	20	
Cadmium	0.0609	0.0010	0.05	0.01472	92	70	130	0.06175	1.5	20	
Calcium	75.5	1.0	50	31.68	88	70	130	78.27	3.6	20	
Copper	0.0646	0.010	0.05	0.01842	92	70	130	0.06659	3.0	20	
Iron	5.38	0.030	5	0.6163	95	70	130	5.622	4.4	20	
Lead	0.0486	0.010	0.05	0.0003037	97	70	130	0.04976	2.4	20	
Magnesium	66.0	1.0	50	19.19	94	70	130	67.82	2.6	20	
Manganese	2.73	0.010	0.05	2.778		70	130	2.709	0.7	20	A
Potassium	46.9	1.0	50	0.5766	93	70	130	49.01	4.4	20	
Sodium	48.9	1.0	50	1.271	95	70	130	50.42	3.1	20	
Zinc	3.08	0.010	0.05	3.237		70	130	3.2	3.7	20	A

Associated samples: **H11050018-001B; H11050018-001C; H11050018-002B; H11050018-002C; H11050018-003B; H11050018-003C; H11050018-004B; H11050018-004C; H11050018-005B; H11050018-006B; H11050018-006C; H11050018-007B; H11050018-007C; H11050018-008B; H11050018-008C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70741

Run ID :Run Order: **IC101-H_110504A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV050411-12** Method: **E300.0**
Analysis Date: **05/04/11 10:53** 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
Sulfate	420	1.0	400		104	90	110				

Associated samples: **H11050018-007A**

Run ID :Run Order: **IC101-H_110504A: 15** SampType: **Method Blank** Sample ID: **ICB050411-13** Method: **E300.0**
Analysis Date: **05/04/11 11:09** 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
Sulfate	ND	0.5									

Associated samples: **H11050018-007A**

Run ID :Run Order: **IC101-H_110504A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB050411-14** Method: **E300.0**
Analysis Date: **05/04/11 11:24** 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
Sulfate	200	1.1	200		100	90	110				

Associated samples: **H11050018-007A**

Run ID :Run Order: **IC101-H_110504A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFBD050411-14** Method: **E300.0**
Analysis Date: **05/04/11 11:40** 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
Sulfate	200	1.1	200		99	90	110				

Associated samples: **H11050018-007A**

Run ID :Run Order: **IC101-H_110504A: 18** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV050411-15** Method: **E300.0**
Analysis Date: **05/04/11 11:55** 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
Sulfate	410	1.0	400		102	90	110				

Associated samples: **H11050018-007A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R70741

Date: *18-May-11*

Run ID :Run Order: **IC101-H_110504A: 23** SampType: **Sample Matrix Spike** Sample ID: **H11050050-001AMS** Method: **E300.0**

Analysis Date: **05/04/11 13:12** 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
Sulfate	760	1.1	200	510	123	90	110				S

Associated samples: **H11050018-007A**

Run ID :Run Order: **IC101-H_110504A: 24** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050050-001AMSD** Method: **E300.0**

Analysis Date: **05/04/11 13:28** 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
Sulfate	770	1.1	200	510	130	90	110	756.3	1.7	20	S

Associated samples: **H11050018-007A**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70779

Run ID :Run Order: **ICPMS204-B_110505A: 7** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/05/11 13:29** 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
Copper	0.0492	0.010	0.05		98	90	110				
Manganese	0.244	0.010	0.25		98	90	110				
Zinc	0.0495	0.010	0.05		99	90	110				

Associated samples: **H11050018-001C; H11050018-002C; H11050018-006C; H11050018-007C**

Run ID :Run Order: **ICPMS204-B_110505A: 8** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/05/11 13:33** 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
Copper	0.000483	0.010									
Manganese	0.00179	0.010									
Zinc	0.00104	0.010									

Associated samples: **H11050018-001C; H11050018-002C; H11050018-006C; H11050018-007C**

Run ID :Run Order: **ICPMS204-B_110505A: 9** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/05/11 13:38** 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
Copper	0.0196	0.010	0.02		98	70	130				
Manganese	0.0213	0.010	0.02		106	70	130				
Zinc	0.0105	0.010	0.01		105	70	130				

Associated samples: **H11050018-001C; H11050018-002C; H11050018-006C; H11050018-007C**

Run ID :Run Order: **ICPMS204-B_110505A: 19** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **05/05/11 14:32** 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
Copper	ND	3E-05									
Manganese	ND	1E-05									
Zinc	0.0009	0.0003									

Associated samples: **H11050018-001C; H11050018-002C; H11050018-006C; H11050018-007C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70779

Run ID :Run Order: **ICPMS204-B_110505A: 20** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **05/05/11 14:36** 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
Copper	0.0465	0.010	0.05		93	85	115				
Manganese	0.0480	0.010	0.05		96	85	115				
Zinc	0.0480	0.010	0.05	0.0009163	94	85	115				

Associated samples: **H11050018-001C; H11050018-002C; H11050018-006C; H11050018-007C**

Run ID :Run Order: **ICPMS204-B_110505A: 49** SampType: **Sample Matrix Spike** Sample ID: **H11050015-004CMS** Method: **E200.8**

Analysis Date: **05/05/11 16:42** 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
Copper	0.0468	0.010	0.05		94	70	130				
Manganese	0.0484	0.010	0.05		97	70	130				
Zinc	0.0487	0.010	0.05	0.001118	95	70	130				

Associated samples: **H11050018-001C; H11050018-002C; H11050018-006C; H11050018-007C**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70858

Run ID :Run Order: **ICPMS204-B_110509A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **05/09/11 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
Aluminum	0.253	0.10	0.25		101	90	110				

Associated samples: **H11050018-007B**

Run ID :Run Order: **ICPMS204-B_110509A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **05/09/11 14:53** 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
Aluminum	40.2	0.10	40		101	70	130				

Associated samples: **H11050018-007B**

Run ID :Run Order: **ICPMS204-B_110509A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **05/09/11 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
Aluminum	39.9	0.10	40		100	70	130				

Associated samples: **H11050018-007B**

Run ID :Run Order: **ICPMS204-B_110509A: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **05/09/11 15:24** 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
Aluminum	0.0006	0.0003									

Associated samples: **H11050018-007B**

Run ID :Run Order: **ICPMS204-B_110509A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **05/09/11 15:29** 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
Aluminum	0.0494	0.10	0.05	0.0005837	98	85	115				

Associated samples: **H11050018-007B**

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: H11050018
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70858

Run ID :Run Order: **ICPMS204-B_110509A: 46** SampType: **Sample Matrix Spike** Sample ID: **H11050093-001BMS** Method: **E200.8**

Analysis Date: **05/09/11 17:35** 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	0.0498	0.10	0.05	0.0003473	99	70	130				

Associated samples: **H11050018-007B**

Run ID :Run Order: **ICPMS204-B_110509A: 47** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050093-001BMSD** Method: **E200.8**

Analysis Date: **05/09/11 17:39** 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
Aluminum	0.0498	0.10	0.05	0.0003473	99	70	130	0.04981		20	

Associated samples: **H11050018-007B**

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

H11050018

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/2/2011
Reviewed by: BL2000\kwiegand
Received by: jdh
Reviewed Date: 5/5/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.6°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:

None

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.: VBMC	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote: 14-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Brasbach Meg Babitz
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 to: adrasbache portageinc.com

Shipped by: Hand Del

Cooler ID(s): C-3684

Receipt Temp: 5.4 °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
1	VBMC-BRSW22	4/30/11	0915	W	X
2	VBMC-BRSW22A	4/30/11	0930	W	
3	VBMC-BRSW22B	4/30/11	0945		
4	VBMC-BRSW48	4/30/11	1045		
5	VBMC-BRSW23	4/30/11	1135		
6	VBMC-BRSW3A	4/30/11	1215		
7	VBMC-BRSW3B	4/30/11	1245		
8	VBMC-BRSW3P	4/30/11	1415		
9					
10				BD 4/3-11	

VBMC Surface Water

LABORATORY USE ONLY H11050018

Custody Record MUST be Signed

Relinquished by (print): Alan Brasbach	Date/Time: 5/2/11 15:45	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: X		Received by Laboratory: Jonathan Hayes Date/Time: 5/2/11 15:45 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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

ANALYTICAL SUMMARY REPORT

May 09, 2011

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

Workorder No.: H11050029 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 2 samples for MT DEQ-Site Response on 5/2/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050029-001	UBMC-BRSW01	04/29/11 15:07	05/02/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11050029-002	UBMC-BRSW02	04/29/11 16:15	05/02/11	Surface Water	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC-BRSW01
Lab ID: H11050029-001
Matrix: Surface Water

Project: UBMC
Collection Date: 04/29/11 15:07
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	05/03/11 19:45 / zeg		MAN-TECH_110503A	72	R70695
Conductivity	118	umhos/cm		1		A2510 B	05/03/11 11:49 / cmm		COND_110503A	3210503A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/03/11 13:45 / cmm	05/03/11 13:16	-124 (14410200)_110503A	33	12064
Solids, Total Dissolved TDS @ 180 C	70	mg/L		10		A2540 C	05/03/11 14:07 / cmm	05/03/11 13:23	-124 (14410200)_110503B	32	12066
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	05/03/11 19:45 / zeg		MAN-TECH_110503A	71	R70695
Bicarbonate as HCO3	74	mg/L		4		A2320 B	05/03/11 19:45 / zeg		MAN-TECH_110503A	71	R70695
Carbonate as CO3	ND	mg/L		4		A2320 B	05/03/11 19:45 / zeg		MAN-TECH_110503A	71	R70695
Chloride	ND	mg/L		1		E300.0	05/04/11 03:09 / zeg		IC101-H_110503B	48	R70698
Sulfate	3	mg/L		1		E300.0	05/04/11 03:09 / zeg		IC101-H_110503B	48	R70698
Hardness as CaCO3	62	mg/L		1		A2340 B	05/05/11 13:10 / sld		WATERCALC_110505A	18	R70750
METALS, DISSOLVED											
Aluminum	0.16	mg/L		0.03		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A	148	R70718
Calcium	12	mg/L		1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A	148	R70718
Magnesium	8	mg/L		1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A	148	R70718
Potassium	ND	mg/L		1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A	148	R70718
Sodium	1	mg/L		1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A	148	R70718
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A	156	12052
Cadmium	ND	mg/L		0.00008		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A	156	12052
Copper	0.001	mg/L		0.001		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A	156	12052
Iron	0.13	mg/L		0.03		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A	156	12052
Lead	ND	mg/L		0.0005		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A	156	12052
Manganese	ND	mg/L		0.005		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A	156	12052
Zinc	ND	mg/L		0.01		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A	156	12052

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 UBMC-BRSW02
Lab ID: H11050029-002
Matrix: Surface Water

Project: UBMC
Collection Date: 04/29/11 16:15
Report Date: 05/16/11
DateReceived: 05/02/11

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	05/03/11 19:51 / zeg		MAN-TECH_110503A	74	R70695
Conductivity	836	umhos/cm		1		A2510 B	05/03/11 11:49 / cmm		COND_110503A	3310503A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/03/11 13:45 / cmm	05/03/11 13:16	-124 (14410200)_110503A	34	12064
Solids, Total Dissolved TDS @ 180 C	657	mg/L		10		A2540 C	05/03/11 14:07 / cmm	05/03/11 13:23	-124 (14410200)_110503B	33	12066
INORGANICS											
Alkalinity, Total as CaCO3	13	mg/L		4		A2320 B	05/03/11 19:51 / zeg		MAN-TECH_110503A	73	R70695
Bicarbonate as HCO3	16	mg/L		4		A2320 B	05/03/11 19:51 / zeg		MAN-TECH_110503A	73	R70695
Carbonate as CO3	ND	mg/L		4		A2320 B	05/03/11 19:51 / zeg		MAN-TECH_110503A	73	R70695
Chloride	ND	mg/L		1		E300.0	05/04/11 03:24 / zeg		IC101-H_110503B	49	R70698
Sulfate	460	mg/L		1		E300.0	05/04/11 03:24 / zeg		IC101-H_110503B	49	R70698
Hardness as CaCO3	453	mg/L		1		A2340 B	05/05/11 13:10 / sld		WATERCALC_110505A	19	R70750
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A	157	R70718
Calcium	104	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A	157	R70718
Magnesium	47	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A	157	R70718
Potassium	1	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A	157	R70718
Sodium	ND	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A	157	R70718
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A	158	12052
Cadmium	0.0188	mg/L		0.00008		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A	158	12052
Copper	0.022	mg/L		0.001		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A	158	12052
Iron	0.14	mg/L		0.03		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A	158	12052
Lead	0.0160	mg/L		0.0005		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A	158	12052
Manganese	6.14	mg/L		0.005		E200.8	05/05/11 18:14 / dck	05/03/11 11:35	ICPMS204-B_110505A	70	12052
Zinc	3.16	mg/L		0.01		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A	158	12052

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: 110503A-COND-PROBE

Run ID :Run Order: **COND_110503A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110503A** Method: **A2510 B**
Analysis Date: **05/03/11 11:03** 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	978	1.0	1000		98	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **COND_110503A: 8** SampType: **Sample Duplicate** Sample ID: **H11050015-001ADUP** Method: **A2510 B**
Analysis Date: **05/03/11 11:23** 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	428	1.0						422.9	1.2	10	

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **COND_110503A: 19** SampType: **Sample Duplicate** Sample ID: **H11050018-003ADUP** Method: **A2510 B**
Analysis Date: **05/03/11 11:33** 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	9.64	1.0						9.6	0.5	10	

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **COND_110503A: 29** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV6_110503A** Method: **A2510 B**
Analysis Date: **05/03/11 14:35** 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	1380	1.0	1412		98	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: 12052

Run ID :Run Order: **ICPMS204-B_110504A: 69** SampType: **Method Blank** Sample ID: **MB-12052** Method: **E200.8**

Analysis Date: **05/04/11 18:23** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0002	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	ND	0.0006									
Lead	ND	2E-05									
Manganese	ND	6E-05									
Zinc	0.0009	0.0003									

Associated samples: **H11050029-001C; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 70** SampType: **Laboratory Control Sample** Sample ID: **LCS-12052** Method: **E200.8**

Analysis Date: **05/04/11 18:28** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.528	0.0050	0.5	0.0001528	106	85	115				
Cadmium	0.264	0.0010	0.25		106	85	115				
Copper	0.530	0.010	0.5		106	85	115				
Iron	2.71	0.030	2.5		108	85	115				
Lead	0.525	0.010	0.5		105	85	115				
Manganese	2.48	0.010	2.5		99	85	115				
Zinc	0.534	0.010	0.5	0.0009246	107	85	115				

Associated samples: **H11050029-001C; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 78** SampType: **Sample Matrix Spike** Sample ID: **H11050015-001CMS3** Method: **E200.8**

Analysis Date: **05/04/11 19:03** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.507	0.0050	0.5	0.001216	101	70	130				
Cadmium	0.253	0.0010	0.25	0.0001095	101	70	130				
Copper	0.511	0.010	0.5	0.007801	101	70	130				
Iron	3.64	0.030	2.5	0.9188	109	70	130				
Lead	0.509	0.010	0.5	0.001487	101	70	130				
Manganese	2.48	0.010	2.5	0.0276	98	70	130				
Zinc	0.518	0.010	0.5	0.02105	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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: 12052

Run ID :Run Order: **ICPMS204-B_110504A: 78** SampType: **Sample Matrix Spike** Sample ID: **H11050015-001CMS3** Method: **E200.8**
Analysis Date: **05/04/11 19:03** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

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

Associated samples: **H11050029-001C; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 79** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050015-001CMSD3** Method: **E200.8**
Analysis Date: **05/04/11 19:07** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.507	0.0050	0.5	0.001216	101	70	130	0.507	0.0	20	
Cadmium	0.255	0.0010	0.25	0.0001095	102	70	130	0.2527	0.9	20	
Copper	0.511	0.010	0.5	0.007801	101	70	130	0.5106	0.0	20	
Iron	3.44	0.030	2.5	0.9188	101	70	130	3.645	5.7	20	
Lead	0.512	0.010	0.5	0.001487	102	70	130	0.5087	0.7	20	
Manganese	2.48	0.010	2.5	0.0276	98	70	130	2.478	0.2	20	
Zinc	0.522	0.010	0.5	0.02105	100	70	130	0.5181	0.7	20	

Associated samples: **H11050029-001C; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110505A: 46** SampType: **Method Blank** Sample ID: **MB-12052** Method: **E200.8**
Analysis Date: **05/05/11 16:29** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0002	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	0.002	0.0006									
Lead	ND	2E-05									
Manganese	ND	6E-05									
Zinc	0.0009	0.0003									

Associated samples: **H11050029-001C; H11050029-002C**

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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: 12064

Run ID :Run Order: **ACCU-124 (14410200)_110503A: 25** SampType: **Method Blank** Sample ID: **MB-12064** Method: **A2540 D**
Analysis Date: **05/03/11 13:42** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	1									

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **ACCU-124 (14410200)_110503A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-12064** Method: **A2540 D**
Analysis Date: **05/03/11 13:42** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **ACCU-124 (14410200)_110503A: 28** SampType: **Sample Duplicate** Sample ID: **H11050028-001ADUP** Method: **A2540 D**
Analysis Date: **05/03/11 13:43** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **ACCU-124 (14410200)_110503A: 39** SampType: **Sample Duplicate** Sample ID: **H11050038-003CDUP** Method: **A2540 D**
Analysis Date: **05/03/11 15:06** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	22900	10						18870	19	5	R

Associated samples: **H11050029-001A; H11050029-002A**

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: 12066

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 26** SampType: **Method Blank** Sample ID: **MB-12066** Method: **A2540 C**
Analysis Date: **05/03/11 14:04** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	1.0									

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 27** SampType: **Laboratory Control Sample** Sample ID: **LCS-12066** Method: **A2540 C**
Analysis Date: **05/03/11 14:04** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	1940	10	2000		97	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 29** SampType: **Sample Duplicate** Sample ID: **H11050028-004ADUP** Method: **A2540 C**
Analysis Date: **05/03/11 14:05** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	118	10						114	3.4	5	

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **ACCU-124 (14410200)_110503B: 31** SampType: **Sample Matrix Spike** Sample ID: **H11050028-005AMS** Method: **A2540 C**
Analysis Date: **05/03/11 14:06** Units: **mg/L** **Prep Info:** Prep Date: **5/3/2011** 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	2070	10	2000	126	97	80	120				

Associated samples: **H11050029-001A; H11050029-002A**

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70695

Run ID :Run Order: **MAN-TECH_110503A: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **05/03/11 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
Alkalinity, Total as CaCO3	2	0.6									

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **MAN-TECH_110503A: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-04292011** Method: **A2320 B**
Analysis Date: **05/03/11 16:24** 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
Alkalinity, Total as CaCO3	610	4.0	600	1.94	101	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **MAN-TECH_110503A: 63** SampType: **Sample Matrix Spike** Sample ID: **H11050028-003AMS** Method: **A2320 B**
Analysis Date: **05/03/11 19:18** 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	670	4.0	600	51.48	103	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **MAN-TECH_110503A: 69** SampType: **Sample Duplicate** Sample ID: **H11050028-005ADUP** Method: **A2320 B**
Analysis Date: **05/03/11 19:38** 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
Alkalinity, Total as CaCO3	62	4.0						56.33	9.4	20	
Bicarbonate as HCO3	76	4.0						68.72	9.4	20	
Carbonate as CO3	ND	4.0								20	

Associated samples: **H11050029-001A; H11050029-002A**

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70695

Run ID :Run Order: **MAN-TECH_110503A: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1-1905** Method: **A4500-H B**
Analysis Date: **05/03/11 15:58** 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	3.91	0.10	4		98	98	102				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **MAN-TECH_110503A: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3-1664** Method: **A4500-H B**
Analysis Date: **05/03/11 16:04** 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	10.0	0.10	10		100	98	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **MAN-TECH_110503A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-1942** Method: **A4500-H B**
Analysis Date: **05/03/11 16:07** 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	99	101				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **MAN-TECH_110503A: 17** SampType: **Sample Duplicate** Sample ID: **H11050015-001ADUP** Method: **A4500-H B**
Analysis Date: **05/03/11 16:54** 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	8.15	0.10						8.1	0.6	3	

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **MAN-TECH_110503A: 41** SampType: **Sample Duplicate** Sample ID: **H11050018-003ADUP** Method: **A4500-H B**
Analysis Date: **05/03/11 18:04** 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	4.58	0.10						4.77	4.1	3	R

Associated samples: **H11050029-001A; H11050029-002A**

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70695

Run ID :Run Order: **MAN-TECH_110503A: 56** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1943** Method: **A4500-H B**

Analysis Date: **05/03/11 18:50** 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	6.98	0.10	7		100	98	102				

Associated samples: **H11050029-001A; H11050029-002A**

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70698

Run ID :Run Order: **IC101-H_110503B: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV050311-12** Method: **E300.0**
Analysis Date: **05/03/11 18:09** 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
Chloride	100	1.0	100		101	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **IC101-H_110503B: 14** SampType: **Method Blank** Sample ID: **ICB050311-13** Method: **E300.0**
Analysis Date: **05/03/11 18:25** 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	0.2									
Sulfate	ND	0.5									

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **IC101-H_110503B: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB050311-14** Method: **E300.0**
Analysis Date: **05/03/11 18:40** 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	48	1.0	50		96	90	110				
Sulfate	200	1.1	200		99	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **IC101-H_110503B: 46** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV050311-44** Method: **E300.0**
Analysis Date: **05/04/11 02:38** 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	100	1.0	100		101	90	110				
Sulfate	400	1.0	400		101	90	110				

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **IC101-H_110503B: 50** SampType: **Sample Matrix Spike** Sample ID: **H11050029-002AMS** Method: **E300.0**
Analysis Date: **05/04/11 03:40** 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	50	1.0	50		99	90	110				
Sulfate	720	1.1	200	464.7	125	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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70698

Run ID :Run Order: **IC101-H_110503B: 50** SampType: **Sample Matrix Spike** Sample ID: **H11050029-002AMS** Method: **E300.0**

Analysis Date: **05/04/11 03:40** 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

Associated samples: **H11050029-001A; H11050029-002A**

Run ID :Run Order: **IC101-H_110503B: 51** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050029-002AMSD** Method: **E300.0**

Analysis Date: **05/04/11 03:55** 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	50	1.0	50		101	90	110	49.7	1.1	20	
Sulfate	730	1.1	200	464.7	131	90	110	715.5	1.5	20	S

Associated samples: **H11050029-001A; H11050029-002A**

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

Client: MT DEQ-Site Response
Work Order: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/04/11 09:55** 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	0.255	0.10	0.25		102	90	110				
Arsenic	0.0506	0.0050	0.05		101	90	110				
Cadmium	0.0269	0.0010	0.025		107	90	110				
Calcium	2.64	0.50	2.5		105	90	110				
Copper	0.0515	0.010	0.05		103	90	110				
Iron	0.264	0.030	0.25		106	90	110				
Lead	0.0507	0.010	0.05		101	90	110				
Magnesium	2.58	0.50	2.5		103	90	110				
Manganese	0.253	0.010	0.25		101	90	110				
Potassium	2.62	0.50	2.5		105	90	110				
Sodium	2.61	0.50	2.5		105	90	110				
Zinc	0.0523	0.010	0.05		105	90	110				

Associated samples: **H11050029-001B; H11050029-001C; H11050029-002B; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/04/11 10:00** 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	43.0	0.10	40		108	70	130				
Arsenic	0.000190	0.0050									
Cadmium	0.000554	0.0010									
Calcium	129	0.50									
Copper	0.000460	0.010									
Iron	111	0.030	100		111	70	130				
Lead	0.000117	0.010									
Magnesium	44.1	0.50									
Manganese	0.00215	0.010									
Potassium	43.5	0.50									
Sodium	109	0.50									
Zinc	0.00115	0.010									

Associated samples: **H11050029-001B; H11050029-001C; H11050029-002B; H11050029-002C**

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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/04/11 10:04** 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	42.4	0.10	40		106	70	130				
Arsenic	0.0111	0.0050	0.01		111	70	130				
Cadmium	0.0111	0.0010	0.01		111	70	130				
Calcium	128	0.50	120		107	70	130				
Copper	0.0217	0.010	0.02		108	70	130				
Iron	106	0.030	100		106	70	130				
Lead	8.20E-05	0.010				0	0				
Magnesium	43.4	0.50	40		109	70	130				
Manganese	0.0238	0.010	0.02		119	70	130				
Potassium	43.6	0.50	40		109	70	130				
Sodium	109	0.50	100		109	70	130				
Zinc	0.0112	0.010	0.01		112	70	130				

Associated samples: **H11050029-001B; H11050029-001C; H11050029-002B; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **05/04/11 10:31** 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	0.0003									
Calcium	ND	0.003									
Magnesium	ND	0.0007									
Potassium	ND	0.010									
Sodium	0.004	0.003									

Associated samples: **H11050029-001B; H11050029-002B**

Run ID :Run Order: **ICPMS204-B_110504A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **05/04/11 10:36** 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	0.0480	0.10	0.05		96	85	115				
Calcium	47.8	0.50	50		96	85	115				
Magnesium	46.7	0.50	50		93	85	115				
Potassium	47.8	0.50	50		96	85	115				
Sodium	46.2	0.50	50	0.003661	92	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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **05/04/11 10:36** 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

Associated samples: **H11050029-001B; H11050029-002B**

Run ID :Run Order: **ICPMS204-B_110504A: 56** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **05/04/11 17:25** 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	0.247	0.10	0.25		99	90	110				
Arsenic	0.0510	0.0050	0.05		102	90	110				
Cadmium	0.0259	0.0010	0.025		104	90	110				
Calcium	2.64	0.50	2.5		106	90	110				
Copper	0.0519	0.010	0.05		104	90	110				
Iron	0.272	0.030	0.25		109	90	110				
Lead	0.0502	0.010	0.05		100	90	110				
Magnesium	2.57	0.50	2.5		103	90	110				
Manganese	0.247	0.010	0.25		99	90	110				
Potassium	2.54	0.50	2.5		101	90	110				
Sodium	2.60	0.50	2.5		104	90	110				
Zinc	0.0522	0.010	0.05		104	90	110				

Associated samples: **H11050029-001B; H11050029-001C; H11050029-002B; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 57** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **05/04/11 17:30** 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	38.3	0.10	40		96	70	130				
Arsenic	0.000203	0.0050									
Cadmium	0.000442	0.0010									
Calcium	118	0.50									
Copper	0.000415	0.010									
Iron	97.1	0.030	100		97	70	130				
Lead	0.000120	0.010									
Magnesium	40.5	0.50									
Manganese	0.00196	0.010									
Potassium	39.9	0.50									

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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 57** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **05/04/11 17:30** 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
Sodium	101	0.50									
Zinc	0.00105	0.010									

Associated samples: **H11050029-001B; H11050029-001C; H11050029-002B; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 58** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **05/04/11 17:34** 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	39.4	0.10	40		99	70	130				
Arsenic	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Calcium	117	0.50	120		98	70	130				
Copper	0.0203	0.010	0.02		101	70	130				
Iron	98.4	0.030	100		98	70	130				
Lead	7.30E-05	0.010				0	0				
Magnesium	40.5	0.50	40		101	70	130				
Manganese	0.0219	0.010	0.02		109	70	130				
Potassium	39.7	0.50	40		99	70	130				
Sodium	101	0.50	100		101	70	130				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: **H11050029-001B; H11050029-001C; H11050029-002B; H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110504A: 149** SampType: **Sample Matrix Spike** Sample ID: **H11050029-001BMS** Method: **E200.8**
Analysis Date: **05/05/11 00:17** 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	0.205	0.10	0.05	0.1574	95	70	130				
Calcium	58.2	1.0	50	12.29	92	70	130				
Magnesium	54.5	1.0	50	7.583	94	70	130				
Potassium	47.5	1.0	50	0.3543	94	70	130				
Sodium	49.3	1.0	50	1.117	96	70	130				

Associated samples: **H11050029-001B; H11050029-002B**

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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70718

Run ID :Run Order: **ICPMS204-B_110504A: 150** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050029-001BMSD** Method: **E200.8**

Analysis Date: **05/05/11 00:21** 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	0.196	0.10	0.05	0.1574	78	70	130	0.205	4.2	20	
Calcium	56.3	1.0	50	12.29	88	70	130	58.19	3.2	20	
Magnesium	51.7	1.0	50	7.583	88	70	130	54.53	5.3	20	
Potassium	45.7	1.0	50	0.3543	91	70	130	47.53	4.0	20	
Sodium	46.3	1.0	50	1.117	90	70	130	49.3	6.2	20	

Associated samples: **H11050029-001B; H11050029-002B**

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: H11050029
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *16-May-11*

BatchID: R70779

Run ID :Run Order: **ICPMS204-B_110505A: 7** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **05/05/11 13:29** 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
Manganese	0.244	0.010	0.25		98	90	110				

Associated samples: **H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110505A: 8** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **05/05/11 13:33** 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
Manganese	0.00179	0.010									

Associated samples: **H11050029-002C**

Run ID :Run Order: **ICPMS204-B_110505A: 9** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **05/05/11 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
Manganese	0.0213	0.010	0.02		106	70	130				

Associated samples: **H11050029-002C**

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

H11050029

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/2/2011
Reviewed by: BL2000\kwiegand
Received by: jdh
Reviewed Date: 5/4/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.6°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:

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	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	

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: adrausbach@portageinc.com

Shipped by: Hand Del
Cooler ID(s):
Receipt Temp 5.6 °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	VBMC-BRSW01	4/29/11	1507	W	VBMC Surface	X
2	VBMC-BRSW02	4/29/11	1615	W	Water	
3						
4						
5						
6						
7						
8						
9						
10						

4/29/11 AM

LABORATORY USE ONLY H11050029

Custody Record MUST be Signed

Relinquished by (print): Alan Drausbach	Date/Time: 5/2/11 1545	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: Jonathan Hayes	Date/Time: 5/2/11 15:45	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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

ANALYTICAL SUMMARY REPORT

May 16, 2011

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

Workorder No.: H11050051 Quote ID: H645 - UBMC

Project Name: UBMC Sediment

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 5/2/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050051-001	UBMC-BRSD22	04/30/11 9:15	05/02/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11050051-002	UBMC-BRSD22A	04/30/11 9:15	05/02/11	Sediment	Same As Above
H11050051-003	UBMC-BRSD48	04/30/11 10:45	05/02/11	Sediment	Same As Above
H11050051-004	UBMC-BRSD23	04/30/11 11:35	05/02/11	Sediment	Same As Above
H11050051-005	UBMC-BRSD3A	04/30/11 12:15	05/02/11	Sediment	Same As Above
H11050051-006	UBMC-BRSD3B	04/30/11 12:45	05/02/11	Sediment	Same As Above
H11050051-007	UBMC-BRSD38	04/30/11 14:15	05/02/11	Sediment	Same As Above
H11050051-008	UBMC-BRSD01	04/29/11 15:07	05/02/11	Sediment	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC-BRSD22
Lab ID: H11050051-001
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 09:15
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4280	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Arsenic	25	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Cadmium	10	mg/kg		1		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Copper	818	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Iron	10800	mg/kg	D	8		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Lead	954	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Manganese	1540	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Zinc	3790	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075

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 UBMC-BRSD22A
Lab ID: H11050051-002
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 09:15
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4050	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Arsenic	24	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Cadmium	12	mg/kg		1		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Copper	909	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Iron	10400	mg/kg	D	8		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Lead	1040	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Manganese	2020	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Zinc	4050	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075

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 UBMC-BRSD48
Lab ID: H11050051-003
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 10:45
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3480	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Arsenic	62	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Cadmium	34	mg/kg		1		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Copper	536	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Iron	29800	mg/kg	D	30		SW6010B	05/08/11 15:41 / sld	05/04/11 08:59	ICP1-HE_110508C : 13		12075
Lead	1640	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Manganese	13000	mg/kg		5		SW6010B	05/08/11 15:41 / sld	05/04/11 08:59	ICP1-HE_110508C : 13		12075
Zinc	4860	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075

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 UBMC-BRSD23
Lab ID: H11050051-004
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 11:35
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2260	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B : 102		12075
Arsenic	37	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B : 102		12075
Cadmium	8	mg/kg		1		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B : 102		12075
Copper	221	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B : 102		12075
Iron	12000	mg/kg	D	20		SW6010B	05/08/11 15:44 / sld	05/04/11 08:59	ICP1-HE_110508C : 14		12075
Lead	561	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B : 102		12075
Manganese	1140	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B : 102		12075
Zinc	1890	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B : 102		12075

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 UBMC-BRSD3A
Lab ID: H11050051-005
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 12:15
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2020	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Arsenic	18	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Cadmium	20	mg/kg		1		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Copper	296	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Iron	13400	mg/kg	D	20		SW6010B	05/08/11 15:47 / sld	05/04/11 08:59	ICP1-HE_110508C : 15		12075
Lead	251	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Manganese	6210	mg/kg		5		SW6010B	05/08/11 15:47 / sld	05/04/11 08:59	ICP1-HE_110508C : 15		12075
Zinc	2960	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075

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 UBMC-BRSD3B
Lab ID: H11050051-006
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 12:45
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6580	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Arsenic	28	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Cadmium	12	mg/kg		1		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Copper	522	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Iron	16300	mg/kg	D	20		SW6010B	05/08/11 15:50 / sld	05/04/11 08:59	ICP1-HE_110508C : 16		12075
Lead	168	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Manganese	13200	mg/kg		5		SW6010B	05/08/11 15:50 / sld	05/04/11 08:59	ICP1-HE_110508C : 16		12075
Zinc	1940	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075

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 UBMC-BRSD38
Lab ID: H11050051-007
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 14:15
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5560	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B	105	12075
Arsenic	73	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B	105	12075
Cadmium	17	mg/kg		1		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B	105	12075
Copper	372	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B	105	12075
Iron	34800	mg/kg	D	30		SW6010B	05/08/11 15:53 / sld	05/04/11 08:59	ICP1-HE_110508C	17	12075
Lead	1210	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B	105	12075
Manganese	4390	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B	105	12075
Zinc	2930	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B	105	12075

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 UBMC-BRSD01
Lab ID: H11050051-008
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/29/11 15:07
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4460	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Arsenic	11	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Cadmium	ND	mg/kg		1		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Copper	12	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Iron	8210	mg/kg	D	8		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Lead	16	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Manganese	269	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Zinc	92	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075

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

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 05/16/11
Project: UBMC Sediment
Work Order: H11050051

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP1-HE_110505B	
Sample ID: ICV	8	Initial Calibration Verification Standard							05/05/11 11:40	
Aluminum		3.84	mg/L	0.10	96	90	110			
Arsenic		0.764	mg/L	0.10	96	90	110			
Cadmium		0.391	mg/L	0.0030	98	90	110			
Copper		0.791	mg/L	0.020	99	90	110			
Iron		4.10	mg/L	0.030	102	90	110			
Lead		0.831	mg/L	0.050	104	90	110			
Manganese		3.94	mg/L	0.010	99	90	110			
Zinc		0.815	mg/L	0.010	102	90	110			
Sample ID: ICSA	8	Interference Check Sample A							05/05/11 11:56	
Aluminum		506	mg/L	0.10	101	80	120			
Arsenic		-0.00730	mg/L	0.10		0	0			
Cadmium		0.00100	mg/L	0.0030		0	0			
Copper		0.000300	mg/L	0.020		0	0			
Iron		186	mg/L	0.030	93	80	120			
Lead		-0.0957	mg/L	0.050		0	0			
Manganese		0.00200	mg/L	0.010		0	0			
Zinc		-0.00420	mg/L	0.010		0	0			
Sample ID: ICSAB	8	Interference Check Sample AB							05/05/11 11:59	
Aluminum		509	mg/L	0.10	102	80	120			
Arsenic		0.991	mg/L	0.10	99	80	120			
Cadmium		0.964	mg/L	0.0030	96	80	120			
Copper		0.535	mg/L	0.020	107	80	120			
Iron		189	mg/L	0.030	94	80	120			
Lead		0.909	mg/L	0.050	91	80	120			
Manganese		0.498	mg/L	0.010	100	80	120			
Zinc		0.957	mg/L	0.010	96	80	120			
Sample ID: ICV	8	Initial Calibration Verification Standard							05/05/11 14:12	
Aluminum		3.77	mg/L	0.10	94	90	110			
Arsenic		0.797	mg/L	0.10	100	90	110			
Cadmium		0.385	mg/L	0.0030	96	90	110			
Copper		0.773	mg/L	0.020	97	90	110			
Iron		3.96	mg/L	0.030	99	90	110			
Lead		0.796	mg/L	0.050	100	90	110			
Manganese		3.94	mg/L	0.010	98	90	110			
Zinc		0.799	mg/L	0.010	100	90	110			
Sample ID: ICSA	8	Interference Check Sample A							05/05/11 14:24	
Aluminum		513	mg/L	0.10	103	80	120			
Arsenic		0.00380	mg/L	0.10		0	0			
Cadmium		0.000100	mg/L	0.0030		0	0			
Copper		0.00260	mg/L	0.020		0	0			
Iron		188	mg/L	0.030	94	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 05/16/11
Project: UBMC Sediment
Work Order: H11050051

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP1-HE_110505B	
Sample ID: ICSA	8	Interference Check Sample A							05/05/11 14:24	
Lead		-0.107	mg/L	0.050		0	0			
Manganese		0.00210	mg/L	0.010		0	0			
Zinc		-0.00510	mg/L	0.010		0	0			
Sample ID: ICSAB	8	Interference Check Sample AB							05/05/11 14:27	
Aluminum		503	mg/L	0.10	101	80	120			
Arsenic		1.04	mg/L	0.10	104	80	120			
Cadmium		0.962	mg/L	0.0030	96	80	120			
Copper		0.522	mg/L	0.020	104	80	120			
Iron		184	mg/L	0.030	92	80	120			
Lead		0.911	mg/L	0.050	91	80	120			
Manganese		0.505	mg/L	0.010	101	80	120			
Zinc		0.959	mg/L	0.010	96	80	120			
Method: E200.7									Analytical Run: ICP1-HE_110508C	
Sample ID: ICV	2	Initial Calibration Verification Standard							05/08/11 15:13	
Iron		4.06	mg/L	0.030	102	90	110			
Manganese		4.06	mg/L	0.010	102	90	110			
Sample ID: ICSA	2	Interference Check Sample A							05/08/11 15:25	
Iron		190	mg/L	0.030	95	80	120			
Manganese		0.00250	mg/L	0.010		0	0			
Sample ID: ICSAB	2	Interference Check Sample AB							05/08/11 15:28	
Iron		188	mg/L	0.030	94	80	120			
Manganese		0.506	mg/L	0.010	101	80	120			
Sample ID: ICV	2	Initial Calibration Verification Standard							05/08/11 18:32	
Iron		4.04	mg/L	0.030	101	90	110			
Manganese		3.90	mg/L	0.010	98	90	110			
Sample ID: ICSA	2	Interference Check Sample A							05/08/11 18:44	
Iron		188	mg/L	0.030	94	80	120			
Manganese		0.00250	mg/L	0.010		0	0			
Sample ID: ICSAB	2	Interference Check Sample AB							05/08/11 18:47	
Iron		192	mg/L	0.030	96	80	120			
Manganese		0.499	mg/L	0.010	100	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 05/16/11
Project: UBMC Sediment
Work Order: H11050051

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 12075
Sample ID: MB-12075	8	Method Blank				Run: ICP1-HE_110505B				05/05/11 16:45
Aluminum		ND	mg/kg	0.2						
Arsenic		0.8	mg/kg	0.5						
Cadmium		ND	mg/kg	0.02						
Copper		ND	mg/kg	0.2						
Iron		ND	mg/kg	3						
Lead		ND	mg/kg	0.4						
Manganese		0.1	mg/kg	0.08						
Zinc		ND	mg/kg	0.1						
Sample ID: LFB-12075	8	Laboratory Fortified Blank				Run: ICP1-HE_110505B				05/05/11 16:48
Aluminum		242	mg/kg	5.0	97	80	120			
Arsenic		47.3	mg/kg	5.0	93	80	120			
Cadmium		24.2	mg/kg	1.0	97	80	120			
Copper		49.7	mg/kg	5.0	100	80	120			
Iron		256	mg/kg	5.0	103	80	120			
Lead		51.1	mg/kg	5.0	102	80	120			
Manganese		252	mg/kg	5.0	101	80	120			
Zinc		51.2	mg/kg	5.0	102	80	120			
Sample ID: LCS-12075	8	Laboratory Control Sample				Run: ICP1-HE_110505B				05/05/11 16:51
Aluminum		12100	mg/kg	5.0	83	50.7	131.3			
Arsenic		281	mg/kg	5.0	83	72.3	106.4			
Cadmium		120	mg/kg	1.0	88	73	105.1			
Copper		244	mg/kg	5.0	88	77.5	109.6			
Iron		19200	mg/kg	16	84	39.6	138.3			
Lead		181	mg/kg	5.0	98	75.9	108.6			
Manganese		383	mg/kg	5.0	105	80.8	115.7			
Zinc		197	mg/kg	5.0	93	74.2	109.9			
Sample ID: H11050051-008AMS	8	Sample Matrix Spike				Run: ICP1-HE_110505B				05/05/11 17:31
Aluminum		6420	mg/kg	5.0		75	125			A
Arsenic		38.6	mg/kg	5.0	110	75	125			
Cadmium		12.0	mg/kg	1.0	97	75	125			
Copper		41.2	mg/kg	5.0	117	75	125			
Iron		10300	mg/kg	7.9		75	125			A
Lead		63.1	mg/kg	5.0	190	75	125			S
Manganese		410	mg/kg	5.0	114	75	125			
Zinc		117	mg/kg	5.0	102	75	125			
Sample ID: H11050051-008AMSD	8	Sample Matrix Spike Duplicate				Run: ICP1-HE_110505B				05/05/11 17:34
Aluminum		6940	mg/kg	5.0		75	125	7.8	20	A
Arsenic		35.1	mg/kg	5.0	96	75	125	9.5	20	
Cadmium		11.9	mg/kg	1.0	95	75	125	1.3	20	
Copper		42.9	mg/kg	5.0	124	75	125	4.0	20	
Iron		11200	mg/kg	7.9		75	125	8.9	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 05/16/11
Project: UBMC Sediment
Work Order: H11050051

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 12075
Sample ID: H11050051-008AMSD	8	Sample Matrix Spike Duplicate				Run: ICP1-HE_110505B				05/05/11 17:34
Lead		41.5	mg/kg	5.0	103	75	125	41	20	R
Manganese		425	mg/kg	5.0	125	75	125	3.4	20	
Zinc		130	mg/kg	5.0	153	75	125	10	20	S

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.
S - Spike recovery outside of advisory limits.

Workorder Receipt Checklist

H11050051

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/2/2011
Reviewed by: BL2000\sdull
Received by: jdh
Reviewed Date: 5/9/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.6°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:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: VBMC	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote # H-645	Contact Name: Shellie Haasland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Brosshack Meg Babits
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) ☐ R U S H

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

Comments: please copy to: abrosshack@portagine.com

Shipped by: Hand Del
Cooler ID(s):
Receipt Temp: 5.6 °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	VBMC-BRSD22	4/30/11	0915	S	VBMC Sediment X
2	VBMC-BRSD22A		0915		
3	VBMC-BRSD48		1045		
4	VBMC-BRSD23		1135		
5	VBMC-BRSD3A		1215		
6	VBMC-BRSD3B		1245		
7	VDMC-BRSD38		1415		
8	VBMC-BRSD01	4/29/11	1507		
9					
10			5/2/11 MB		

LABORATORY USE ONLY H11050051

Custody Record MUST be Signed

Relinquished by (print): Alan Brosshack Date/Time: 5/2/11 @ 1545 Signature:
Relinquished by (print): Date/Time: Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: X

Received by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Received by Laboratory: Jennifer Hagar Date/Time: 5/2/11 15:45 Signature: Jennifer Hagar

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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
Sediment			
Metals by ICP/ICPMS, Total	Aluminum	5	mg/kg
	Arsenic	5	mg/kg
	Cadmium	1	mg/kg
	Copper	5	mg/kg
	Iron	5	mg/kg
	Lead	5	mg/kg
	Manganese	5	mg/kg
	Zinc	5	mg/kg

ANALYTICAL SUMMARY REPORT

May 17, 2011

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

Workorder No.: H11050107 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 5/6/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050107-001	UBMC TDMW4D	05/04/11 14:05	05/06/11	Groundwater	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11050107-002	UBMC TDMW06	05/04/11 14:05	05/06/11	Groundwater	Same As Above
H11050107-003	UBMC TDMW08	05/04/11 14:25	05/06/11	Groundwater	Same As Above
H11050107-004	UBMC TDMW07	05/05/11 9:12	05/06/11	Groundwater	Same As Above
H11050107-005	UBMC TDMW5	05/05/11 9:30	05/06/11	Groundwater	Same As Above
H11050107-006	UBMC TDMW03	05/05/11 10:40	05/06/11	Groundwater	Same As Above
H11050107-007	UBMC TDMW01	05/05/11 12:55	05/06/11	Groundwater	Same As Above
H11050107-008	UBMC TDMW2D	05/05/11 13:40	05/06/11	Groundwater	Same As Above
H11050107-009	UBMC TDMW2S	05/05/11 14:00	05/06/11	Groundwater	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC TDMW4D
Lab ID: H11050107-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/04/11 14:05
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 15:51 / cmm		PH2_110506A	5	110506A-PH-W
Conductivity	221	umhos/cm		1		A2510 B	05/06/11 15:49 / cmm		COND_110506A	2	110506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	32	mg/L		10		A2540 D	05/09/11 10:27 / cmm	05/09/11 08:32	-124 (14410200)_110509A	17	12125
Solids, Total Dissolved TDS @ 180 C	139	mg/L		10		A2540 C	05/09/11 10:54 / cmm	05/09/11 08:42	-124 (14410200)_110509B	18	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 16:10 / abb		IC101-H_110509A	33	R70867
Sulfate	37	mg/L		1		E300.0	05/09/11 16:10 / abb		IC101-H_110509A	33	R70867
Hardness as CaCO3	101	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	1	R70971
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Arsenic	ND	mg/L		0.003		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Cadmium	ND	mg/L		0.00008		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Calcium	21	mg/L		1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Copper	0.001	mg/L		0.001		E200.8	05/11/11 21:20 / dck		ICPMS204-B_110511A	153	R70942
Iron	ND	mg/L		0.05		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Lead	ND	mg/L		0.0005		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Magnesium	12	mg/L		1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Manganese	ND	mg/L		0.005		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Potassium	ND	mg/L		1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Sodium	2	mg/L		1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858
Zinc	ND	mg/L		0.01		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A	123	R70858

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 UBMC TDMW06
Lab ID: H11050107-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/04/11 14:05
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 16:01 / cmm		PH2_110506A	7	110506A-PH-W
Conductivity	214	umhos/cm		1		A2510 B	05/06/11 15:51 / cmm		COND_110506A	2	310506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	30	mg/L		10		A2540 D	05/09/11 10:27 / cmm	05/09/11 08:32	-124 (14410200)_110509A	18	12125
Solids, Total Dissolved TDS @ 180 C	149	mg/L		10		A2540 C	05/09/11 10:54 / cmm	05/09/11 08:42	-124 (14410200)_110509B	19	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 16:25 / abb		IC101-H_110509A	34	R70867
Sulfate	37	mg/L		1		E300.0	05/09/11 16:25 / abb		IC101-H_110509A	34	R70867
Hardness as CaCO3	102	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	2	R70971
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Arsenic	ND	mg/L		0.003		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Cadmium	ND	mg/L		0.00008		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Calcium	21	mg/L		1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Copper	0.001	mg/L		0.001		E200.8	05/11/11 21:25 / dck		ICPMS204-B_110511A	154	R70942
Iron	ND	mg/L		0.05		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Lead	ND	mg/L		0.0005		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Magnesium	12	mg/L		1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Manganese	ND	mg/L		0.005		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Potassium	ND	mg/L		1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Sodium	2	mg/L		1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858
Zinc	ND	mg/L		0.01		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A	127	R70858

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 UBMC TDMW08
Lab ID: H11050107-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/04/11 14:25
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 16:09 / cmm		PH2_110506A	8	110506A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	05/06/11 15:54 / cmm		COND_110506A	2	410506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:27 / cmm	05/09/11 08:32	-124 (14410200)_110509A	19	12125
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	-124 (14410200)_110509B	20	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 16:40 / abb		IC101-H_110509A	35	R70867
Sulfate	ND	mg/L		1		E300.0	05/09/11 16:40 / abb		IC101-H_110509A	35	R70867
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	3	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Calcium	ND	mg/L		1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Iron	ND	mg/L		0.05		E200.8	05/09/11 23:34 / dck		ICPMS204-B_110509A	128	R70858
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Magnesium	ND	mg/L		1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Sodium	ND	mg/L		1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942
Zinc	ND	mg/L		0.01		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A	155	R70942

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 UBMC TDMW07
Lab ID: H11050107-004
Matrix: Groundwater

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

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	05/06/11 16:12 / cmm		PH2_110506A	9	110506A-PH-W
Conductivity	3	umhos/cm		1		A2510 B	05/13/11 10:25 / cmm		COND_110513A	710	513A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:28 / cmm	05/09/11 08:32	-124 (14410200)_110509A	20	12125
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	-124 (14410200)_110509B	21	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 17:27 / abb		IC101-H_110509A	38	R70867
Sulfate	ND	mg/L		1		E300.0	05/09/11 17:27 / abb		IC101-H_110509A	38	R70867
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	4	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Calcium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Magnesium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Sodium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942
Zinc	ND	mg/L		0.01		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A	156	R70942

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 UBMC TDMW5
Lab ID: H11050107-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 09:30
DateReceived: 05/06/11
Report Date: 05/17/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	05/06/11 16:17 / cmm		PH2_110506A	10	110506A-PH-W
Conductivity	247	umhos/cm		1		A2510 B	05/06/11 15:57 / cmm		COND_110506A	2	610506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	05/09/11 10:29 / cmm	05/09/11 08:32	-124 (14410200)_110509A	21	12125
Solids, Total Dissolved TDS @ 180 C	163	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	-124 (14410200)_110509B	22	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 17:42 / abb		IC101-H_110509A	39	R70867
Sulfate	47	mg/L		1		E300.0	05/09/11 17:42 / abb		IC101-H_110509A	39	R70867
Hardness as CaCO3	120	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	5	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Calcium	26	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Magnesium	14	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Sodium	2	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942
Zinc	0.01	mg/L		0.01		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A	157	R70942

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 UBMC TDMW03
Lab ID: H11050107-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 10:40
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 16:20 / cmm		PH2_110506A	11	110506A-PH-W
Conductivity	540	umhos/cm		1		A2510 B	05/06/11 15:58 / cmm		COND_110506A	2	110506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	05/09/11 10:29 / cmm	05/09/11 08:32	124 (14410200)_110509A	22	12125
Solids, Total Dissolved TDS @ 180 C	434	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	124 (14410200)_110509B	23	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 17:58 / abb		IC101-H_110509A	40	R70867
Sulfate	250	mg/L		1		E300.0	05/09/11 17:58 / abb		IC101-H_110509A	40	R70867
Hardness as CaCO3	275	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	6	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Cadmium	0.00013	mg/L		0.00008		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Calcium	64	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Magnesium	28	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Manganese	0.005	mg/L		0.005		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Sodium	2	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942
Zinc	0.03	mg/L		0.01		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A	158	R70942

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 UBMC TDMW01
Lab ID: H11050107-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 12:55
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 16:24 / cmm		PH2_110506A	12	110506A-PH-W
Conductivity	482	umhos/cm		1		A2510 B	05/06/11 15:58 / cmm		COND_110506A	2	810506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:30 / cmm	05/09/11 08:32	-124 (14410200)_110509A	23	12125
Solids, Total Dissolved TDS @ 180 C	350	mg/L		10		A2540 C	05/09/11 10:56 / cmm	05/09/11 08:42	-124 (14410200)_110509B	24	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 18:13 / abb		IC101-H_110509A	41	R70867
Sulfate	180	mg/L		1		E300.0	05/09/11 18:13 / abb		IC101-H_110509A	41	R70867
Hardness as CaCO3	247	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	7	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Cadmium	0.00036	mg/L		0.00008		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Calcium	45	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Magnesium	33	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Sodium	2	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Zinc	0.26	mg/L		0.01		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942

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 UBMC TDMW2D
Lab ID: H11050107-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 13:40 **DateReceived:** 05/06/11
Report Date: 05/17/11

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	05/06/11 16:28 / cmm		PH2_110506A	13	110506A-PH-W
Conductivity	224	umhos/cm		1		A2510 B	05/06/11 16:00 / cmm		COND_110506A	30	10506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:30 / cmm	05/09/11 08:32	-124 (14410200)_110509A	24	12125
Solids, Total Dissolved TDS @ 180 C	141	mg/L		10		A2540 C	05/09/11 10:56 / cmm	05/09/11 08:42	-124 (14410200)_110509B	25	12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 18:28 / abb		IC101-H_110509A	42	R70867
Sulfate	33	mg/L		1		E300.0	05/09/11 18:28 / abb		IC101-H_110509A	42	R70867
Hardness as CaCO3	110	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	8	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Calcium	23	mg/L		1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Magnesium	13	mg/L		1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Sodium	1	mg/L		1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Zinc	ND	mg/L		0.01		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942

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 UBMC TDMW2S
Lab ID: H11050107-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 14:00
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 16:35 / cmm		PH2_110506A	14	110506A-PH-W
Conductivity	258	umhos/cm		1		A2510 B	05/06/11 16:01 / cmm		COND_110506A	3	210506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	286	mg/L		10		A2540 D	05/09/11 10:31 / cmm	05/09/11 08:34	-124 (14410200)_110509A	27	12126
Solids, Total Dissolved TDS @ 180 C	180	mg/L		10		A2540 C	05/09/11 10:57 / cmm	05/09/11 08:44	-124 (14410200)_110509B	28	12129
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 19:15 / abb		IC101-H_110509A	45	R70867
Sulfate	55	mg/L		1		E300.0	05/09/11 19:15 / abb		IC101-H_110509A	45	R70867
Hardness as CaCO3	132	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	9	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Cadmium	0.00048	mg/L		0.00008		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Calcium	27	mg/L		1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Lead	0.0005	mg/L		0.0005		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Magnesium	16	mg/L		1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Manganese	1.42	mg/L		0.005		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Sodium	1	mg/L		1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942
Zinc	0.51	mg/L		0.01		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A	161	R70942

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

Client: MT DEQ-Site Response
Work Order: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 110506A-COND-PROBE

Run ID :Run Order: **COND_110506A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110506A** Method: **A2510 B**

Analysis Date: **05/06/11 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	995	1.0	1000		99	90	110				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **COND_110506A: 29** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV6_110506A** Method: **A2510 B**

Analysis Date: **05/06/11 15:59** 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	1440	1.0	1412		102	90	110				

Associated samples: **H11050107-008A; H11050107-009A**

Run ID :Run Order: **COND_110506A: 31** SampType: **Sample Duplicate** Sample ID: **H11050107-008ADUP** Method: **A2510 B**

Analysis Date: **05/06/11 16:00** 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	226	1.0						224.3	0.7	10	

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 110506A-PH-W

Date: *18-May-11*

Run ID :Run Order: **PH2_110506A: 1** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_110506A** Method: **A4500-H B**
Analysis Date: **05/06/11 15:20** 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	4.00	0.10	4		100	98	102				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **PH2_110506A: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_110506A** Method: **A4500-H B**
Analysis Date: **05/06/11 15:23** 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: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **PH2_110506A: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3_110506A** Method: **A4500-H B**
Analysis Date: **05/06/11 15:17** 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	10.1	0.10	10		101	98	110				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **PH2_110506A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110506A** Method: **A4500-H B**
Analysis Date: **05/06/11 15:25** 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	7.04	0.10	7		101	99	101				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **PH2_110506A: 6** SampType: **Sample Duplicate** Sample ID: **H11050107-001ADUP** Method: **A4500-H B**
Analysis Date: **05/06/11 16:39** 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	7.67	0.10						7.52	2.0	3	

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 110513A-COND-PROBE

Run ID :Run Order: **COND_110513A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110513A** Method: **A2510 B**

Analysis Date: **05/13/11 10:20** 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	985	1.0	1000		99	90	110				

Associated samples: **H11050107-004A**

Run ID :Run Order: **COND_110513A: 8** SampType: **Sample Duplicate** Sample ID: **H11050107-004ADUP** Method: **A2510 B**

Analysis Date: **05/13/11 12:58** 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	2.50	1.0						2.6	3.9	10	

Associated samples: **H11050107-004A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 12125

Run ID :Run Order: **ACCU-124 (14410200)_110509A: 1** SampType: **Method Blank** Sample ID: **MB-12125** Method: **A2540 D**

Analysis Date: **05/09/11 10:21** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	1									

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110509A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12125** Method: **A2540 D**

Analysis Date: **05/09/11 10:22** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	1790	10	2000		90	70	130				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110509A: 4** SampType: **Sample Duplicate** Sample ID: **H11050106-001ADUP** Method: **A2540 D**

Analysis Date: **05/09/11 10:22** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	18.0	10						18	0.0	5	

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 12126

Run ID :Run Order: **ACCU-124 (14410200)_110509A: 25** SampType: **Method Blank** Sample ID: **MB-12126** Method: **A2540 D**

Analysis Date: **05/09/11 10:31** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	1									

Associated samples: **H11050107-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110509A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-12126** Method: **A2540 D**

Analysis Date: **05/09/11 10:31** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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: **H11050107-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110509A: 28** SampType: **Sample Duplicate** Sample ID: **H11050107-009ADUP** Method: **A2540 D**

Analysis Date: **05/09/11 10:31** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	280	10						286	2.1	5	

Associated samples: **H11050107-009A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 12128

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 1** SampType: **Method Blank** Sample ID: **MB-12128** Method: **A2540 C**
Analysis Date: **05/09/11 10:51** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	1.0									

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12128** Method: **A2540 C**
Analysis Date: **05/09/11 10:48** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	1990	10	2000		99	90	110				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 4** SampType: **Sample Duplicate** Sample ID: **H11050106-001ADUP** Method: **A2540 C**
Analysis Date: **05/09/11 10:49** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	250	10						258	3.1	5	

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 6** SampType: **Sample Matrix Spike** Sample ID: **H11050106-002AMS** Method: **A2540 C**
Analysis Date: **05/09/11 10:49** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	2060	10	2000	178	94	80	120				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: 12129

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 26** SampType: **Method Blank** Sample ID: **MB-12129** Method: **A2540 C**
Analysis Date: **05/09/11 10:56** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	1.0									

Associated samples: **H11050107-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 27** SampType: **Laboratory Control Sample** Sample ID: **LCS-12129** Method: **A2540 C**
Analysis Date: **05/09/11 10:56** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	1890	10	2000		95	90	110				

Associated samples: **H11050107-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 29** SampType: **Sample Duplicate** Sample ID: **H11050107-009ADUP** Method: **A2540 C**
Analysis Date: **05/09/11 10:57** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	174	10						180	3.4	5	

Associated samples: **H11050107-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110509B: 31** SampType: **Sample Matrix Spike** Sample ID: **H11050108-001AMS** Method: **A2540 C**
Analysis Date: **05/09/11 10:58** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2011** 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	2180	10	2000	256	96	80	120				

Associated samples: **H11050107-009A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70858

Run ID :Run Order: **ICPMS204-B_110509A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/09/11 14:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.253	0.10	0.25		101	90	110				
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Calcium	2.51	0.50	2.5		101	90	110				
Iron	0.265	0.030	0.25		106	90	110				
Lead	0.0502	0.010	0.05		100	90	110				
Magnesium	2.57	0.50	2.5		103	90	110				
Manganese	0.248	0.010	0.25		99	90	110				
Potassium	2.54	0.50	2.5		102	90	110				
Sodium	2.56	0.50	2.5		102	90	110				
Zinc	0.0522	0.010	0.05		104	90	110				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

Run ID :Run Order: **ICPMS204-B_110509A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/09/11 14:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	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	0.000160	0.0050									
Cadmium	0.000530	0.0010									
Calcium	115	0.50									
Iron	101	0.030	100		101	70	130				
Lead	0.000119	0.010									
Magnesium	41.2	0.50									
Manganese	0.00224	0.010									
Potassium	40.0	0.50									
Sodium	102	0.50									
Zinc	0.00111	0.010									

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70858

Run ID :Run Order: **ICPMS204-B_110509A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/09/11 14:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	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	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0107	0.0010	0.01		107	70	130				
Calcium	115	0.50	120		96	70	130				
Iron	101	0.030	100		101	70	130				
Lead	8.20E-05	0.010				0	0				
Magnesium	40.8	0.50	40		102	70	130				
Manganese	0.0224	0.010	0.02		112	70	130				
Potassium	39.8	0.50	40		100	70	130				
Sodium	103	0.50	100		103	70	130				
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

Run ID :Run Order: **ICPMS204-B_110509A: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **05/09/11 15:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0006	0.0003									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Calcium	ND	0.003									
Iron	0.002	0.0002									
Lead	1E-05	1.0E-05									
Magnesium	0.003	0.0007									
Manganese	2E-05	1E-05									
Potassium	0.04	0.010									
Sodium	0.03	0.003									
Zinc	0.0007	0.0003									

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70858

Run ID :Run Order: **ICPMS204-B_110509A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **05/09/11 15:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0494	0.10	0.05	0.0005837	98	85	115				
Arsenic	0.0489	0.0050	0.05		98	85	115				
Cadmium	0.0489	0.0010	0.05		98	85	115				
Calcium	46.0	0.50	50		92	85	115				
Iron	4.76	0.030	5	0.002457	95	85	115				
Lead	0.0495	0.010	0.05	0.0000123	99	85	115				
Magnesium	46.9	0.50	50	0.003239	94	85	115				
Manganese	0.0495	0.010	0.05	0.0000229	99	85	115				
Potassium	47.7	0.50	50	0.03756	95	85	115				
Sodium	47.5	0.50	50	0.02932	95	85	115				
Zinc	0.0493	0.010	0.05	0.0007247	97	85	115				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

Run ID :Run Order: **ICPMS204-B_110509A: 124** SampType: **Sample Matrix Spike** Sample ID: **H11050107-001BMS** Method: **E200.8**

Analysis Date: **05/09/11 23:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0831	0.10	0.05	0.03716	92	70	130				
Arsenic	0.0494	0.0050	0.05	0.0004955	98	70	130				
Cadmium	0.0483	0.0010	0.05	0.0000269	96	70	130				
Calcium	62.1	1.0	50	20.62	83	70	130				
Iron	4.65	0.030	5	0.03103	92	70	130				
Lead	0.0491	0.010	0.05	0.000108	98	70	130				
Magnesium	57.5	1.0	50	12.01	91	70	130				
Manganese	0.0497	0.010	0.05	0.001981	95	70	130				
Potassium	44.8	1.0	50	0.4634	89	70	130				
Sodium	48.9	1.0	50	1.923	94	70	130				
Zinc	0.0511	0.010	0.05	0.003743	95	70	130				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70858

Run ID :Run Order: **ICPMS204-B_110509A: 125** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050107-001BMSD** Method: **E200.8**

Analysis Date: **05/09/11 23:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0812	0.10	0.05	0.03716	88	70	130	0.0831		20	
Arsenic	0.0483	0.0050	0.05	0.0004955	96	70	130	0.04937	2.2	20	
Cadmium	0.0477	0.0010	0.05	0.0000269	95	70	130	0.04826	1.2	20	
Calcium	62.0	1.0	50	20.62	83	70	130	62.07	0.2	20	
Iron	4.62	0.030	5	0.03103	92	70	130	4.646	0.5	20	
Lead	0.0473	0.010	0.05	0.000108	94	70	130	0.04908	3.7	20	
Magnesium	57.2	1.0	50	12.01	90	70	130	57.51	0.5	20	
Manganese	0.0476	0.010	0.05	0.001981	91	70	130	0.04972	4.4	20	
Potassium	44.2	1.0	50	0.4634	88	70	130	44.8	1.3	20	
Sodium	48.9	1.0	50	1.923	94	70	130	48.91	0.0	20	
Zinc	0.0500	0.010	0.05	0.003743	92	70	130	0.05107	2.2	20	

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

Run ID :Run Order: **ICPMS204-B_110509A: 147** SampType: **Sample Matrix Spike** Sample ID: **H11050124-001CMS** Method: **E200.8**

Analysis Date: **05/10/11 00:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.168	0.10	0.05	0.1418	53	70	130				S
Arsenic	0.0532	0.0050	0.05	0.006156	94	70	130				
Cadmium	0.0695	0.0010	0.05	0.02328	92	70	130				
Calcium	141	1.0	50	107.4	66	70	130				S
Iron	12.7	0.030	5	8.088	93	70	130				
Lead	0.0712	0.010	0.05	0.02429	94	70	130				
Magnesium	80.0	1.0	50	40.38	79	70	130				
Manganese	7.77	0.010	0.05	8.272		70	130				A
Potassium	43.7	1.0	50	1.432	85	70	130				
Sodium	46.1	1.0	50	2.114	88	70	130				
Zinc	7.53	0.010	0.05	8.326		70	130				A

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70858

Run ID :Run Order: **ICPMS204-B_110509A: 148** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050124-001CMSD** Method: **E200.8**

Analysis Date: **05/10/11 01:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.170	0.10	0.05	0.1418	56	70	130	0.1681	0.9	20	S
Arsenic	0.0536	0.0050	0.05	0.006156	95	70	130	0.05318	0.8	20	
Cadmium	0.0696	0.0010	0.05	0.02328	93	70	130	0.06947	0.2	20	
Calcium	142	1.0	50	107.4	70	70	130	140.6	1.2	20	
Iron	12.4	0.030	5	8.088	87	70	130	12.72	2.1	20	
Lead	0.0718	0.010	0.05	0.02429	95	70	130	0.07116	1.0	20	
Magnesium	83.5	1.0	50	40.38	86	70	130	79.97	4.4	20	
Manganese	7.88	0.010	0.05	8.272		70	130	7.771	1.3	20	A
Potassium	44.2	1.0	50	1.432	86	70	130	43.7	1.1	20	
Sodium	48.0	1.0	50	2.114	92	70	130	46.12	4.0	20	
Zinc	7.71	0.010	0.05	8.326		70	130	7.533	2.3	20	A

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70867

Run ID :Run Order: **IC101-H_110509A: 11** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV050911-12** Method: **E300.0**

Analysis Date: **05/09/11 10:30** 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	90	1.0	100		90	90	110				
Sulfate	370	1.0	400		94	90	110				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **IC101-H_110509A: 12** SampType: **Method Blank** Sample ID: **ICB050911-13** Method: **E300.0**

Analysis Date: **05/09/11 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	ND	0.2									
Sulfate	ND	0.5									

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **IC101-H_110509A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E300.0**

Analysis Date: **05/09/11 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
Chloride	45	1.0	50		90	90	110				
Sulfate	190	1.1	200		94	90	110				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **IC101-H_110509A: 29** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV050911-30** Method: **E300.0**

Analysis Date: **05/09/11 15:08** 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
Chloride	98	1.0	100		98	90	110				
Sulfate	390	1.0	400		98	90	110				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A**

Run ID :Run Order: **IC101-H_110509A: 36** SampType: **Sample Matrix Spike** Sample ID: **H11050107-003AMS** Method: **E300.0**

Analysis Date: **05/09/11 16:56** 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	47	1.0	50		95	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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70867

Run ID :Run Order: **IC101-H_110509A: 36** SampType: **Sample Matrix Spike** Sample ID: **H11050107-003AMS** Method: **E300.0**
Analysis Date: **05/09/11 16:56** 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
Sulfate	200	1.1	200		100	90	110				

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **IC101-H_110509A: 37** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050107-003AMSD** Method: **E300.0**
Analysis Date: **05/09/11 17:11** 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	48	1.0	50		95	90	110	47.45	0.2	20	
Sulfate	200	1.1	200		100	90	110	199.8	0.1	20	

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **IC101-H_110509A: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV050911-44** Method: **E300.0**
Analysis Date: **05/09/11 18:44** 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	98	1.0	100		98	90	110				
Sulfate	400	1.0	400		99	90	110				

Associated samples: **H11050107-009A**

Run ID :Run Order: **IC101-H_110509A: 49** SampType: **Sample Matrix Spike** Sample ID: **H11050108-003AMS** Method: **E300.0**
Analysis Date: **05/09/11 20:16** 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	130	1.0	50	85.28	94	90	110				
Sulfate	470	1.1	200	244.9	113	90	110				S

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

Run ID :Run Order: **IC101-H_110509A: 50** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050108-003AMSD** Method: **E300.0**
Analysis Date: **05/09/11 20:32** 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	130	1.0	50	85.28	94	90	110	132.5	0.0	20	
Sulfate	500	1.1	200	244.9	127	90	110	470.6	5.8	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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R70867

Date: *18-May-11*

Run ID :Run Order: **IC101-H_110509A: 50** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050108-003AMSD** Method: **E300.0**

Analysis Date: **05/09/11 20:32** 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

Associated samples: **H11050107-001A; H11050107-002A; H11050107-003A; H11050107-004A; H11050107-005A; H11050107-006A; H11050107-007A; H11050107-008A; H11050107-009A**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70942

Run ID :Run Order: **ICPMS204-B_110511A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/11/11 10:01** 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	0.248	0.10	0.25		99	90	110				
Arsenic	0.0504	0.0050	0.05		101	90	110				
Cadmium	0.0260	0.0010	0.025		104	90	110				
Calcium	2.52	0.50	2.5		101	90	110				
Copper	0.0518	0.010	0.05		104	90	110				
Iron	0.267	0.030	0.25		107	90	110				
Lead	0.0500	0.010	0.05		100	90	110				
Magnesium	2.55	0.50	2.5		102	90	110				
Manganese	0.252	0.010	0.25		101	90	110				
Potassium	2.49	0.50	2.5		100	90	110				
Sodium	2.54	0.50	2.5		102	90	110				
Zinc	0.0518	0.010	0.05		104	90	110				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

Run ID :Run Order: **ICPMS204-B_110511A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/11/11 10:06** 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	40.3	0.10	40		101	70	130				
Arsenic	0.000164	0.0050									
Cadmium	0.000549	0.0010									
Calcium	121	0.50									
Copper	0.000447	0.010									
Iron	102	0.030	100		102	70	130				
Lead	0.000105	0.010									
Magnesium	41.8	0.50									
Manganese	0.00209	0.010									
Potassium	41.1	0.50									
Sodium	104	0.50									
Zinc	0.00104	0.010									

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70942

Run ID :Run Order: **ICPMS204-B_110511A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/11/11 10:10** 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	40.8	0.10	40		102	70	130				
Arsenic	0.0108	0.0050	0.01		108	70	130				
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	103	0.030	100		103	70	130				
Lead	7.30E-05	0.010				0	0				
Magnesium	42.2	0.50	40		106	70	130				
Manganese	0.0229	0.010	0.02		115	70	130				
Potassium	40.9	0.50	40		102	70	130				
Sodium	105	0.50	100		105	70	130				
Zinc	0.0114	0.010	0.01		114	70	130				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

Run ID :Run Order: **ICPMS204-B_110511A: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **05/11/11 10:45** 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	0.003	0.003									
Copper	4E-05	3E-05									
Iron	0.0005	0.0002									
Lead	ND	1.0E-05									
Magnesium	ND	0.0007									
Manganese	ND	1E-05									
Potassium	0.02	0.010									
Sodium	0.01	0.003									
Zinc	0.0006	0.0003									

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70942

Run ID :Run Order: **ICPMS204-B_110511A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **05/11/11 10:50** 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	0.0492	0.10	0.05		98	85	115				
Arsenic	0.0492	0.0050	0.05		98	85	115				
Cadmium	0.0491	0.0010	0.05		98	85	115				
Calcium	46.9	0.50	50	0.003245	94	85	115				
Copper	0.0477	0.010	0.05	0.0000373	95	85	115				
Iron	4.72	0.030	5	0.0005486	94	85	115				
Lead	0.0496	0.010	0.05		99	85	115				
Magnesium	47.6	0.50	50		95	85	115				
Manganese	0.0485	0.010	0.05		97	85	115				
Potassium	48.4	0.50	50	0.01546	97	85	115				
Sodium	47.8	0.50	50	0.01146	95	85	115				
Zinc	0.0493	0.010	0.05	0.0006361	97	85	115				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

Run ID :Run Order: **ICPMS204-B_110511A: 145** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/11/11 20:45** 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	0.253	0.10	0.25		101	90	110				
Arsenic	0.0501	0.0050	0.05		100	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Calcium	2.53	0.50	2.5		101	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Iron	0.262	0.030	0.25		105	90	110				
Lead	0.0503	0.010	0.05		101	90	110				
Magnesium	2.56	0.50	2.5		102	90	110				
Manganese	0.252	0.010	0.25		101	90	110				
Potassium	2.51	0.50	2.5		100	90	110				
Sodium	2.53	0.50	2.5		101	90	110				
Zinc	0.0515	0.010	0.05		103	90	110				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70942

Run ID :Run Order: **ICPMS204-B_110511A: 146** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/11/11 20:50** 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	40.1	0.10	40		100	70	130				
Arsenic	0.000181	0.0050									
Cadmium	0.000429	0.0010									
Calcium	119	0.50									
Copper	0.000385	0.010									
Iron	101	0.030	100		101	70	130				
Lead	8.80E-05	0.010									
Magnesium	41.8	0.50									
Manganese	0.00209	0.010									
Potassium	39.8	0.50									
Sodium	102	0.50									
Zinc	0.00119	0.010									

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

Run ID :Run Order: **ICPMS204-B_110511A: 147** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/11/11 20:54** 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	40.7	0.10	40		102	70	130				
Arsenic	0.0110	0.0050	0.01		110	70	130				
Cadmium	0.0109	0.0010	0.01		109	70	130				
Calcium	120	0.50	120		100	70	130				
Copper	0.0213	0.010	0.02		106	70	130				
Iron	105	0.030	100		105	70	130				
Lead	7.40E-05	0.010				0	0				
Magnesium	42.3	0.50	40		106	70	130				
Manganese	0.0228	0.010	0.02		114	70	130				
Potassium	40.3	0.50	40		101	70	130				
Sodium	105	0.50	100		105	70	130				
Zinc	0.0113	0.010	0.01		113	70	130				

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

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: H11050107
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *18-May-11*

BatchID: R70942

Run ID :Run Order: **ICPMS204-B_110511A: 166** SampType: **Sample Matrix Spike** Sample ID: **H11050107-009BMS** Method: **E200.8**

Analysis Date: **05/11/11 22:17** 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	0.0665	0.10	0.05	0.01979	93	70	130				
Arsenic	0.0494	0.0050	0.05	0.0002582	98	70	130				
Cadmium	0.0480	0.0010	0.05	0.0004776	95	70	130				
Calcium	70.0	1.0	50	27.14	86	70	130				
Copper	0.0478	0.010	0.05	0.0006197	94	70	130				
Iron	4.87	0.030	5	0.01836	97	70	130				
Lead	0.0485	0.010	0.05	0.000504	96	70	130				
Magnesium	60.9	1.0	50	15.71	90	70	130				
Manganese	1.38	0.010	0.05	1.418		70	130				A
Potassium	45.6	1.0	50	0.628	90	70	130				
Sodium	47.7	1.0	50	1.394	93	70	130				
Zinc	0.521	0.010	0.05	0.5067		70	130				A

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

Run ID :Run Order: **ICPMS204-B_110511A: 167** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11050107-009BMSD** Method: **E200.8**

Analysis Date: **05/11/11 22:22** 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	0.0674	0.10	0.05	0.01979	95	70	130	0.06652		20	
Arsenic	0.0505	0.0050	0.05	0.0002582	100	70	130	0.04943	2.1	20	
Cadmium	0.0483	0.0010	0.05	0.0004776	96	70	130	0.04803	0.6	20	
Calcium	71.6	1.0	50	27.14	89	70	130	70.03	2.2	20	
Copper	0.0492	0.010	0.05	0.0006197	97	70	130	0.04783	2.9	20	
Iron	4.78	0.030	5	0.01836	95	70	130	4.873	1.9	20	
Lead	0.0483	0.010	0.05	0.000504	96	70	130	0.04854	0.4	20	
Magnesium	61.9	1.0	50	15.71	92	70	130	60.92	1.5	20	
Manganese	1.39	0.010	0.05	1.418		70	130	1.377	1.1	20	A
Potassium	46.5	1.0	50	0.628	92	70	130	45.61	1.8	20	
Sodium	48.4	1.0	50	1.394	94	70	130	47.68	1.5	20	
Zinc	0.528	0.010	0.05	0.5067		70	130	0.5206	1.3	20	A

Associated samples: **H11050107-001B; H11050107-002B; H11050107-003B; H11050107-004B; H11050107-005B; H11050107-006B; H11050107-007B; H11050107-008B; H11050107-009B**

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

Workorder Receipt Checklist

H11050107

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/6/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 5/9/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	6.2°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:

Received a nitric preserved, unfiltered sample container. No unfiltered metals analysis is on the quote for the UBMC Groundwater set. L/M and emailed A. Dreesbach. TI 5/6/11. Per phone call from A. Dreesbach, we are to analyze only for what is in the quote. TI 5/9/11.

ENERGY LABORATORIES

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 - SRS	UMBC	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 Pat Seccomb

Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

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

ANALYSIS REQUESTED

SEE ATTACHED

Normal Turnaround (TAT)

RUSH

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

Comments: please copy results to adreesbach@portagcinc.com

Shipped by: HAND

Cooler ID(s): Y

Receipt Temp: 6.2 °C

On Ice: Yes No

Custody Seal Y N

Intact Y N

Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	UBMCTDMW4D	5/4/11	1405	W	UBMC Groundwater	X				H11050107
2	UBMCTDMW06	5/4/11	1405							
3	UBMCTDMW08	5/4/11	1425							
4	UBMCTDMW07	5/5/11	0912							
5	UBMCTDMW5	5/5/11	0930							
6	UBMCTDMW03	5/5/11	1040							
7	UBMCTDMW01	5/5/11	1255							
8	UBMCTDMW2D	5/5/11	1340							
9	UBMCTDMW2S	5/5/11	1400							
10				AD 5/6/11						

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	5/6/11 1330	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

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

Received by Laboratory: Esther Merritt Date/Time: 5-6-11 13:30 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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Ground Water			
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Calcium	1	mg/L
	Copper	0.001	mg/L
	Iron	0.05	mg/L
	Lead	0.0005	mg/L
	Magnesium	1	mg/L
	Manganese	0.005	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

ANALYTICAL SUMMARY REPORT

July 05, 2011

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

Workorder No.: H11060292 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 10 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060292-001	UBMC-BRSW25	06/13/11 10:06	06/15/11	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
H11060292-002	UBMC-BRSW34	06/13/11 10:45	06/15/11	Aqueous	Same As Above
H11060292-003	UBMC-BRSW29	06/13/11 11:45	06/15/11	Aqueous	Same As Above
H11060292-004	UBMC-BRSW38	06/13/11 12:45	06/15/11	Aqueous	Same As Above
H11060292-005	UBMC-BRSW22	06/13/11 14:10	06/15/11	Aqueous	Same As Above
H11060292-006	UBMC-BRSW24	06/13/11 14:10	06/15/11	Aqueous	Same As Above
H11060292-007	UBMC-BRSW45	06/13/11 15:12	06/15/11	Aqueous	Same As Above
H11060292-008	UBMC-BRSW1	06/13/11 16:08	06/15/11	Aqueous	Same As Above
H11060292-009	UBMC-BRSW2	06/13/11 17:15	06/15/11	Aqueous	Same As Above
H11060292-010	UBMC-BRSW48	06/13/11 17:40	06/15/11	Aqueous	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC-BRSW25
Lab ID: H11060292-001
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 10:06
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.6	s.u.		0.1		A4500-H B	06/16/11 14:09 / zeg		MAN-TECH_110617B	13	R71916
Conductivity	1	umhos/cm		1		A2510 B	06/16/11 09:27 / cmm		COND_110616B	810616A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:14 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	3	12578
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/16/11 10:05 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	3	12580
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	06/16/11 14:09 / zeg		MAN-TECH_110617B	12	R71916
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	06/16/11 14:09 / zeg		MAN-TECH_110617B	12	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:09 / zeg		MAN-TECH_110617B	12	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 11:41 / zeg		IC102-H_110617A	21	R71955
Sulfate	ND	mg/L		1		E300.0	06/17/11 11:41 / zeg		IC102-H_110617A	21	R71955
Hardness as CaCO3	ND	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	3	R72025
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/20/11 21:05 / dck		ICPMS204-B_110620B	57	R72000
Calcium	ND	mg/L		1		E200.8	06/20/11 21:05 / dck		ICPMS204-B_110620B	57	R72000
Magnesium	ND	mg/L		1		E200.7	06/16/11 12:32 / sld		ICP2-HE_110616A	22	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:32 / sld		ICP2-HE_110616A	22	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:32 / sld		ICP2-HE_110616A	22	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B	61	R72000
Cadmium	ND	mg/L		0.00008		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B	61	R72000
Copper	ND	mg/L		0.001		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B	61	R72000
Iron	ND	mg/L		0.03		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B	61	R72000
Lead	ND	mg/L		0.0005		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B	61	R72000
Manganese	ND	mg/L		0.005		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B	61	R72000
Zinc	ND	mg/L		0.01		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B	61	R72000

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 UBMC-BRSW34
Lab ID: H11060292-002
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 10:45
Report Date: 07/05/11
DateReceived: 06/15/11

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	06/16/11 14:20 / zeg		MAN-TECH_110617B	17	R71916
Conductivity	165	umhos/cm		1		A2510 B	06/16/11 09:27 / cmm		COND_110616B	1	010616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:15 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	5	12578
Solids, Total Dissolved TDS @ 180 C	90	mg/L		10		A2540 C	06/16/11 10:06 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	5	12580
INORGANICS											
Alkalinity, Total as CaCO3	63	mg/L		4		A2320 B	06/16/11 14:20 / zeg		MAN-TECH_110617B	16	R71916
Bicarbonate as HCO3	77	mg/L		4		A2320 B	06/16/11 14:20 / zeg		MAN-TECH_110617B	16	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:20 / zeg		MAN-TECH_110617B	16	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 11:53 / zeg		IC102-H_110617A	22	R71955
Sulfate	17	mg/L		1		E300.0	06/17/11 11:53 / zeg		IC102-H_110617A	22	R71955
Hardness as CaCO3	78	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	4	R72025
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/20/11 21:42 / dck		ICPMS204-B_110620B	65	R72000
Calcium	17	mg/L		1		E200.8	06/20/11 21:42 / dck		ICPMS204-B_110620B	65	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 12:43 / sld		ICP2-HE_110616A	25	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:43 / sld		ICP2-HE_110616A	25	R71921
Sodium	2	mg/L		1		E200.7	06/16/11 12:43 / sld		ICP2-HE_110616A	25	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Cadmium	0.00302	mg/L		0.00008		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Copper	0.021	mg/L		0.001		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Iron	0.22	mg/L		0.03		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Lead	0.0174	mg/L		0.0005		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Manganese	0.336	mg/L		0.005		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Zinc	0.47	mg/L		0.01		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577

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 UBMC-BRSW29
Lab ID: H11060292-003
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 11:45
DateReceived: 06/15/11
Report Date: 07/05/11

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	06/16/11 14:26 / zeg		MAN-TECH_110617B	19	R71916
Conductivity	136	umhos/cm		1		A2510 B	06/16/11 09:28 / cmm		COND_110616B	1	110616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:15 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	6	12578
Solids, Total Dissolved TDS @ 180 C	84	mg/L		10		A2540 C	06/16/11 10:07 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	7	12580
INORGANICS											
Alkalinity, Total as CaCO3	63	mg/L		4		A2320 B	06/16/11 14:26 / zeg		MAN-TECH_110617B	18	R71916
Bicarbonate as HCO3	77	mg/L		4		A2320 B	06/16/11 14:26 / zeg		MAN-TECH_110617B	18	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:26 / zeg		MAN-TECH_110617B	18	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 12:04 / zeg		IC102-H_110617A	23	R71955
Sulfate	8	mg/L		1		E300.0	06/17/11 12:04 / zeg		IC102-H_110617A	23	R71955
Hardness as CaCO3	69	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	5	R72025
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/20/11 22:09 / dck		ICPMS204-B_110620B	71	R72000
Calcium	16	mg/L		1		E200.8	06/20/11 22:09 / dck		ICPMS204-B_110620B	71	R72000
Magnesium	7	mg/L		1		E200.7	06/16/11 12:47 / sld		ICP2-HE_110616A	26	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:47 / sld		ICP2-HE_110616A	26	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:47 / sld		ICP2-HE_110616A	26	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Cadmium	0.00188	mg/L		0.00008		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Copper	0.013	mg/L		0.001		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Iron	0.13	mg/L		0.03		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Lead	0.0087	mg/L		0.0005		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Manganese	0.171	mg/L		0.005		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Zinc	0.32	mg/L		0.01		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577

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 UBMC-BRSW38
Lab ID: H11060292-004
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 12:45
DateReceived: 06/15/11
Report Date: 07/05/11

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	06/16/11 14:33 / zeg		MAN-TECH_110617B	21	R71916
Conductivity	159	umhos/cm		1		A2510 B	06/16/11 09:28 / cmm		COND_110616B	1	1210616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:16 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	7	12578
Solids, Total Dissolved TDS @ 180 C	88	mg/L		10		A2540 C	06/16/11 10:07 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	8	12580
INORGANICS											
Alkalinity, Total as CaCO3	65	mg/L		4		A2320 B	06/16/11 14:33 / zeg		MAN-TECH_110617B	20	R71916
Bicarbonate as HCO3	79	mg/L		4		A2320 B	06/16/11 14:33 / zeg		MAN-TECH_110617B	20	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:33 / zeg		MAN-TECH_110617B	20	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 12:39 / zeg		IC102-H_110617A	26	R71955
Sulfate	15	mg/L		1		E300.0	06/17/11 12:39 / zeg		IC102-H_110617A	26	R71955
Hardness as CaCO3	78	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	6	R72025
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/20/11 22:18 / dck		ICPMS204-B_110620B	73	R72000
Calcium	17	mg/L		1		E200.8	06/20/11 22:18 / dck		ICPMS204-B_110620B	73	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 12:50 / sld		ICP2-HE_110616A	27	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:50 / sld		ICP2-HE_110616A	27	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:50 / sld		ICP2-HE_110616A	27	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Cadmium	0.00434	mg/L		0.00008		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Copper	0.027	mg/L		0.001		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Iron	0.19	mg/L		0.03		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Lead	0.0212	mg/L		0.0005		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Manganese	0.352	mg/L		0.005		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Zinc	0.75	mg/L		0.01		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000

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 UBMC-BRSW22
Lab ID: H11060292-005
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 07/05/11
DateReceived: 06/15/11

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	06/16/11 14:40 / zeg		MAN-TECH_110617B	23	R71916
Conductivity	214	umhos/cm		1		A2510 B	06/16/11 09:29 / cmm		COND_110616B	1	310616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:16 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	8	12578
Solids, Total Dissolved TDS @ 180 C	98	mg/L		10		A2540 C	06/16/11 10:07 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	9	12580
INORGANICS											
Alkalinity, Total as CaCO3	69	mg/L		4		A2320 B	06/16/11 14:40 / zeg		MAN-TECH_110617B	22	R71916
Bicarbonate as HCO3	84	mg/L		4		A2320 B	06/16/11 14:40 / zeg		MAN-TECH_110617B	22	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:40 / zeg		MAN-TECH_110617B	22	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 12:51 / zeg		IC102-H_110617A	27	R71955
Sulfate	32	mg/L		1		E300.0	06/17/11 12:51 / zeg		IC102-H_110617A	27	R71955
Hardness as CaCO3	102	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	7	R72025
METALS, DISSOLVED											
Aluminum	0.08	mg/L		0.03		E200.8	06/20/11 22:27 / dck		ICPMS204-B_110620B	75	R72000
Calcium	25	mg/L		1		E200.8	06/20/11 22:27 / dck		ICPMS204-B_110620B	75	R72000
Magnesium	10	mg/L		1		E200.7	06/16/11 12:54 / sld		ICP2-HE_110616A	28	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:54 / sld		ICP2-HE_110616A	28	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:54 / sld		ICP2-HE_110616A	28	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Cadmium	0.00958	mg/L		0.00008		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Copper	0.195	mg/L		0.001		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Iron	0.12	mg/L		0.03		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Lead	0.0175	mg/L		0.0005		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Manganese	0.424	mg/L		0.005		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Zinc	1.57	mg/L		0.01		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000

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 UBMC-BRSW24
Lab ID: H11060292-006
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 07/05/11
DateReceived: 06/15/11

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	06/16/11 14:48 / zeg		MAN-TECH_110617B	25	R71916
Conductivity	206	umhos/cm		1		A2510 B	06/16/11 09:29 / cmm		COND_110616B	1	410616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:16 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	9	12578
Solids, Total Dissolved TDS @ 180 C	112	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	10	12580
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	06/16/11 14:48 / zeg		MAN-TECH_110617B	24	R71916
Bicarbonate as HCO3	85	mg/L		4		A2320 B	06/16/11 14:48 / zeg		MAN-TECH_110617B	24	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:48 / zeg		MAN-TECH_110617B	24	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 13:02 / zeg		IC102-H_110617A	28	R71955
Sulfate	32	mg/L		1		E300.0	06/17/11 13:02 / zeg		IC102-H_110617A	28	R71955
Hardness as CaCO3	101	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	8	R72025
METALS, DISSOLVED											
Aluminum	0.09	mg/L		0.03		E200.8	06/20/11 22:36 / dck		ICPMS204-B_110620B	77	R72000
Calcium	25	mg/L		1		E200.8	06/20/11 22:36 / dck		ICPMS204-B_110620B	77	R72000
Magnesium	10	mg/L		1		E200.7	06/16/11 12:57 / sld		ICP2-HE_110616A	29	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:57 / sld		ICP2-HE_110616A	29	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:57 / sld		ICP2-HE_110616A	29	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Cadmium	0.00975	mg/L		0.00008		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Copper	0.200	mg/L		0.001		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Iron	0.17	mg/L		0.03		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Lead	0.0202	mg/L		0.0005		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Manganese	0.425	mg/L		0.005		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Zinc	1.57	mg/L		0.01		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577

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 UBMC-BRSW45
Lab ID: H11060292-007
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 15:12
DateReceived: 06/15/11
Report Date: 07/05/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	06/16/11 14:55 / zeg		MAN-TECH_110617B	27	R71916
Conductivity	172	umhos/cm		1		A2510 B	06/16/11 09:30 / cmm		COND_110616B	1510616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:17 / cmm	06/16/11 09:50	-124 (14410200)_110616A	10	12578
Solids, Total Dissolved TDS @ 180 C	64	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	11	12580
INORGANICS											
Alkalinity, Total as CaCO3	72	mg/L		4		A2320 B	06/16/11 14:55 / zeg		MAN-TECH_110617B	26	R71916
Bicarbonate as HCO3	87	mg/L		4		A2320 B	06/16/11 14:55 / zeg		MAN-TECH_110617B	26	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:55 / zeg		MAN-TECH_110617B	26	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 13:37 / zeg		IC102-H_110617A	31	R71955
Sulfate	13	mg/L		1		E300.0	06/17/11 13:37 / zeg		IC102-H_110617A	31	R71955
Hardness as CaCO3	83	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	9	R72025
METALS, DISSOLVED											
Aluminum	0.12	mg/L		0.03		E200.8	06/20/11 23:04 / dck		ICPMS204-B_110620B	83	R72000
Calcium	19	mg/L		1		E200.8	06/20/11 23:04 / dck		ICPMS204-B_110620B	83	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 13:01 / sld		ICP2-HE_110616A	30	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:01 / sld		ICP2-HE_110616A	30	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:01 / sld		ICP2-HE_110616A	30	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Cadmium	0.00713	mg/L		0.00008		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Copper	0.205	mg/L		0.001		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Iron	0.10	mg/L		0.03		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Lead	0.0168	mg/L		0.0005		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Manganese	0.370	mg/L		0.005		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Zinc	0.98	mg/L		0.01		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577

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 UBMC-BRSW1
Lab ID: H11060292-008
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 16:08
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	06/16/11 15:09 / zeg		MAN-TECH_110617B	31	R71916
Conductivity	148	umhos/cm		1		A2510 B	06/16/11 09:31 / cmm		COND_110616B	1	610616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:17 / cmm	06/16/11 09:50	-124 (14410200)_110616A	11	12578
Solids, Total Dissolved TDS @ 180 C	54	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	12	12580
INORGANICS											
Alkalinity, Total as CaCO3	82	mg/L		4		A2320 B	06/16/11 15:09 / zeg		MAN-TECH_110617B	30	R71916
Bicarbonate as HCO3	100	mg/L		4		A2320 B	06/16/11 15:09 / zeg		MAN-TECH_110617B	30	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:09 / zeg		MAN-TECH_110617B	30	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 13:49 / zeg		IC102-H_110617A	32	R71955
Sulfate	2	mg/L		1		E300.0	06/17/11 13:49 / zeg		IC102-H_110617A	32	R71955
Hardness as CaCO3	78	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	10	R72025
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/20/11 23:13 / dck		ICPMS204-B_110620B	85	R72000
Calcium	16	mg/L		1		E200.8	06/20/11 23:13 / dck		ICPMS204-B_110620B	85	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 13:12 / sld		ICP2-HE_110616A	33	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:12 / sld		ICP2-HE_110616A	33	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:12 / sld		ICP2-HE_110616A	33	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Cadmium	ND	mg/L		0.00008		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Copper	0.001	mg/L		0.001		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Iron	0.10	mg/L		0.03		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Lead	ND	mg/L		0.0005		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Manganese	0.006	mg/L		0.005		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Zinc	ND	mg/L		0.01		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577

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 UBMC-BRSW2
Lab ID: H11060292-009
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 17:15
Report Date: 07/05/11
DateReceived: 06/15/11

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	06/16/11 15:15 / zeg		MAN-TECH_110617B	33	R71916
Conductivity	1230	umhos/cm		1		A2510 B	06/16/11 09:31 / cmm		COND_110616B	1	1710616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:17 / cmm	06/16/11 09:50	-124 (14410200)_110616A	12	12578
Solids, Total Dissolved TDS @ 180 C	978	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	13	12580
INORGANICS											
Alkalinity, Total as CaCO3	29	mg/L		4		A2320 B	06/16/11 15:15 / zeg		MAN-TECH_110617B	32	R71916
Bicarbonate as HCO3	36	mg/L		4		A2320 B	06/16/11 15:15 / zeg		MAN-TECH_110617B	32	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:15 / zeg		MAN-TECH_110617B	32	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 14:00 / zeg		IC102-H_110617A	33	R71955
Sulfate	720	mg/L	D	2		E300.0	06/17/11 14:00 / zeg		IC102-H_110617A	33	R71955
Hardness as CaCO3	711	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	11	R72025
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/20/11 23:22 / dck		ICPMS204-B_110620B	87	R72000
Calcium	139	mg/L		1		E200.8	06/20/11 23:22 / dck		ICPMS204-B_110620B	87	R72000
Magnesium	89	mg/L		1		E200.7	06/16/11 13:16 / sld		ICP2-HE_110616A	34	R71921
Potassium	2	mg/L		1		E200.7	06/16/11 13:16 / sld		ICP2-HE_110616A	34	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:16 / sld		ICP2-HE_110616A	34	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Cadmium	0.00700	mg/L		0.00008		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Copper	0.009	mg/L		0.001		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Iron	0.40	mg/L		0.03		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Lead	0.0442	mg/L		0.0005		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Manganese	2.36	mg/L		0.005		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Zinc	1.75	mg/L		0.01		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577

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 UBMC-BRSW48
Lab ID: H11060292-010
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 17:40
DateReceived: 06/15/11
Report Date: 07/05/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	06/16/11 15:22 / zeg		MAN-TECH_110617B	35	R71916
Conductivity	178	umhos/cm		1		A2510 B	06/16/11 09:32 / cmm		COND_110616B	1810616A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:18 / cmm	06/16/11 09:50	-124 (14410200)_110616A	13	12578
Solids, Total Dissolved TDS @ 180 C	88	mg/L		10		A2540 C	06/16/11 10:09 / cmm	06/16/11 09:57	-124 (14410200)_111116A	14	12580
INORGANICS											
Alkalinity, Total as CaCO3	72	mg/L		4		A2320 B	06/16/11 15:22 / zeg		MAN-TECH_110617B	34	R71916
Bicarbonate as HCO3	88	mg/L		4		A2320 B	06/16/11 15:22 / zeg		MAN-TECH_110617B	34	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:22 / zeg		MAN-TECH_110617B	34	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 14:12 / zeg		IC102-H_110617A	34	R71955
Sulfate	13	mg/L		1		E300.0	06/17/11 14:12 / zeg		IC102-H_110617A	34	R71955
Hardness as CaCO3	83	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	12	R72025
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/20/11 23:31 / dck		ICPMS204-B_110620B	89	R72000
Calcium	18	mg/L		1		E200.8	06/20/11 23:31 / dck		ICPMS204-B_110620B	89	R72000
Magnesium	10	mg/L		1		E200.7	06/16/11 13:20 / sld		ICP2-HE_110616A	35	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:20 / sld		ICP2-HE_110616A	35	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:20 / sld		ICP2-HE_110616A	35	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Cadmium	0.00290	mg/L		0.00008		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Copper	0.040	mg/L		0.001		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Iron	0.20	mg/L		0.03		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Lead	0.0202	mg/L		0.0005		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Manganese	0.316	mg/L		0.005		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Zinc	0.51	mg/L		0.01		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577

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

Client: MT DEQ-Site Response
Work Order: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: 110616A-COND-PROBE

Run ID :Run Order: **COND_110616B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110616A** Method: **A2510 B**

Analysis Date: **06/16/11 09:20** 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	1020	1.0	1000		102	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **COND_110616B: 9** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A2510 B**

Analysis Date: **06/16/11 09:27** 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	1.25	1.0						1.3	3.9	10	

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: 12577

Run ID :Run Order: **ICPMS204-B_110620B: 44** SampType: **Method Blank** Sample ID: **MB-12577** Method: **E200.8**
Analysis Date: **06/20/11 20:07** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	0.004	0.0006									
Lead	2E-05	2E-05									
Manganese	ND	6E-05									
Zinc	0.004	0.0003									

Associated samples: **H11060292-002C; H11060292-003C; H11060292-006C; H11060292-007C; H11060292-008C; H11060292-009C; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 45** SampType: **Laboratory Control Sample** Sample ID: **LCS-12577** Method: **E200.8**
Analysis Date: **06/20/11 20:12** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.0050	0.5	0.0000786	103	85	115				
Cadmium	0.278	0.0010	0.25		111	85	115				
Copper	0.510	0.010	0.5		102	85	115				
Iron	2.60	0.030	2.5	0.003506	104	85	115				
Lead	0.516	0.010	0.5	0.0000226	103	85	115				
Manganese	2.47	0.010	2.5		99	85	115				
Zinc	0.521	0.010	0.5	0.004439	103	85	115				

Associated samples: **H11060292-002C; H11060292-003C; H11060292-006C; H11060292-007C; H11060292-008C; H11060292-009C; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 49** SampType: **Sample Matrix Spike** Sample ID: **H11060286-001AMS3** Method: **E200.8**
Analysis Date: **06/20/11 20:29** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	0.0050	1	0.0142	102	70	130				
Cadmium	0.532	0.0010	0.5	0.000775	106	70	130				
Copper	1.02	0.010	1	0.01071	101	70	130				
Iron	5.90	0.030	5	0.6454	105	70	130				
Lead	1.03	0.010	1	0.007982	102	70	130				
Manganese	4.98	0.010	5	0.04366	99	70	130				
Zinc	1.14	0.010	1	0.1154	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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: 12577

Run ID :Run Order: **ICPMS204-B_110620B: 49** SampType: **Sample Matrix Spike** Sample ID: **H11060286-001AMS3** Method: **E200.8**

Analysis Date: **06/20/11 20:29** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

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

Associated samples: **H11060292-002C; H11060292-003C; H11060292-006C; H11060292-007C; H11060292-008C; H11060292-009C; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 50** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060286-001AMSD3** Method: **E200.8**

Analysis Date: **06/20/11 20:33** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.01	0.0050	1	0.0142	100	70	130	1.03	1.9	20	
Cadmium	0.534	0.0010	0.5	0.000775	107	70	130	0.532	0.4	20	
Copper	1.02	0.010	1	0.01071	101	70	130	1.02	0.2	20	
Iron	5.90	0.030	5	0.6454	105	70	130	5.902	0.0	20	
Lead	1.02	0.010	1	0.007982	101	70	130	1.026	0.6	20	
Manganese	4.94	0.010	5	0.04366	98	70	130	4.984	0.9	20	
Zinc	1.13	0.010	1	0.1154	102	70	130	1.143	1.1	20	

Associated samples: **H11060292-002C; H11060292-003C; H11060292-006C; H11060292-007C; H11060292-008C; H11060292-009C; H11060292-010C**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: 12578

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 1** SampType: **Method Blank** Sample ID: **MB-12578** Method: **A2540 D**

Analysis Date: **06/16/11 10:14** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1									

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12578** Method: **A2540 D**

Analysis Date: **06/16/11 10:14** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1790	10	2000		89	70	130				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 4** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A2540 D**

Analysis Date: **06/16/11 10:15** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: 12580

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 1** SampType: **Method Blank** Sample ID: **MB-12580** Method: **A2540 C**
Analysis Date: **06/16/11 10:04** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1.0									

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12580** Method: **A2540 C**
Analysis Date: **06/16/11 10:05** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1990	10	2000		99	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 4** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A2540 C**
Analysis Date: **06/16/11 10:06** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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						4		5	

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 6** SampType: **Sample Matrix Spike** Sample ID: **H11060292-002AMS** Method: **A2540 C**
Analysis Date: **06/16/11 10:06** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	2030	10	2000	90	97	80	120				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71916

Run ID :Run Order: **MAN-TECH_110617B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**

Analysis Date: **06/16/11 13:56** 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
Alkalinity, Total as CaCO3	1	0.6									

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **MAN-TECH_110617B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-06022011** Method: **A2320 B**

Analysis Date: **06/16/11 14:04** 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	610	4.0	600	1.48	102	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **MAN-TECH_110617B: 14** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A2320 B**

Analysis Date: **06/16/11 14:13** 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	1.3	4.0						1.37		20	
Bicarbonate as HCO3	1.5	4.0						1.67		20	
Carbonate as CO3	ND	4.0								20	

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **MAN-TECH_110617B: 28** SampType: **Sample Matrix Spike** Sample ID: **H11060292-007AMS** Method: **A2320 B**

Analysis Date: **06/16/11 15:02** 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	670	4.0	600	71.63	100	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71916

Run ID :Run Order: **MAN-TECH_110617B: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1-1905** Method: **A4500-H B**

Analysis Date: **06/16/11 13:38** 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	3.94	0.10	4		99	98	102				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **MAN-TECH_110617B: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1943** Method: **A4500-H B**

Analysis Date: **06/16/11 13:41** 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	6.94	0.10	7		99	98	102				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **MAN-TECH_110617B: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2-2042** Method: **A4500-H B**

Analysis Date: **06/16/11 13:44** 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	9.97	0.10	10		100	98	102				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **MAN-TECH_110617B: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-1942** Method: **A4500-H B**

Analysis Date: **06/16/11 13:46** 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	6.95	0.10	7		99	99	101				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **MAN-TECH_110617B: 15** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A4500-H B**

Analysis Date: **06/16/11 14:13** 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	5.33	0.10						5.59	4.8	3	R

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71921

Run ID :Run Order: **ICP2-HE_110616A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **06/16/11 11:33** 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
Magnesium	39.1	1.0	40		98	95	105				
Potassium	38.5	1.0	40		96	95	105				
Sodium	38.2	1.0	40		95	95	105				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **06/16/11 11:36** 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
Magnesium	25.4	1.0	25		102	95	105				
Potassium	24.6	1.0	25		98	95	105				
Sodium	24.8	1.0	25		99	95	105				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **06/16/11 11:47** 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
Magnesium	497	1.0	500		99	80	120				
Potassium	0.0206	1.0				0	0				
Sodium	0.0376	1.0				0	0				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **06/16/11 11:52** 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
Magnesium	506	1.0	500		101	80	120				
Potassium	20.0	1.0	20		100	80	120				
Sodium	20.0	1.0	20		100	80	120				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71921

Run ID :Run Order: **ICP2-HE_110616A: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **06/16/11 11:59** 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
Magnesium	0.1	0.01									
Potassium	ND	0.04									
Sodium	ND	0.01									

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **06/16/11 12:03** 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
Magnesium	47.0	1.0	50	0.1124	94	85	115				
Potassium	46.0	1.0	50		92	85	115				
Sodium	45.8	1.0	50		92	85	115				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 19** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**
Analysis Date: **06/16/11 12:21** 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
Magnesium	25.6	1.0	25		102	90	110				
Potassium	24.5	1.0	25		98	90	110				
Sodium	24.9	1.0	25		100	90	110				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B**

Run ID :Run Order: **ICP2-HE_110616A: 23** SampType: **Sample Matrix Spike** Sample ID: **H11060292-001BMS2** Method: **E200.7**
Analysis Date: **06/16/11 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
Magnesium	49.8	1.0	50	0.00653	99	70	130				
Potassium	47.4	1.0	50		95	70	130				
Sodium	47.5	1.0	50		95	70	130				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71921

Run ID :Run Order: **ICP2-HE_110616A: 24** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060292-001BMSD2** Method: **E200.7**

Analysis Date: **06/16/11 12:39** 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
Magnesium	50.4	1.0	50	0.00653	101	70	130	49.76	1.3	20	
Potassium	46.6	1.0	50		93	70	130	47.41	1.8	20	
Sodium	46.6	1.0	50		93	70	130	47.48	1.9	20	

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **06/16/11 13:05** 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
Magnesium	25.9	1.0	25		104	90	110				
Potassium	24.3	1.0	25		97	90	110				
Sodium	24.7	1.0	25		99	90	110				

Associated samples: **H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 37** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001BMS2** Method: **E200.7**

Analysis Date: **06/16/11 13:27** 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
Magnesium	60.0	1.0	50	10.6	99	70	130				
Potassium	47.1	1.0	50	0.3532	94	70	130				
Sodium	47.6	1.0	50	0.7665	94	70	130				

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICP2-HE_110616A: 38** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060298-001BMSD2** Method: **E200.7**

Analysis Date: **06/16/11 13:30** 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
Magnesium	60.6	1.0	50	10.6	100	70	130	60.01	1.0	20	
Potassium	47.8	1.0	50	0.3532	95	70	130	47.12	1.5	20	
Sodium	48.3	1.0	50	0.7665	95	70	130	47.62	1.5	20	

Associated samples: **H11060292-001B; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-005B; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71955

Run ID :Run Order: **IC102-H_110617A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV061711-12** Method: **E300.0**

Analysis Date: **06/17/11 10:20** 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	110	1.0	100		107	90	110				
Sulfate	410	1.0	400		104	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **IC102-H_110617A: 15** SampType: **Method Blank** Sample ID: **ICB061711-13** Method: **E300.0**

Analysis Date: **06/17/11 10:32** 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	ND	0.02									
Sulfate	ND	0.02									

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **IC102-H_110617A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB061711-14** Method: **E300.0**

Analysis Date: **06/17/11 10:43** 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	54	1.0	50		107	90	110				
Sulfate	210	1.1	200		103	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **IC102-H_110617A: 17** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV061711-15** Method: **E300.0**

Analysis Date: **06/17/11 10:55** 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	100	1.0	100		105	90	110				
Sulfate	410	1.0	400		101	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A**

Run ID :Run Order: **IC102-H_110617A: 24** SampType: **Sample Matrix Spike** Sample ID: **H11060292-003AMS** Method: **E300.0**

Analysis Date: **06/17/11 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	54	1.0	50	0.288	108	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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71955

Run ID :Run Order: **IC102-H_110617A: 24** SampType: **Sample Matrix Spike** Sample ID: **H11060292-003AMS** Method: **E300.0**
Analysis Date: **06/17/11 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
Sulfate	220	1.1	200	7.944	104	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **IC102-H_110617A: 25** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060292-003AMSD** Method: **E300.0**
Analysis Date: **06/17/11 12:28** 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	55	1.0	50	0.288	110	90	110	54.2	2.1	20	
Sulfate	220	1.1	200	7.944	107	90	110	216.8	2.1	20	

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **IC102-H_110617A: 29** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV061711-30** Method: **E300.0**
Analysis Date: **06/17/11 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
Chloride	100	1.0	100		104	90	110				
Sulfate	400	1.0	400		100	90	110				

Associated samples: **H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **IC102-H_110617A: 35** SampType: **Sample Matrix Spike** Sample ID: **H11060292-010AMS** Method: **E300.0**
Analysis Date: **06/17/11 14:24** 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	54	1.0	50	0.317	107	90	110				
Sulfate	220	1.1	200	13.45	105	90	110				

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

Run ID :Run Order: **IC102-H_110617A: 36** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060292-010AMSD** Method: **E300.0**
Analysis Date: **06/17/11 14:35** 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	55	1.0	50	0.317	109	90	110	53.93	1.3	20	
Sulfate	230	1.1	200	13.45	107	90	110	224	1.2	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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R71955

Run ID :Run Order: **IC102-H_110617A: 36** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060292-010AMSD** Method: **E300.0**

Analysis Date: **06/17/11 14:35** 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

Associated samples: **H11060292-001A; H11060292-002A; H11060292-003A; H11060292-004A; H11060292-005A; H11060292-006A; H11060292-007A; H11060292-008A; H11060292-009A; H11060292-010A**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 7** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/20/11 16:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.247	0.10	0.25		99	90	110				
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Calcium	2.55	0.50	2.5		102	90	110				
Copper	0.0512	0.010	0.05		102	90	110				
Iron	0.265	0.030	0.25		106	90	110				
Lead	0.0506	0.010	0.05		101	90	110				
Manganese	0.247	0.010	0.25		99	90	110				
Zinc	0.0511	0.010	0.05		102	90	110				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 8** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/20/11 16:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000158	0.0050									
Cadmium	0.000686	0.0010									
Calcium	116	0.50	120		97	70	130				
Copper	0.000226	0.010									
Iron	104	0.030	100		104	70	130				
Lead	0.000107	0.010									
Manganese	0.00199	0.010									
Zinc	0.00116	0.010									

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 9** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/20/11 16:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0102	0.0050	0.01		102	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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 9** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/20/11 16:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0106	0.0010	0.01		106	70	130				
Calcium	113	0.50	120		94	70	130				
Copper	0.0199	0.010	0.02		100	70	130				
Iron	102	0.030	100		102	70	130				
Lead	7.00E-05	0.010				0	0				
Manganese	0.0220	0.010	0.02		110	70	130				
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 15** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **06/20/11 17:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0004	0.0003									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Calcium	0.006	0.003									
Copper	ND	3E-05									
Iron	0.002	0.0002									
Lead	ND	1.0E-05									
Manganese	ND	1E-05									
Zinc	0.0004	0.0003									

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICPMS204-B_110620B: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **06/20/11 17:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0487	0.10	0.05	0.0003893	97	85	115				
Arsenic	0.0480	0.0050	0.05		96	85	115				
Cadmium	0.0477	0.0010	0.05		95	85	115				
Calcium	45.3	0.50	50	0.005609	91	85	115				
Copper	0.0499	0.010	0.05		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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **06/20/11 17:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.84	0.030	5	0.002025	97	85	115				
Lead	0.0491	0.010	0.05		98	85	115				
Manganese	0.0484	0.010	0.05		97	85	115				
Zinc	0.0502	0.010	0.05	0.0003934	100	85	115				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICPMS204-B_110620B: 36** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/20/11 19:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0492	0.0050	0.05		99	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Calcium	2.54	0.50	2.5		102	90	110				
Copper	0.0512	0.010	0.05		102	90	110				
Iron	0.261	0.030	0.25		104	90	110				
Lead	0.0512	0.010	0.05		102	90	110				
Manganese	0.250	0.010	0.25		100	90	110				
Zinc	0.0504	0.010	0.05		101	90	110				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 37** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/20/11 19:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000194	0.0050									
Cadmium	0.000561	0.0010									
Calcium	115	0.50	120		96	70	130				
Copper	0.000395	0.010									
Iron	101	0.030	100		101	70	130				
Lead	0.000105	0.010									
Manganese	0.00202	0.010									

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 37** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/20/11 19:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.00117	0.010									

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 38** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/20/11 19:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.7	0.10	40		99	70	130				
Arsenic	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Calcium	114	0.50	120		95	70	130				
Copper	0.0200	0.010	0.02		100	70	130				
Iron	101	0.030	100		101	70	130				
Lead	7.00E-05	0.010				0	0				
Manganese	0.0223	0.010	0.02		112	70	130				
Zinc	0.0113	0.010	0.01		113	70	130				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 58** SampType: **Sample Matrix Spike** Sample ID: **H11060292-001BMS** Method: **E200.8**

Analysis Date: **06/20/11 21:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0491	0.10	0.05		98	70	130				
Arsenic	0.0492	0.0050	0.05		98	70	130				
Cadmium	0.0485	0.0010	0.05		97	70	130				
Calcium	45.4	1.0	50	0.01306	91	70	130				
Copper	0.0514	0.010	0.05		103	70	130				
Iron	4.88	0.030	5	0.0005699	98	70	130				
Lead	0.0506	0.010	0.05	0.0000153	101	70	130				
Manganese	0.0494	0.010	0.05	0.0000764	99	70	130				
Zinc	0.0515	0.010	0.05	0.001075	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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 58** SampType: **Sample Matrix Spike** Sample ID: **H11060292-001BMS** Method: **E200.8**

Analysis Date: **06/20/11 21:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICPMS204-B_110620B: 59** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060292-001BMSD** Method: **E200.8**

Analysis Date: **06/20/11 21:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0495	0.10	0.05		99	70	130	0.04911		20	
Arsenic	0.0488	0.0050	0.05		98	70	130	0.04923	0.8	20	
Cadmium	0.0489	0.0010	0.05		98	70	130	0.04851	0.8	20	
Calcium	45.3	1.0	50	0.01306	91	70	130	45.43	0.3	20	
Copper	0.0512	0.010	0.05		102	70	130	0.05143	0.4	20	
Iron	4.90	0.030	5	0.0005699	98	70	130	4.876	0.6	20	
Lead	0.0512	0.010	0.05	0.0000153	102	70	130	0.05064	1.2	20	
Manganese	0.0495	0.010	0.05	0.0000764	99	70	130	0.04943	0.2	20	
Zinc	0.0509	0.010	0.05	0.001075	100	70	130	0.0515	1.3	20	

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICPMS204-B_110620B: 62** SampType: **Sample Matrix Spike** Sample ID: **H11060292-001CMS** Method: **E200.8**

Analysis Date: **06/20/11 21:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0486	0.10	0.05		97	70	130				
Arsenic	0.0494	0.0050	0.05		99	70	130				
Cadmium	0.0481	0.0010	0.05		96	70	130				
Calcium	46.2	1.0	50		92	70	130				
Copper	0.0519	0.010	0.05		104	70	130				
Iron	4.88	0.030	5	0.001391	98	70	130				
Lead	0.0513	0.010	0.05		103	70	130				
Manganese	0.0493	0.010	0.05		99	70	130				
Zinc	0.0516	0.010	0.05	0.001062	101	70	130				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 63** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060292-001CMSD** Method: **E200.8**

Analysis Date: **06/20/11 21:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0486	0.10	0.05		97	70	130	0.04857		20	
Arsenic	0.0497	0.0050	0.05		99	70	130	0.04939	0.6	20	
Cadmium	0.0489	0.0010	0.05		98	70	130	0.04813	1.5	20	
Calcium	45.2	1.0	50		90	70	130	46.22	2.3	20	
Copper	0.0520	0.010	0.05		104	70	130	0.05192	0.2	20	
Iron	4.93	0.030	5	0.001391	99	70	130	4.88	1.1	20	
Lead	0.0513	0.010	0.05		103	70	130	0.05133	0.0	20	
Manganese	0.0494	0.010	0.05		99	70	130	0.0493	0.2	20	
Zinc	0.0519	0.010	0.05	0.001062	102	70	130	0.05165	0.5	20	

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-003B; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-007B; H11060292-008B; H11060292-009B; H11060292-010B**

Run ID :Run Order: **ICPMS204-B_110620B: 208** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/21/11 09:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000150	0.0050									
Cadmium	0.000507	0.0010									
Calcium	108	0.50	120		90	70	130				
Copper	0.000383	0.010									
Iron	99.4	0.030	100		99	70	130				
Lead	8.50E-05	0.010									
Manganese	0.00194	0.010									
Zinc	0.00113	0.010									

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 209** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/21/11 09:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0102	0.0010	0.01		102	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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 209** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/21/11 09:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	110	0.50	120		91	70	130				
Copper	0.0206	0.010	0.02		103	70	130				
Iron	101	0.030	100		101	70	130				
Lead	6.60E-05	0.010				0	0				
Manganese	0.0220	0.010	0.02		110	70	130				
Zinc	0.0108	0.010	0.01		108	70	130				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 215** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/21/11 13:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.253	0.10	0.25		101	90	110				
Arsenic	0.0492	0.0050	0.05		98	90	110				
Cadmium	0.0268	0.0010	0.025		107	90	110				
Calcium	2.54	0.50	2.5		102	90	110				
Copper	0.0512	0.010	0.05		102	90	110				
Iron	0.263	0.030	0.25		105	90	110				
Lead	0.0522	0.010	0.05		104	90	110				
Manganese	0.251	0.010	0.25		100	90	110				
Zinc	0.0509	0.010	0.05		102	90	110				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 216** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/21/11 13:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000175	0.0050									
Cadmium	0.000519	0.0010									
Calcium	113	0.50	120		94	70	130				
Copper	0.000433	0.010									

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 216** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/21/11 13:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	99.4	0.030	100		99	70	130				
Lead	0.000100	0.010									
Manganese	0.00211	0.010									
Zinc	0.00112	0.010									

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 217** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/21/11 13:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0102	0.0050	0.01		102	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Calcium	113	0.50	120		95	70	130				
Copper	0.0201	0.010	0.02		101	70	130				
Iron	97.8	0.030	100		98	70	130				
Lead	6.80E-05	0.010				0	0				
Manganese	0.0222	0.010	0.02		111	70	130				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 409** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/22/11 11:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000208	0.0050									
Cadmium	0.000449	0.0010									
Calcium	109	0.50	120		91	70	130				
Copper	0.000419	0.010									
Iron	97.1	0.030	100		97	70	130				
Lead	8.30E-05	0.010									

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: H11060292
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *05-Jul-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 409** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/22/11 11:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.00228	0.010									
Zinc	0.00113	0.010									

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

Run ID :Run Order: **ICPMS204-B_110620B: 410** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/22/11 11:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	38.3	0.10	40		96	70	130				
Arsenic	0.0108	0.0050	0.01		107	70	130				
Cadmium	0.0101	0.0010	0.01		101	70	130				
Calcium	111	0.50	120		93	70	130				
Copper	0.0201	0.010	0.02		101	70	130				
Iron	99.3	0.030	100		99	70	130				
Lead	6.10E-05	0.010				0	0				
Manganese	0.0225	0.010	0.02		113	70	130				
Zinc	0.0108	0.010	0.01		107	70	130				

Associated samples: **H11060292-001B; H11060292-001C; H11060292-002B; H11060292-002C; H11060292-003B; H11060292-003C; H11060292-004B; H11060292-004C; H11060292-005B; H11060292-005C; H11060292-006B; H11060292-006C; H11060292-007B; H11060292-007C; H11060292-008B; H11060292-008C; H11060292-009B; H11060292-009C; H11060292-010B; H11060292-010C**

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

H11060292

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 6/20/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 UBMC-BRSW45 has no collection date or time on unpreserved sample container - took from COC. TI 6/15/11.

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 - SRS	UBMC	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 Drossbach, Mark Stanisich
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

Standard Turnaround (TAT) — R U S H

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

Comments: Please copy to adrossbach@portagi.com 490-5135

Shipped by: HAND

Cooler ID(s): 4

Receipt Temp: 5.5 °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: H11060292

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	UBMC-BRSW25	6/13/11	1006	W	X
2	UBMC-BRSW34		1045		
3	UBMC-BRSW29		1145		
4	UBMC-BRSW38		1245		
5	UBMC-BRSW22		1410		
6	UBMC-BRSW24		1410		
7	UBMC-BRSW45		1512		
8	UBMC-BRSW1		1608		
9	UBMC-BRSW2		1715		
10	UBMC-BRSW48	6/13/11	1740	W	

UBMC Surface Water

Custody Record MUST be Signed

Relinquished by (print): Alan Drossbach	Date/Time: 6/15/11 @ 1215	Signature:	Received by (print):	Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time: / Signature:
			Received by Laboratory: Esther Mermit	Date/Time: 6-15-11 12:15 / 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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

ANALYTICAL SUMMARY REPORT

June 27, 2011

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

Workorder No.: H11060298 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060298-001	UBMC-BRSW23	06/14/11 8:10	06/15/11	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
H11060298-002	UBMC-BRSW3A	06/14/11 8:48	06/15/11	Aqueous	Same As Above
H11060298-003	UBMC-BRSW3B	06/14/11 9:30	06/15/11	Aqueous	Same As Above
H11060298-004	UBMC-MHTDS-1	06/14/11 9:55	06/15/11	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Acidity, Total as CaCO3 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
H11060298-005	UBMC-MHTDS-2	06/14/11 10:10	06/15/11	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
H11060298-006	UBMC-MHTDS-3	06/14/11 10:46	06/15/11	Aqueous	Same As Above
H11060298-007	UBMC-MHTDS-4	06/14/11 11:10	06/15/11	Aqueous	Same As Above
H11060298-008	UBMC-MHTDS-5	06/14/11 11:26	06/15/11	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC-BRSW23
Lab ID: H11060298-001
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 08:10
Report Date: 06/27/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	06/16/11 15:29 / zeg		MAN-TECH_110617B	37	R71916
Conductivity	195	umhos/cm		1		A2510 B	06/16/11 10:36 / cmm		COND_110616B	1910616A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:20 / cmm	06/16/11 09:50	-124 (14410200)_110616A	19	12578
Solids, Total Dissolved TDS @ 180 C	80	mg/L		10		A2540 C	06/16/11 10:09 / cmm	06/16/11 09:57	-124 (14410200)_111116A	15	12580
INORGANICS											
Alkalinity, Total as CaCO3	74	mg/L		4		A2320 B	06/16/11 15:29 / zeg		MAN-TECH_110617B	36	R71916
Bicarbonate as HCO3	90	mg/L		4		A2320 B	06/16/11 15:29 / zeg		MAN-TECH_110617B	36	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:29 / zeg		MAN-TECH_110617B	36	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 15:17 / zeg		IC101-H_110618A	25	R71954
Sulfate	21	mg/L		1		E300.0	06/18/11 15:17 / zeg		IC101-H_110618A	25	R71954
Hardness as CaCO3	92	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	2	R72092
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/21/11 22:30 / dck		ICPMS204-B_110620B	241	R72000
Calcium	19	mg/L		1		E200.8	06/21/11 22:30 / dck		ICPMS204-B_110620B	241	R72000
Magnesium	11	mg/L		1		E200.7	06/16/11 13:23 / sld		ICP2-HE_110616A	36	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:23 / sld		ICP2-HE_110616A	36	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:23 / sld		ICP2-HE_110616A	36	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Cadmium	0.00394	mg/L		0.00008		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Copper	0.077	mg/L		0.001		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Iron	0.22	mg/L		0.03		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Lead	0.0122	mg/L		0.0005		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Manganese	0.448	mg/L		0.005		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Zinc	0.74	mg/L		0.01		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586

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 UBMC-BRSW3A
Lab ID: H11060298-002
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 08:48
DateReceived: 06/15/11
Report Date: 06/27/11

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	06/16/11 15:43 / zeg		MAN-TECH_110617B	41	R71916
Conductivity	468	umhos/cm		1		A2510 B	06/16/11 10:39 / cmm		COND_110616B	2	110616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:20 / cmm	06/16/11 09:50	124 (14410200)_110616A	20	12578
Solids, Total Dissolved TDS @ 180 C	296	mg/L		10		A2540 C	06/16/11 10:10 / cmm	06/16/11 09:57	124 (14410200)_111116A	17	12580
INORGANICS											
Alkalinity, Total as CaCO3	44	mg/L		4		A2320 B	06/16/11 15:43 / zeg		MAN-TECH_110617B	40	R71916
Bicarbonate as HCO3	53	mg/L		4		A2320 B	06/16/11 15:43 / zeg		MAN-TECH_110617B	40	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:43 / zeg		MAN-TECH_110617B	40	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 16:03 / zeg		IC101-H_110618A	28	R71954
Sulfate	170	mg/L		1		E300.0	06/18/11 16:03 / zeg		IC101-H_110618A	28	R71954
Hardness as CaCO3	195	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	3	R72092
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/21/11 23:23 / dck		ICPMS204-B_110620B	253	R72000
Calcium	37	mg/L		1		E200.8	06/21/11 23:23 / dck		ICPMS204-B_110620B	253	R72000
Magnesium	25	mg/L		1		E200.7	06/16/11 13:34 / sld		ICP2-HE_110616A	39	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:34 / sld		ICP2-HE_110616A	39	R71921
Sodium	1	mg/L		1		E200.7	06/16/11 13:34 / sld		ICP2-HE_110616A	39	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B	254	R72000
Cadmium	0.0242	mg/L		0.00008		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B	254	R72000
Copper	0.168	mg/L		0.001		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B	254	R72000
Iron	0.90	mg/L		0.03		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B	254	R72000
Lead	0.0201	mg/L		0.0005		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B	254	R72000
Manganese	7.43	mg/L		0.005		E200.8	06/23/11 07:54 / dck		ICPMS204-B_110622A	115	R72108
Zinc	5.22	mg/L		0.01		E200.8	06/23/11 07:54 / dck		ICPMS204-B_110622A	115	R72108

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 UBMC-BRSW3B
Lab ID: H11060298-003
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 09:30
Report Date: 06/27/11
DateReceived: 06/15/11

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	06/16/11 15:49 / zeg		MAN-TECH_110617B	43	R71916
Conductivity	401	umhos/cm		1		A2510 B	06/16/11 10:39 / cmm		COND_110616B	2210616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	22	mg/L		10		A2540 D	06/16/11 10:21 / cmm	06/16/11 09:50	-124 (14410200)_110616A	21	12578
Solids, Total Dissolved TDS @ 180 C	242	mg/L		10		A2540 C	06/16/11 10:10 / cmm	06/16/11 09:57	-124 (14410200)_111116A	18	12580
INORGANICS											
Alkalinity, Total as CaCO3	44	mg/L		4		A2320 B	06/16/11 15:49 / zeg		MAN-TECH_110617B	42	R71916
Bicarbonate as HCO3	54	mg/L		4		A2320 B	06/16/11 15:49 / zeg		MAN-TECH_110617B	42	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:49 / zeg		MAN-TECH_110617B	42	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 16:19 / zeg		IC101-H_110618A	29	R71954
Sulfate	150	mg/L		1		E300.0	06/18/11 16:19 / zeg		IC101-H_110618A	29	R71954
Hardness as CaCO3	118	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	4	R72092
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/21/11 23:45 / dck		ICPMS204-B_110620B	258	R72000
Calcium	23	mg/L		1		E200.8	06/21/11 23:45 / dck		ICPMS204-B_110620B	258	R72000
Magnesium	15	mg/L		1		E200.7	06/16/11 13:37 / sld		ICP2-HE_110616A	40	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:37 / sld		ICP2-HE_110616A	40	R71921
Sodium	1	mg/L		1		E200.7	06/16/11 13:37 / sld		ICP2-HE_110616A	40	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B	259	12586
Cadmium	0.0488	mg/L		0.00008		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B	259	12586
Copper	0.447	mg/L		0.001		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B	259	12586
Iron	2.26	mg/L		0.03		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B	259	12586
Lead	0.0432	mg/L		0.0005		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B	259	12586
Manganese	18.0	mg/L		0.005		E200.8	06/23/11 08:07 / dck	06/16/11 13:31	ICPMS204-B_110622A	118	12586
Zinc	10.3	mg/L		0.01		E200.8	06/23/11 08:07 / dck	06/16/11 13:31	ICPMS204-B_110622A	118	12586

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 UBMC-MHTDS-1
Lab ID: H11060298-004
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 09:55
DateReceived: 06/15/11
Report Date: 06/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	3.8	s.u.		0.1		A4500-H B	06/16/11 15:52 / zeg		MAN-TECH_110617B	45	R71916
Conductivity	1650	umhos/cm		1		A2510 B	06/16/11 10:40 / cmm		COND_110616B	2310616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	32	mg/L		10		A2540 D	06/16/11 10:21 / cmm	06/16/11 09:50	-124 (14410200)_110616A	22	12578
Solids, Total Dissolved TDS @ 180 C	1450	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	-124 (14410200)_111116A	19	12580
INORGANICS											
Acidity, Total as CaCO3	260	mg/L		4.0		A2310 B	06/24/11 13:08 / zeg		MISC WC_110624A	1	H11060294A
Chloride	ND	mg/L		1		E300.0	06/18/11 16:34 / zeg		IC101-H_110618A	30	R71954
Sulfate	970	mg/L	D	5		E300.0	06/18/11 16:34 / zeg		IC101-H_110618A	30	R71954
Hardness as CaCO3	703	mg/L		1		A2340 B	06/24/11 14:17 / sld		WATERCALC_110624A	1	R72141
METALS, DISSOLVED											
Aluminum	9.20	mg/L		0.03		E200.8	06/23/11 08:12 / dck		ICPMS204-B_110622A	119	R72108
Calcium	118	mg/L		1		E200.8	06/21/11 23:54 / dck		ICPMS204-B_110620B	260	R72000
Magnesium	99	mg/L		1		E200.7	06/16/11 13:41 / sld		ICP2-HE_110616A	41	R71921
Potassium	1	mg/L		1		E200.7	06/16/11 13:41 / sld		ICP2-HE_110616A	41	R71921
Sodium	2	mg/L		1		E200.7	06/16/11 13:41 / sld		ICP2-HE_110616A	41	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Cadmium	0.248	mg/L	D	0.0003		E200.8	06/23/11 08:16 / dck		ICPMS204-B_110622A	120	R72108
Copper	1.70	mg/L		0.001		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Iron	8.80	mg/L		0.03		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Lead	0.184	mg/L		0.0005		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Manganese	71.1	mg/L		0.005		E200.8	06/23/11 08:16 / dck		ICPMS204-B_110622A	120	R72108
Zinc	37.8	mg/L		0.01		E200.8	06/23/11 08:16 / dck		ICPMS204-B_110622A	120	R72108

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 UBMC-MHTDS-2
Lab ID: H11060298-005
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 10:10
DateReceived: 06/15/11
Report Date: 06/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.9	s.u.		0.1		A4500-H B	06/16/11 15:58 / zeg		MAN-TECH_110617B	47	R71916
Conductivity	387	umhos/cm		1		A2510 B	06/16/11 10:41 / cmm		COND_110616B	2	410616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:22 / cmm	06/16/11 09:50	124 (14410200)_110616A	23	12578
Solids, Total Dissolved TDS @ 180 C	230	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	124 (14410200)_111116A	20	12580
INORGANICS											
Alkalinity, Total as CaCO3	15	mg/L		4		A2320 B	06/16/11 15:58 / zeg		MAN-TECH_110617B	46	R71916
Bicarbonate as HCO3	19	mg/L		4		A2320 B	06/16/11 15:58 / zeg		MAN-TECH_110617B	46	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:58 / zeg		MAN-TECH_110617B	46	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 17:20 / zeg		IC101-H_110618A	33	R71954
Sulfate	160	mg/L		1		E300.0	06/18/11 17:20 / zeg		IC101-H_110618A	33	R71954
Hardness as CaCO3	159	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	5	R72092
METALS, DISSOLVED											
Aluminum	0.21	mg/L		0.03		E200.8	06/22/11 00:21 / dck		ICPMS204-B_110620B	266	R72000
Calcium	32	mg/L		1		E200.8	06/22/11 00:21 / dck		ICPMS204-B_110620B	266	R72000
Magnesium	19	mg/L		1		E200.7	06/16/11 13:45 / sld		ICP2-HE_110616A	42	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:45 / sld		ICP2-HE_110616A	42	R71921
Sodium	1	mg/L		1		E200.7	06/16/11 13:45 / sld		ICP2-HE_110616A	42	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B	267	R72000
Cadmium	0.0191	mg/L		0.00008		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B	267	R72000
Copper	0.205	mg/L		0.001		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B	267	R72000
Iron	0.67	mg/L		0.03		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B	267	R72000
Lead	0.0678	mg/L		0.0005		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B	267	R72000
Manganese	3.98	mg/L		0.005		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B	267	R72000
Zinc	3.42	mg/L		0.01		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B	267	R72000

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 UBMC-MHTDS-3
Lab ID: H11060298-006
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 10:46
Report Date: 06/27/11
DateReceived: 06/15/11

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	06/16/11 16:03 / zeg		MAN-TECH_110617B	49	R71916
Conductivity	1570	umhos/cm		1		A2510 B	06/16/11 10:41 / cmm		COND_110616B	2	510616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	146	mg/L		10		A2540 D	06/16/11 10:22 / cmm	06/16/11 09:50	-124 (14410200)_110616A	24	12578
Solids, Total Dissolved TDS @ 180 C	1380	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	-124 (14410200)_111116A	21	12580
INORGANICS											
Alkalinity, Total as CaCO3	6	mg/L		4		A2320 B	06/16/11 16:03 / zeg		MAN-TECH_110617B	48	R71916
Bicarbonate as HCO3	8	mg/L		4		A2320 B	06/16/11 16:03 / zeg		MAN-TECH_110617B	48	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 16:03 / zeg		MAN-TECH_110617B	48	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 17:36 / zeg		IC101-H_110618A	34	R71954
Sulfate	870	mg/L	D	5		E300.0	06/23/11 19:21 / zeg		IC102-H_110623A	25	R72128
Hardness as CaCO3	782	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	6	R72092
METALS, DISSOLVED											
Aluminum	0.38	mg/L		0.03		E200.8	06/22/11 00:30 / dck		ICPMS204-B_110620B	268	R72000
Calcium	157	mg/L		1		E200.7	06/23/11 15:02 / sld		ICP2-HE_110623A	66	R72130
Magnesium	107	mg/L		1		E200.7	06/16/11 13:56 / sld		ICP2-HE_110616A	45	R71921
Potassium	3	mg/L		1		E200.7	06/16/11 13:56 / sld		ICP2-HE_110616A	45	R71921
Sodium	2	mg/L		1		E200.7	06/16/11 13:56 / sld		ICP2-HE_110616A	45	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	0.016	mg/L		0.003		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B	269	12586
Cadmium	0.220	mg/L	D	0.0003		E200.8	06/23/11 08:21 / dck	06/16/11 13:31	ICPMS204-B_110622A	121	12586
Copper	2.38	mg/L		0.001		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B	269	12586
Iron	5.82	mg/L		0.03		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B	269	12586
Lead	0.185	mg/L		0.0005		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B	269	12586
Manganese	47.3	mg/L		0.005		E200.8	06/23/11 08:21 / dck	06/16/11 13:31	ICPMS204-B_110622A	121	12586
Zinc	47.6	mg/L		0.01		E200.8	06/23/11 08:21 / dck	06/16/11 13:31	ICPMS204-B_110622A	121	12586

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 UBMC-MHTDS-4
Lab ID: H11060298-007
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 11:10
DateReceived: 06/15/11
Report Date: 06/27/11

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	06/16/11 16:10 / zeg		MAN-TECH_110617B	51	R71916
Conductivity	457	umhos/cm		1		A2510 B	06/16/11 10:42 / cmm		COND_110616B	2	610616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:23 / cmm	06/16/11 09:53	-124 (14410200)_110616A	27	12579
Solids, Total Dissolved TDS @ 180 C	256	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	-124 (14410200)_111116A	22	12580
INORGANICS											
Alkalinity, Total as CaCO3	34	mg/L		4		A2320 B	06/16/11 16:10 / zeg		MAN-TECH_110617B	50	R71916
Bicarbonate as HCO3	42	mg/L		4		A2320 B	06/16/11 16:10 / zeg		MAN-TECH_110617B	50	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 16:10 / zeg		MAN-TECH_110617B	50	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 17:51 / zeg		IC101-H_110618A	35	R71954
Sulfate	170	mg/L		1		E300.0	06/18/11 17:51 / zeg		IC101-H_110618A	35	R71954
Hardness as CaCO3	204	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	7	R72092
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/22/11 00:39 / dck		ICPMS204-B_110620B	270	R72000
Calcium	35	mg/L		1		E200.8	06/22/11 00:39 / dck		ICPMS204-B_110620B	270	R72000
Magnesium	29	mg/L		1		E200.7	06/16/11 14:00 / sld		ICP2-HE_110616A	46	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 14:00 / sld		ICP2-HE_110616A	46	R71921
Sodium	1	mg/L		1		E200.7	06/16/11 14:00 / sld		ICP2-HE_110616A	46	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B	271	R72000
Cadmium	0.00710	mg/L		0.00008		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B	271	R72000
Copper	0.037	mg/L		0.001		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B	271	R72000
Iron	0.80	mg/L		0.03		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B	271	R72000
Lead	0.0141	mg/L		0.0005		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B	271	R72000
Manganese	0.928	mg/L		0.005		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B	271	R72000
Zinc	1.41	mg/L		0.01		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B	271	R72000

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 UBMC-MHTDS-5
Lab ID: H11060298-008
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 11:26
DateReceived: 06/15/11
Report Date: 06/27/11

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	06/16/11 16:16 / zeg		MAN-TECH_110617B	53	R71916
Conductivity	420	umhos/cm		1		A2510 B	06/16/11 10:43 / cmm		COND_110616B	2710616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:23 / cmm	06/16/11 09:53	-124 (14410200)_110616A	29	12579
Solids, Total Dissolved TDS @ 180 C	232	mg/L		10		A2540 C	06/16/11 10:12 / cmm	06/16/11 09:57	-124 (14410200)_111116A	23	12580
INORGANICS											
Alkalinity, Total as CaCO3	37	mg/L		4		A2320 B	06/16/11 16:16 / zeg		MAN-TECH_110617B	52	R71916
Bicarbonate as HCO3	46	mg/L		4		A2320 B	06/16/11 16:16 / zeg		MAN-TECH_110617B	52	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 16:16 / zeg		MAN-TECH_110617B	52	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 18:07 / zeg		IC101-H_110618A	36	R71954
Sulfate	150	mg/L		1		E300.0	06/18/11 18:07 / zeg		IC101-H_110618A	36	R71954
Hardness as CaCO3	183	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	8	R72092
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/22/11 00:48 / dck		ICPMS204-B_110620B	272	R72000
Calcium	32	mg/L		1		E200.8	06/22/11 00:48 / dck		ICPMS204-B_110620B	272	R72000
Magnesium	25	mg/L		1		E200.7	06/16/11 14:04 / sld		ICP2-HE_110616A	47	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 14:04 / sld		ICP2-HE_110616A	47	R71921
Sodium	1	mg/L		1		E200.7	06/16/11 14:04 / sld		ICP2-HE_110616A	47	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Cadmium	0.00593	mg/L		0.00008		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Copper	0.032	mg/L		0.001		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Iron	0.11	mg/L		0.03		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Lead	0.0073	mg/L		0.0005		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Manganese	2.02	mg/L		0.005		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Zinc	1.26	mg/L		0.01		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000

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

Client: MT DEQ-Site Response
Work Order: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: 110616A-COND-PROBE

Run ID :Run Order: **COND_110616B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110616A** Method: **A2510 B**

Analysis Date: **06/16/11 09:20** 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	1020	1.0	1000		102	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **COND_110616B: 20** SampType: **Sample Duplicate** Sample ID: **H11060298-001ADUP** Method: **A2510 B**

Analysis Date: **06/16/11 10:38** 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	196	1.0						194.7	0.7	10	

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **COND_110616B: 32** SampType: **Sample Duplicate** Sample ID: **H11060300-003ADUP** Method: **A2510 B**

Analysis Date: **06/16/11 10:47** 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	117	1.0						116.5	0.4	10	

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: 12578

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 1** SampType: **Method Blank** Sample ID: **MB-12578** Method: **A2540 D**
Analysis Date: **06/16/11 10:14** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1									

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12578** Method: **A2540 D**
Analysis Date: **06/16/11 10:14** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1790	10	2000		89	70	130				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 4** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A2540 D**
Analysis Date: **06/16/11 10:15** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 15** SampType: **Sample Duplicate** Sample ID: **H11060295-001BDUP** Method: **A2540 D**
Analysis Date: **06/16/11 10:18** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: 12579

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 25** SampType: **Method Blank** Sample ID: **MB-12579** Method: **A2540 D**
Analysis Date: **06/16/11 10:22** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1									

Associated samples: **H11060298-007A; H11060298-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-12579** Method: **A2540 D**
Analysis Date: **06/16/11 10:22** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1770	10	2000		89	70	130				

Associated samples: **H11060298-007A; H11060298-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 28** SampType: **Sample Duplicate** Sample ID: **H11060298-007ADUP** Method: **A2540 D**
Analysis Date: **06/16/11 10:23** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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						2		5	

Associated samples: **H11060298-007A; H11060298-008A**

Run ID :Run Order: **ACCU-124 (14410200)_110616A: 39** SampType: **Sample Duplicate** Sample ID: **H11060306-002BDUP** Method: **A2540 D**
Analysis Date: **06/16/11 13:47** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	6.00	10						10		5	

Associated samples: **H11060298-007A; H11060298-008A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: 12580

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 1** SampType: **Method Blank** Sample ID: **MB-12580** Method: **A2540 C**
Analysis Date: **06/16/11 10:04** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1.0									

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-12580** Method: **A2540 C**
Analysis Date: **06/16/11 10:05** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	1990	10	2000		99	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 4** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A2540 C**
Analysis Date: **06/16/11 10:06** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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						4		5	

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 6** SampType: **Sample Matrix Spike** Sample ID: **H11060292-002AMS** Method: **A2540 C**
Analysis Date: **06/16/11 10:06** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	2030	10	2000	90	97	80	120				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **ACCU-124 (14410200)_111116A: 16** SampType: **Sample Duplicate** Sample ID: **H11060298-001ADUP** Method: **A2540 C**
Analysis Date: **06/16/11 10:10** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	88.0	10						80	9.5	5	R

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: 12586

Run ID :Run Order: **ICPMS204-B_110620B: 18** SampType: **Method Blank** Sample ID: **MB-12586** Method: **E200.8**

Analysis Date: **06/20/11 17:25** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** 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	ND	0.0006									
Lead	ND	2E-05									
Manganese	0.0002	6E-05									
Zinc	ND	0.0003									

Associated samples: **H11060298-001C; H11060298-003C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110620B: 19** SampType: **Laboratory Control Sample** Sample ID: **LCS-12586** Method: **E200.8**

Analysis Date: **06/20/11 17:29** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.492	0.0050	0.5		98	85	115				
Cadmium	0.253	0.0010	0.25		101	85	115				
Copper	0.483	0.010	0.5		97	85	115				
Iron	2.57	0.030	2.5		103	85	115				
Lead	0.486	0.010	0.5		97	85	115				
Manganese	2.36	0.010	2.5	0.0002468	95	85	115				
Zinc	0.504	0.010	0.5		101	85	115				

Associated samples: **H11060298-001C; H11060298-003C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110620B: 246** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001CMS3** Method: **E200.8**

Analysis Date: **06/21/11 22:52** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.498	0.0050	0.5	0.001071	99	70	130				
Cadmium	0.246	0.0010	0.25	0.003943	97	70	130				
Copper	0.549	0.010	0.5	0.07686	94	70	130				
Iron	2.69	0.030	2.5	0.2199	99	70	130				
Lead	0.500	0.010	0.5	0.01217	98	70	130				
Manganese	2.74	0.010	2.5	0.4485	92	70	130				
Zinc	1.20	0.010	0.5	0.7364	92	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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: 12586

Run ID :Run Order: **ICPMS204-B_110620B: 246** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001CMS3** Method: **E200.8**
Analysis Date: **06/21/11 22:52** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

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

Associated samples: **H11060298-001C; H11060298-003C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110620B: 247** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060298-001CMSD3** Method: **E200.8**
Analysis Date: **06/21/11 22:56** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.498	0.0050	0.5	0.001071	99	70	130	0.4978	0.1	20	
Cadmium	0.242	0.0010	0.25	0.003943	95	70	130	0.2461	1.8	20	
Copper	0.544	0.010	0.5	0.07686	93	70	130	0.5488	0.8	20	
Iron	2.64	0.030	2.5	0.2199	97	70	130	2.692	1.9	20	
Lead	0.504	0.010	0.5	0.01217	98	70	130	0.4999	0.8	20	
Manganese	2.75	0.010	2.5	0.4485	92	70	130	2.745	0.1	20	
Zinc	1.20	0.010	0.5	0.7364	93	70	130	1.196	0.5	20	

Associated samples: **H11060298-001C; H11060298-003C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 117** SampType: **Method Blank** Sample ID: **MB-12586** Method: **E200.8**
Analysis Date: **06/23/11 08:03** Units: **mg/L** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6E-05	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	0.003	0.0006									
Lead	2E-05	2E-05									
Manganese	0.0003	6E-05									
Zinc	0.002	0.0003									

Associated samples: **H11060298-001C; H11060298-003C; H11060298-006C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: H11060294A

Run ID :Run Order: **MISC WC_110624A: 2** SampType: **Sample Duplicate** Sample ID: **H11060298-004ADUP** Method: **A2310 B**

Analysis Date: **06/24/11 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
Acidity, Total as CaCO3	280	4.0						259.8	7.4	20	

Associated samples: **H11060298-004A**

Run ID :Run Order: **MISC WC_110624A: 3** SampType: **Laboratory Control Sample** Sample ID: **LCS1106240000** Method: **A2310 B**

Analysis Date: **06/24/11 13:05** 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
Acidity, Total as CaCO3	930	4.0	929	15.99	98	90	110				

Associated samples: **H11060298-004A**

Run ID :Run Order: **MISC WC_110624A: 4** SampType: **Method Blank** Sample ID: **MBLK1106240000** Method: **A2310 B**

Analysis Date: **06/24/11 13:00** 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
Acidity, Total as CaCO3	20	1									

Associated samples: **H11060298-004A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R71916

Run ID :Run Order: **MAN-TECH_110617B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **06/16/11 13:56** 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
Alkalinity, Total as CaCO3	1	0.6									

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-06022011** Method: **A2320 B**
Analysis Date: **06/16/11 14:04** 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	610	4.0	600	1.48	102	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 14** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A2320 B**
Analysis Date: **06/16/11 14:13** 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	1.3	4.0						1.37		20	
Bicarbonate as HCO3	1.5	4.0						1.67		20	
Carbonate as CO3	ND	4.0								20	

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 28** SampType: **Sample Matrix Spike** Sample ID: **H11060292-007AMS** Method: **A2320 B**
Analysis Date: **06/16/11 15:02** 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	670	4.0	600	71.63	100	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 38** SampType: **Sample Duplicate** Sample ID: **H11060298-001ADUP** Method: **A2320 B**
Analysis Date: **06/16/11 15:36** 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	74	4.0						73.6	0.2	20	
Bicarbonate as HCO3	90	4.0						89.8	0.2	20	
Carbonate as CO3	ND	4.0								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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R71916

Date: *28-Jun-11*

Run ID :Run Order: **MAN-TECH_110617B: 38** SampType: **Sample Duplicate** Sample ID: **H11060298-001ADUP** Method: **A2320 B**

Analysis Date: **06/16/11 15:36** 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: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R71916

Run ID :Run Order: **MAN-TECH_110617B: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1-1905** Method: **A4500-H B**
Analysis Date: **06/16/11 13:38** 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	3.94	0.10	4		99	98	102				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1943** Method: **A4500-H B**
Analysis Date: **06/16/11 13:41** 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	6.94	0.10	7		99	98	102				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2-2042** Method: **A4500-H B**
Analysis Date: **06/16/11 13:44** 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	9.97	0.10	10		100	98	102				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-1942** Method: **A4500-H B**
Analysis Date: **06/16/11 13:46** 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	6.95	0.10	7		99	99	101				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **MAN-TECH_110617B: 15** SampType: **Sample Duplicate** Sample ID: **H11060292-001ADUP** Method: **A4500-H B**
Analysis Date: **06/16/11 14:13** 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	5.33	0.10						5.59	4.8	3	R

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R71916

Date: *28-Jun-11*

Run ID :Run Order: **MAN-TECH_110617B: 39** SampType: **Sample Duplicate** Sample ID: **H11060298-001ADUP** Method: **A4500-H B**

Analysis Date: **06/16/11 15:36** 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	8.10	0.10						8.11	0.1	3	

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R71921

Run ID :Run Order: **ICP2-HE_110616A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **06/16/11 11:33** 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
Magnesium	39.1	1.0	40		98	95	105				
Potassium	38.5	1.0	40		96	95	105				
Sodium	38.2	1.0	40		95	95	105				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**
Analysis Date: **06/16/11 11:36** 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
Magnesium	25.4	1.0	25		102	95	105				
Potassium	24.6	1.0	25		98	95	105				
Sodium	24.8	1.0	25		99	95	105				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **06/16/11 11:47** 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
Magnesium	497	1.0	500		99	80	120				
Potassium	0.0206	1.0				0	0				
Sodium	0.0376	1.0				0	0				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **06/16/11 11:52** 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
Magnesium	506	1.0	500		101	80	120				
Potassium	20.0	1.0	20		100	80	120				
Sodium	20.0	1.0	20		100	80	120				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R71921

Run ID :Run Order: **ICP2-HE_110616A: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **06/16/11 11:59** 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
Magnesium	0.1	0.01									
Potassium	ND	0.04									
Sodium	ND	0.01									

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **06/16/11 12:03** 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
Magnesium	47.0	1.0	50	0.1124	94	85	115				
Potassium	46.0	1.0	50		92	85	115				
Sodium	45.8	1.0	50		92	85	115				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**
Analysis Date: **06/16/11 13:05** 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
Magnesium	25.9	1.0	25		104	90	110				
Potassium	24.3	1.0	25		97	90	110				
Sodium	24.7	1.0	25		99	90	110				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B**

Run ID :Run Order: **ICP2-HE_110616A: 37** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001BMS2** Method: **E200.7**
Analysis Date: **06/16/11 13:27** 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
Magnesium	60.0	1.0	50	10.6	99	70	130				
Potassium	47.1	1.0	50	0.3532	94	70	130				
Sodium	47.6	1.0	50	0.7665	94	70	130				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R71921

Run ID :Run Order: **ICP2-HE_110616A: 38** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060298-001BMSD2** Method: **E200.7**

Analysis Date: **06/16/11 13:30** 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
Magnesium	60.6	1.0	50	10.6	100	70	130	60.01	1.0	20	
Potassium	47.8	1.0	50	0.3532	95	70	130	47.12	1.5	20	
Sodium	48.3	1.0	50	0.7665	95	70	130	47.62	1.5	20	

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **06/16/11 13:49** 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
Magnesium	26.4	1.0	25		106	90	110				
Potassium	24.0	1.0	25		96	90	110				
Sodium	24.4	1.0	25		98	90	110				

Associated samples: **H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 51** SampType: **Sample Matrix Spike** Sample ID: **H11060300-003BMS2** Method: **E200.7**

Analysis Date: **06/16/11 14:18** 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
Magnesium	52.3	1.0	50	5.156	94	70	130				
Potassium	46.9	1.0	50	0.4365	93	70	130				
Sodium	48.9	1.0	50	1.677	94	70	130				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

Run ID :Run Order: **ICP2-HE_110616A: 52** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060300-003BMSD2** Method: **E200.7**

Analysis Date: **06/16/11 14:22** 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
Magnesium	53.1	1.0	50	5.156	96	70	130	52.27	1.5	20	
Potassium	47.7	1.0	50	0.4365	95	70	130	46.95	1.6	20	
Sodium	49.6	1.0	50	1.677	96	70	130	48.88	1.4	20	

Associated samples: **H11060298-001B; H11060298-002B; H11060298-003B; H11060298-004B; H11060298-005B; H11060298-006B; H11060298-007B; H11060298-008B**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R71954

Run ID :Run Order: **IC101-H_110618A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV061711-12** Method: **E300.0**
Analysis Date: **06/18/11 12:27** 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		103	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **IC101-H_110618A: 15** SampType: **Method Blank** Sample ID: **ICB061711-13** Method: **E300.0**
Analysis Date: **06/18/11 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	ND	0.2									
Sulfate	ND	0.5									

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **IC101-H_110618A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB061711-14** Method: **E300.0**
Analysis Date: **06/18/11 12:58** 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	55	1.0	50		109	90	110				
Sulfate	200	1.1	200		100	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **IC101-H_110618A: 17** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV061711-15** Method: **E300.0**
Analysis Date: **06/18/11 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
Chloride	99	1.0	100		99	90	110				
Sulfate	430	1.0	400		107	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A**

Run ID :Run Order: **IC101-H_110618A: 26** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001AMS** Method: **E300.0**
Analysis Date: **06/18/11 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	48	1.0	50		96	90	110				
Sulfate	220	1.1	200	20.64	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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R71954

Run ID :Run Order: **IC101-H_110618A: 26** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001AMS** Method: **E300.0**
Analysis Date: **06/18/11 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

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **IC101-H_110618A: 27** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060298-001AMSD** Method: **E300.0**
Analysis Date: **06/18/11 15:48** 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	50	1.0	50		100	90	110	48.23	3.2	20	
Sulfate	230	1.1	200	20.64	105	90	110	224.9	2.6	20	

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **IC101-H_110618A: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV061711-58** Method: **E300.0**
Analysis Date: **06/18/11 16:50** 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	99	1.0	100		99	90	110				
Sulfate	400	1.0	400		100	90	110				

Associated samples: **H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **IC101-H_110618A: 40** SampType: **Sample Matrix Spike** Sample ID: **H11060300-003AMS** Method: **E300.0**
Analysis Date: **06/18/11 19:08** 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
Chloride	49	1.0	50		98	90	110				
Sulfate	200	1.1	200	1.604	100	90	110				

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

Run ID :Run Order: **IC101-H_110618A: 41** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060300-003AMSD** Method: **E300.0**
Analysis Date: **06/18/11 19:24** 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	49	1.0	50		99	90	110	48.91	0.9	20	
Sulfate	200	1.1	200	1.604	101	90	110	202	1.0	20	

Associated samples: **H11060298-001A; H11060298-002A; H11060298-003A; H11060298-004A; H11060298-005A; H11060298-006A; H11060298-007A; H11060298-008A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 7** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/20/11 16:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.247	0.10	0.25		99	90	110				
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Calcium	2.55	0.50	2.5		102	90	110				
Copper	0.0512	0.010	0.05		102	90	110				
Iron	0.265	0.030	0.25		106	90	110				
Lead	0.0506	0.010	0.05		101	90	110				
Manganese	0.247	0.010	0.25		99	90	110				
Zinc	0.0511	0.010	0.05		102	90	110				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 8** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/20/11 16:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000158	0.0050									
Cadmium	0.000686	0.0010									
Calcium	116	0.50	120		97	70	130				
Copper	0.000226	0.010									
Iron	104	0.030	100		104	70	130				
Lead	0.000107	0.010									
Manganese	0.00199	0.010									
Zinc	0.00116	0.010									

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 9** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/20/11 16:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0102	0.0050	0.01		102	70	130				
Cadmium	0.0106	0.0010	0.01		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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 9** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/20/11 16:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	113	0.50	120		94	70	130				
Copper	0.0199	0.010	0.02		100	70	130				
Iron	102	0.030	100		102	70	130				
Lead	7.00E-05	0.010				0	0				
Manganese	0.0220	0.010	0.02		110	70	130				
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 15** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **06/20/11 17:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0004	0.0003									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Calcium	0.006	0.003									
Copper	ND	3E-05									
Iron	0.002	0.0002									
Lead	ND	1.0E-05									
Manganese	ND	1E-05									
Zinc	0.0004	0.0003									

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **06/20/11 17:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0487	0.10	0.05	0.0003893	97	85	115				
Arsenic	0.0480	0.0050	0.05		96	85	115				
Cadmium	0.0477	0.0010	0.05		95	85	115				
Calcium	45.3	0.50	50	0.005609	91	85	115				
Copper	0.0499	0.010	0.05		100	85	115				
Iron	4.84	0.030	5	0.002025	97	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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **06/20/11 17:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0491	0.010	0.05		98	85	115				
Manganese	0.0484	0.010	0.05		97	85	115				
Zinc	0.0502	0.010	0.05	0.0003934	100	85	115				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 36** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/20/11 19:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0492	0.0050	0.05		99	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Calcium	2.54	0.50	2.5		102	90	110				
Copper	0.0512	0.010	0.05		102	90	110				
Iron	0.261	0.030	0.25		104	90	110				
Lead	0.0512	0.010	0.05		102	90	110				
Manganese	0.250	0.010	0.25		100	90	110				
Zinc	0.0504	0.010	0.05		101	90	110				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 37** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/20/11 19:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000194	0.0050									
Cadmium	0.000561	0.0010									
Calcium	115	0.50	120		96	70	130				
Copper	0.000395	0.010									
Iron	101	0.030	100		101	70	130				
Lead	0.000105	0.010									
Manganese	0.00202	0.010									
Zinc	0.00117	0.010									

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 37** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/20/11 19:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 38** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/20/11 19:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.7	0.10	40		99	70	130				
Arsenic	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Calcium	114	0.50	120		95	70	130				
Copper	0.0200	0.010	0.02		100	70	130				
Iron	101	0.030	100		101	70	130				
Lead	7.00E-05	0.010				0	0				
Manganese	0.0223	0.010	0.02		112	70	130				
Zinc	0.0113	0.010	0.01		113	70	130				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 208** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/21/11 09:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000150	0.0050									
Cadmium	0.000507	0.0010									
Calcium	108	0.50	120		90	70	130				
Copper	0.000383	0.010									
Iron	99.4	0.030	100		99	70	130				
Lead	8.50E-05	0.010									
Manganese	0.00194	0.010									
Zinc	0.00113	0.010									

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 209** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/21/11 09:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0102	0.0010	0.01		102	70	130				
Calcium	110	0.50	120		91	70	130				
Copper	0.0206	0.010	0.02		103	70	130				
Iron	101	0.030	100		101	70	130				
Lead	6.60E-05	0.010				0	0				
Manganese	0.0220	0.010	0.02		110	70	130				
Zinc	0.0108	0.010	0.01		108	70	130				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 215** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/21/11 13:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.253	0.10	0.25		101	90	110				
Arsenic	0.0492	0.0050	0.05		98	90	110				
Cadmium	0.0268	0.0010	0.025		107	90	110				
Calcium	2.54	0.50	2.5		102	90	110				
Copper	0.0512	0.010	0.05		102	90	110				
Iron	0.263	0.030	0.25		105	90	110				
Lead	0.0522	0.010	0.05		104	90	110				
Manganese	0.251	0.010	0.25		100	90	110				
Zinc	0.0509	0.010	0.05		102	90	110				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 216** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/21/11 13:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000175	0.0050									
Cadmium	0.000519	0.0010									

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 216** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/21/11 13:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	113	0.50	120		94	70	130				
Copper	0.000433	0.010									
Iron	99.4	0.030	100		99	70	130				
Lead	0.000100	0.010									
Manganese	0.00211	0.010									
Zinc	0.00112	0.010									

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 217** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/21/11 13:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.0102	0.0050	0.01		102	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Calcium	113	0.50	120		95	70	130				
Copper	0.0201	0.010	0.02		101	70	130				
Iron	97.8	0.030	100		98	70	130				
Lead	6.80E-05	0.010				0	0				
Manganese	0.0222	0.010	0.02		111	70	130				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 242** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001BMS** Method: **E200.8**

Analysis Date: **06/21/11 22:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0806	0.10	0.05	0.03635	88	70	130				
Arsenic	0.0478	0.0050	0.05	0.0006017	94	70	130				
Cadmium	0.0499	0.0010	0.05	0.004	92	70	130				
Calcium	59.0	1.0	50	19.22	80	70	130				
Copper	0.0777	0.010	0.05	0.0309	94	70	130				
Iron	4.69	0.030	5	0.04876	93	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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 242** SampType: **Sample Matrix Spike** Sample ID: **H11060298-001BMS** Method: **E200.8**

Analysis Date: **06/21/11 22:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0518	0.010	0.05	0.002545	98	70	130				
Manganese	0.481	0.010	0.05	0.4629		70	130				A
Zinc	0.705	0.010	0.05	0.7281		70	130				A

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 243** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060298-001BMSD** Method: **E200.8**

Analysis Date: **06/21/11 22:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0827	0.10	0.05	0.03635	93	70	130	0.08057		20	
Arsenic	0.0479	0.0050	0.05	0.0006017	95	70	130	0.0478	0.2	20	
Cadmium	0.0504	0.0010	0.05	0.004	93	70	130	0.0499	0.9	20	
Calcium	60.8	1.0	50	19.22	83	70	130	59.04	3.0	20	
Copper	0.0786	0.010	0.05	0.0309	95	70	130	0.07769	1.1	20	
Iron	4.71	0.030	5	0.04876	93	70	130	4.693	0.3	20	
Lead	0.0522	0.010	0.05	0.002545	99	70	130	0.05176	0.9	20	
Manganese	0.488	0.010	0.05	0.4629		70	130	0.4807	1.5	20	A
Zinc	0.712	0.010	0.05	0.7281		70	130	0.7049	1.0	20	A

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 255** SampType: **Sample Matrix Spike** Sample ID: **H11060298-002CMS** Method: **E200.8**

Analysis Date: **06/21/11 23:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.948	0.10	0.05	0.9416		70	130				A
Arsenic	0.0477	0.0050	0.05	0.0003974	95	70	130				
Cadmium	0.0652	0.0010	0.05	0.02419	82	70	130				
Calcium	76.6	1.0	50	37.67	78	70	130				
Copper	0.203	0.010	0.05	0.1679	71	70	130				
Iron	5.42	0.030	5	0.9021	90	70	130				
Lead	0.0680	0.010	0.05	0.0201	96	70	130				
Manganese	6.62	0.010	0.05	6.929		70	130				A
Zinc	4.37	0.010	0.05	4.782		70	130				A

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 255** SampType: **Sample Matrix Spike** Sample ID: **H11060298-002CMS** Method: **E200.8**

Analysis Date: **06/21/11 23:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 256** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060298-002CMSD** Method: **E200.8**

Analysis Date: **06/21/11 23:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.952	0.10	0.05	0.9416		70	130	0.9485	0.3	20	A
Arsenic	0.0485	0.0050	0.05	0.0003974	96	70	130	0.04771	1.7	20	
Cadmium	0.0659	0.0010	0.05	0.02419	83	70	130	0.06522	1.0	20	
Calcium	77.7	1.0	50	37.67	80	70	130	76.62	1.4	20	
Copper	0.207	0.010	0.05	0.1679	79	70	130	0.2033	1.9	20	
Iron	5.38	0.030	5	0.9021	90	70	130	5.423	0.7	20	
Lead	0.0680	0.010	0.05	0.0201	96	70	130	0.06804	0.0	20	
Manganese	6.64	0.010	0.05	6.929		70	130	6.625	0.3	20	A
Zinc	4.46	0.010	0.05	4.782		70	130	4.372	2.0	20	A

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 283** SampType: **Sample Matrix Spike** Sample ID: **H11060300-003BMS** Method: **E200.8**

Analysis Date: **06/22/11 01:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0704	0.10	0.05	0.02604	89	70	130				
Arsenic	0.0481	0.0050	0.05	0.0003925	95	70	130				
Cadmium	0.0464	0.0010	0.05		93	70	130				
Calcium	54.5	1.0	50	12.3	84	70	130				
Copper	0.0516	0.010	0.05	0.001553	100	70	130				
Iron	4.74	0.030	5	0.04147	94	70	130				
Lead	0.0501	0.010	0.05	0.0000539	100	70	130				
Manganese	0.0525	0.010	0.05	0.004146	97	70	130				
Zinc	0.0511	0.010	0.05	0.001646	99	70	130				

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 284** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060300-003BMSD** Method: **E200.8**

Analysis Date: **06/22/11 01:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0704	0.10	0.05	0.02604	89	70	130	0.07038		20	
Arsenic	0.0469	0.0050	0.05	0.0003925	93	70	130	0.04812	2.5	20	
Cadmium	0.0455	0.0010	0.05		91	70	130	0.04642	2.0	20	
Calcium	53.1	1.0	50	12.3	82	70	130	54.48	2.5	20	
Copper	0.0505	0.010	0.05	0.001553	98	70	130	0.05163	2.2	20	
Iron	4.63	0.030	5	0.04147	92	70	130	4.742	2.3	20	
Lead	0.0496	0.010	0.05	0.0000539	99	70	130	0.05009	0.9	20	
Manganese	0.0516	0.010	0.05	0.004146	95	70	130	0.05253	1.7	20	
Zinc	0.0489	0.010	0.05	0.001646	95	70	130	0.05106	4.2	20	

Associated samples: **H11060298-001B; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 409** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/22/11 11:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	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	0.000208	0.0050									
Cadmium	0.000449	0.0010									
Calcium	109	0.50	120		91	70	130				
Copper	0.000419	0.010									
Iron	97.1	0.030	100		97	70	130				
Lead	8.30E-05	0.010									
Manganese	0.00228	0.010									
Zinc	0.00113	0.010									

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

Run ID :Run Order: **ICPMS204-B_110620B: 410** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/22/11 11:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	38.3	0.10	40		96	70	130				
Arsenic	0.0108	0.0050	0.01		107	70	130				
Cadmium	0.0101	0.0010	0.01		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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72000

Run ID :Run Order: **ICPMS204-B_110620B: 410** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/22/11 11:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 9	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	111	0.50	120		93	70	130				
Copper	0.0201	0.010	0.02		101	70	130				
Iron	99.3	0.030	100		99	70	130				
Lead	6.10E-05	0.010				0	0				
Manganese	0.0225	0.010	0.02		113	70	130				
Zinc	0.0108	0.010	0.01		107	70	130				

Associated samples: **H11060298-001B; H11060298-001C; H11060298-002B; H11060298-002C; H11060298-003B; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-005B; H11060298-005C; H11060298-006B; H11060298-006C; H11060298-007B; H11060298-007C; H11060298-008B; H11060298-008C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/22/11 23:20** 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
Aluminum	0.250	0.10	0.25		100	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Manganese	0.248	0.010	0.25		99	90	110				
Zinc	0.0506	0.010	0.05		101	90	110				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/22/11 23:25** 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
Aluminum	41.8	0.10	40		105	70	130				
Cadmium	0.000657	0.0010									
Manganese	0.00179	0.010									
Zinc	0.00117	0.010									

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/22/11 23:29** 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
Aluminum	41.3	0.10	40		103	70	130				
Cadmium	0.0109	0.0010	0.01		109	70	130				
Manganese	0.0230	0.010	0.02		115	70	130				
Zinc	0.0113	0.010	0.01		113	70	130				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 95** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/23/11 05:52** 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
Aluminum	0.247	0.10	0.25		99	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Manganese	0.247	0.010	0.25		99	90	110				
Zinc	0.0522	0.010	0.05		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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 95** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/23/11 05:52** 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: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 96** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/23/11 05:57** 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
Aluminum	40.9	0.10	40		102	70	130				
Cadmium	0.000565	0.0010									
Manganese	0.00197	0.010									
Zinc	0.00119	0.010									

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 97** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/23/11 06:01** 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
Aluminum	40.9	0.10	40		102	70	130				
Cadmium	0.0109	0.0010	0.01		109	70	130				
Manganese	0.0226	0.010	0.02		113	70	130				
Zinc	0.0106	0.010	0.01		106	70	130				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 103** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **06/23/11 06:28** 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
Aluminum	ND	0.0003									
Cadmium	ND	1E-05									
Manganese	ND	1E-05									
Zinc	0.0008	0.0003									

Associated samples: **H11060298-002C; H11060298-004B; H11060298-004C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 104** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **06/23/11 06:33** 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
Aluminum	0.0484	0.10	0.05		97	85	115				
Cadmium	0.0480	0.0010	0.05		96	85	115				
Manganese	0.0481	0.010	0.05		96	85	115				
Zinc	0.0495	0.010	0.05	0.0008172	97	85	115				

Associated samples: **H11060298-002C; H11060298-004B; H11060298-004C**

Run ID :Run Order: **ICPMS204-B_110622A: 148** SampType: **Sample Matrix Spike** Sample ID: **H11060325-001CMS** Method: **E200.8**
Analysis Date: **06/23/11 10:23** 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
Aluminum	0.0637	0.10	0.05	0.0135	100	70	130				
Cadmium	0.0497	0.0010	0.05	0.0000173	99	70	130				
Manganese	0.0508	0.010	0.05	0.0009062	100	70	130				
Zinc	0.0517	0.010	0.05	0.001598	100	70	130				

Associated samples: **H11060298-002C; H11060298-004B; H11060298-004C**

Run ID :Run Order: **ICPMS204-B_110622A: 153** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060325-001CMSD** Method: **E200.8**
Analysis Date: **06/23/11 10:46** 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
Aluminum	0.0603	0.10	0.05	0.0135	94	70	130	0.06368		20	
Cadmium	0.0483	0.0010	0.05	0.0000173	97	70	130	0.04968	2.8	20	
Manganese	0.0506	0.010	0.05	0.0009062	99	70	130	0.05084	0.4	20	
Zinc	0.0510	0.010	0.05	0.001598	99	70	130	0.05168	1.4	20	

Associated samples: **H11060298-002C; H11060298-004B; H11060298-004C**

Run ID :Run Order: **ICPMS204-B_110622A: 220** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/23/11 15:57** 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
Aluminum	0.249	0.10	0.25		99	90	110				
Cadmium	0.0267	0.0010	0.025		107	90	110				
Manganese	0.249	0.010	0.25		100	90	110				
Zinc	0.0513	0.010	0.05		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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 220** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/23/11 15:57** 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

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 221** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/23/11 16:01** 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
Aluminum	38.7	0.10	40		97	70	130				
Cadmium	0.000479	0.0010									
Manganese	0.00201	0.010									
Zinc	0.00126	0.010									

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 222** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/23/11 16:06** 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
Aluminum	38.6	0.10	40		96	70	130				
Cadmium	0.0102	0.0010	0.01		102	70	130				
Manganese	0.0216	0.010	0.02		108	70	130				
Zinc	0.0108	0.010	0.01		108	70	130				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 408** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/24/11 06:10** 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
Aluminum	0.257	0.10	0.25		103	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Manganese	0.254	0.010	0.25		102	90	110				
Zinc	0.0509	0.010	0.05		102	90	110				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 409** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/24/11 06:14** 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
Aluminum	39.5	0.10	40		99	70	130				
Cadmium	0.000434	0.0010									
Manganese	0.00207	0.010									
Zinc	0.00138	0.010									

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 410** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/24/11 06:19** 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
Aluminum	38.8	0.10	40		97	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Manganese	0.0219	0.010	0.02		109	70	130				
Zinc	0.0109	0.010	0.01		109	70	130				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 489** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/24/11 12:34** 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
Aluminum	0.247	0.10	0.25		99	90	110				
Cadmium	0.0256	0.0010	0.025		103	90	110				
Manganese	0.246	0.010	0.25		98	90	110				
Zinc	0.0511	0.010	0.05		102	90	110				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 490** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/24/11 12:41** 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
Aluminum	38.5	0.10	40		96	70	130				
Cadmium	0.000395	0.0010									
Manganese	0.00190	0.010									
Zinc	0.00141	0.010									

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 490** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/24/11 12:41** 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

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 491** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/24/11 12:46** 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
Aluminum	38.7	0.10	40		97	70	130				
Cadmium	0.00996	0.0010	0.01		100	70	130				
Manganese	0.0215	0.010	0.02		107	70	130				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 648** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/25/11 01:24** 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
Aluminum	0.254	0.10	0.25		102	90	110				
Cadmium	0.0259	0.0010	0.025		104	90	110				
Manganese	0.246	0.010	0.25		98	90	110				
Zinc	0.0507	0.010	0.05		101	90	110				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

Run ID :Run Order: **ICPMS204-B_110622A: 649** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/25/11 01:29** 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
Aluminum	39.4	0.10	40		98	70	130				
Cadmium	0.000352	0.0010									
Manganese	0.00180	0.010									
Zinc	0.00140	0.010									

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 650** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/25/11 01:34** 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
Aluminum	39.0	0.10	40		98	70	130				
Cadmium	0.0100	0.0010	0.01		100	70	130				
Manganese	0.0210	0.010	0.02		105	70	130				
Zinc	0.0108	0.010	0.01		108	70	130				

Associated samples: **H11060298-002C; H11060298-003C; H11060298-004B; H11060298-004C; H11060298-006C**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72128

Run ID :Run Order: **IC102-H_110623A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV062311-12** Method: **E300.0**
Analysis Date: **06/23/11 17:14** 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
Sulfate	390	1.0	400		98	90	110				

Associated samples: **H11060298-006A**

Run ID :Run Order: **IC102-H_110623A: 15** SampType: **Method Blank** Sample ID: **ICB062311-13** Method: **E300.0**
Analysis Date: **06/23/11 17:25** 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
Sulfate	ND	0.02									

Associated samples: **H11060298-006A**

Run ID :Run Order: **IC102-H_110623A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB062311-14** Method: **E300.0**
Analysis Date: **06/23/11 17:37** 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	180	1.1	200		91	90	110				

Associated samples: **H11060298-006A**

Run ID :Run Order: **IC102-H_110623A: 17** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV062311-15** Method: **E300.0**
Analysis Date: **06/23/11 17:48** 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
Sulfate	380	1.0	400		96	90	110				

Associated samples: **H11060298-006A**

Run ID :Run Order: **IC102-H_110623A: 22** SampType: **Sample Matrix Spike** Sample ID: **H11060298-003AMS** Method: **E300.0**
Analysis Date: **06/23/11 18:46** 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
Sulfate	330	1.1	200	137.3	98	90	110				

Associated samples: **H11060298-006A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72128

Run ID :Run Order: **IC102-H_110623A: 23** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060298-003AMSD** Method: **E300.0**

Analysis Date: **06/23/11 18:58** 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	340	1.1	200	137.3	**100**	90	110	333.5	**1.0**	20	

Associated samples: **H11060298-006A**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72130

Run ID :Run Order: **ICP2-HE_110623A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **06/23/11 11:19** 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
Calcium	39.7	1.0	40		99	95	105				

Associated samples: **H11060298-006B**

Run ID :Run Order: **ICP2-HE_110623A: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**
Analysis Date: **06/23/11 11:23** 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
Calcium	25.7	1.0	25		103	95	105				

Associated samples: **H11060298-006B**

Run ID :Run Order: **ICP2-HE_110623A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **06/23/11 11:34** 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
Calcium	472	1.0	500		94	80	120				

Associated samples: **H11060298-006B**

Run ID :Run Order: **ICP2-HE_110623A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **06/23/11 11:38** 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
Calcium	470	1.0	500		94	80	120				

Associated samples: **H11060298-006B**

Run ID :Run Order: **ICP2-HE_110623A: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **06/23/11 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
Calcium	0.02	0.008									

Associated samples: **H11060298-006B**

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: H11060298
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *28-Jun-11*

BatchID: R72130

Run ID :Run Order: **ICP2-HE_110623A: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **06/23/11 11:49** 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
Calcium	47.9	1.0	50	0.02355	96	85	115				

Associated samples: **H11060298-006B**

Run ID :Run Order: **ICP2-HE_110623A: 55** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**
Analysis Date: **06/23/11 14:21** 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
Calcium	26.3	1.0	25		105	90	110				

Associated samples: **H11060298-006B**

Run ID :Run Order: **ICP2-HE_110623A: 62** SampType: **Sample Matrix Spike** Sample ID: **H11060381-023CMS2** Method: **E200.7**
Analysis Date: **06/23/11 14:47** 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
Calcium	61.4	1.0	50	10.74	101	70	130				

Associated samples: **H11060298-006B**

Run ID :Run Order: **ICP2-HE_110623A: 63** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060381-023CMSD2** Method: **E200.7**
Analysis Date: **06/23/11 14:51** 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
Calcium	61.5	1.0	50	10.74	101	70	130	61.42	0.1	20	

Associated samples: **H11060298-006B**

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

H11060298

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 6/20/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 BRSW3A has a collection time of 8:48 on the COC - sample bottles have 8:43. Emailed client. TI 6/16/11. Per email from A. Dreesbach, the correct sample times for BRSW3A is 0848. TI 6/17/11.

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 - SKS	VBMC	State: MT	Yes ☐ No ☐

Report Mail Address:	Contact Name:	Phone/Fax:	Email:	Sampler: (Please Print)
Quote: 14-645	Shellie Haaland	841-5033	shaaland@mt.gov	Alan Draeseke, Mark Stanisich

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)

R U S H

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

Comments: Please copy adraeseke portageinc.com

Shipped by: Hand

Cooler ID(s): 1

Receipt Temp: 5.5 °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	VBMC-BRSW23	6/14/11	0810	W	X
2	VBMC-BRSW3A		0848		
3	VBMC-BRSW3B		0930		
4	VBMC-MHTDS-1		0955		
5	VBMC-MHTDS-2		1000		
6	VBMC-MHTDS-3		~~0959~~ 1046		
7	VBMC-MHTDS-4		1110		
8	VBMC-MHTDS-5		1126	W	X
9					
10		6/14/11 AD.			

VBMC Surface Water

LABORATORY USE ONLY H11060298

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Draeseke	6/15/11 1215				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:

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

6-15-11 1112 Esther

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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

ANALYTICAL SUMMARY REPORT

June 28, 2011

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

Workorder No.: H11060302 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060302-001	UBMC-BRSD34	06/13/11 10:45	06/15/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11060302-002	UBMC-BRSD29	06/13/11 11:45	06/15/11	Sediment	Same As Above
H11060302-003	UBMC-BRSD38	06/13/11 12:45	06/15/11	Sediment	Same As Above
H11060302-004	UBMC-BRSD22	06/13/11 14:10	06/15/11	Sediment	Same As Above
H11060302-005	UBMC-BRSD24	06/13/11 14:10	06/15/11	Sediment	Same As Above
H11060302-006	UBMC-BRSD45	06/13/11 15:12	06/15/11	Sediment	Same As Above
H11060302-007	UBMC-BRSD1	06/13/11 16:08	06/15/11	Sediment	Same As Above
H11060302-008	UBMC-BRSD48	06/13/11 17:40	06/15/11	Sediment	Same As Above
H11060302-009	UBMC-BRSD23	06/14/11 8:10	06/15/11	Sediment	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC-BRSD34
Lab ID: H11060302-001
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 10:45
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6240	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Arsenic	28	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Cadmium	9	mg/kg		1		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Copper	301	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Iron	23800	mg/kg		5		SW6010B	06/22/11 20:49 / sld	06/16/11 11:36	ICP2-HE_110622B	34	12582
Lead	956	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Manganese	2200	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Zinc	1750	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582

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 UBMC-BRSD29
Lab ID: H11060302-002
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 11:45
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6430	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A	88	12582
Arsenic	50	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A	88	12582
Cadmium	23	mg/kg		1		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A	88	12582
Copper	491	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A	88	12582
Iron	31500	mg/kg		5		SW6010B	06/22/11 20:53 / sld	06/16/11 11:36	ICP2-HE_110622B	35	12582
Lead	1730	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A	88	12582
Manganese	5720	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A	88	12582
Zinc	3560	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A	88	12582

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 UBMC-BRSD38
Lab ID: H11060302-003
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 12:45
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5960	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Arsenic	80	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Cadmium	66	mg/kg		1		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Copper	798	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Iron	34000	mg/kg		5		SW6010B	06/22/11 20:56 / sld	06/16/11 11:36	ICP2-HE_110622B	36	12582
Lead	21700	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Manganese	3270	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Zinc	10200	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582

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 UBMC-BRSD22
Lab ID: H11060302-004
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7080	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Arsenic	56	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Cadmium	73	mg/kg		1		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Copper	2030	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Iron	42500	mg/kg		5		SW6010B	06/22/11 21:00 / sld	06/16/11 11:36	ICP2-HE_110622B	37	12582
Lead	2610	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Manganese	17200	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Zinc	9960	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582

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 UBMC-BRSD24
Lab ID: H11060302-005
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7880	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Arsenic	232	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Cadmium	56	mg/kg		1		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Copper	2010	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Iron	38000	mg/kg		5		SW6010B	06/22/11 21:04 / sld	06/16/11 11:36	ICP2-HE_110622B	38	12582
Lead	2980	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Manganese	10400	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Zinc	8400	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582

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 UBMC-BRSD45
Lab ID: H11060302-006
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 15:12
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8840	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Arsenic	73	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Cadmium	25	mg/kg		1		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Copper	1360	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Iron	34600	mg/kg		5		SW6010B	06/22/11 21:07 / sld	06/16/11 11:36	ICP2-HE_110622B	39	12582
Lead	1980	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Manganese	5100	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Zinc	3130	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582

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 UBMC-BRSD1
Lab ID: H11060302-007
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 16:08
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6270	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582
Arsenic	20	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582
Cadmium	ND	mg/kg		1		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582
Copper	21	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582
Iron	21700	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582
Lead	39	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582
Manganese	462	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582
Zinc	153	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A : 93		12582

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 UBMC-BRSD48
Lab ID: H11060302-008
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 17:40
DateReceived: 06/15/11
Report Date: 06/28/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4520	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Arsenic	165	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Cadmium	23	mg/kg		1		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Copper	663	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Iron	64100	mg/kg	D	8		SW6010B	06/22/11 21:11 / sld	06/16/11 11:36	ICP2-HE_110622B	40	12582
Lead	1810	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Manganese	6560	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Zinc	3900	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582

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 UBMC-BRSD23
Lab ID: H11060302-009
Matrix: Sediment

Project: UBMC
Collection Date: 06/14/11 08:10
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6550	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B	25	12653
Arsenic	111	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B	25	12653
Cadmium	45	mg/kg		1		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B	25	12653
Copper	1570	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B	25	12653
Iron	45900	mg/kg	D	8		SW6010B	06/27/11 14:26 / sld	06/21/11 12:35	ICP2-HE_110627B	18	12653
Lead	4580	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B	25	12653
Manganese	10000	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B	25	12653
Zinc	6630	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B	25	12653

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: 12582

Run ID :Run Order: **ICP2-HE_110621A: 82** SampType: **Method Blank** Sample ID: **MB-12582** Method: **SW6010B**
Analysis Date: **06/21/11 14:46** Units: **mg/kg** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1	0.7									
Arsenic	ND	0.3									
Cadmium	ND	0.02									
Copper	ND	0.1									
Iron	1.0	0.3									
Lead	ND	0.6									
Manganese	0.04	0.03									
Zinc	0.1	0.07									

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110621A: 83** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-12582** Method: **SW6010B**
Analysis Date: **06/21/11 14:50** Units: **mg/kg** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	245	5.0	250	1.236	98	80	120				
Arsenic	47.8	5.0	50		96	80	120				
Cadmium	23.5	1.0	25		94	80	120				
Copper	49.3	5.0	50		99	80	120				
Iron	249	5.0	250	0.974	99	80	120				
Lead	47.6	5.0	50		95	80	120				
Manganese	242	5.0	250	0.0365	97	80	120				
Zinc	47.1	5.0	50	0.1495	94	80	120				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110621A: 84** SampType: **Laboratory Control Sample** Sample ID: **LCS-12582** Method: **SW6010B**
Analysis Date: **06/21/11 14:53** Units: **mg/kg** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	12200	5.0	14700	1.236	83	50.7	131.3				
Arsenic	265	5.0	343		77	72.3	106.4				
Cadmium	114	1.0	137		83	73	105.1				
Copper	256	5.0	280		91	77.5	109.6				
Iron	19300	5.0	23000	0.974	84	39.6	138.3				
Lead	170	5.0	187		91	75.9	108.6				

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: 12582

Run ID :Run Order: **ICP2-HE_110621A: 84** SampType: **Laboratory Control Sample** Sample ID: **LCS-12582** Method: **SW6010B**
Analysis Date: **06/21/11 14:53** Units: **mg/kg** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	355	5.0	369	0.0365	96	80.8	115.7				
Zinc	180	5.0	213	0.1495	84	74.2	109.9				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110622B: 24** SampType: **Method Blank** Sample ID: **MB-12582** Method: **SW6010B**
Analysis Date: **06/22/11 20:12** Units: **mg/kg** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.6	0.3									
Arsenic	ND	0.3									
Cadmium	ND	0.02									
Copper	0.2	0.1									
Iron	0.7	0.3									
Lead	ND	0.6									
Manganese	ND	0.03									
Zinc	0.2	0.07									

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110622B: 47** SampType: **Sample Matrix Spike** Sample ID: **H11060303-002AMS** Method: **SW6010B**
Analysis Date: **06/22/11 21:37** Units: **mg/kg** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4270	5.0	124.4	3572		75	125				A
Arsenic	48.7	5.0	24.88	26.86	88	75	125				
Cadmium	41.3	1.0	12.44	30.01	91	75	125				
Copper	556	5.0	24.88	534.4		75	125				A
Iron	17800	5.0	124.4	17940		75	125				A
Lead	247	5.0	24.88	228.9		75	125				A
Manganese	14900	5.0	124.4	13730		75	125				A
Zinc	4220	5.0	24.88	4129		75	125				A

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: 12582

Run ID :Run Order: **ICP2-HE_110622B: 48** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060303-002AMSD** Method: **SW6010B**

Analysis Date: **06/22/11 21:41** Units: **mg/kg** **Prep Info:** Prep Date: **6/16/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4390	5.0	124.4	3572		75	125	4269	2.8	20	A
Arsenic	47.9	5.0	24.88	26.86	85	75	125	48.72	1.7	20	
Cadmium	40.5	1.0	12.44	30.01	84	75	125	41.33	2.1	20	
Copper	586	5.0	24.88	534.4		75	125	555.9	5.3	20	A
Iron	19000	5.0	124.4	17940		75	125	17780	6.8	20	A
Lead	268	5.0	24.88	228.9		75	125	246.7	8.2	20	A
Manganese	15300	5.0	124.4	13730		75	125	14940	2.7	20	A
Zinc	4260	5.0	24.88	4129		75	125	4215	1.0	20	A

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: 12653

Run ID :Run Order: **ICP2-HE_110623B: 22** SampType: **Method Blank** Sample ID: **MB-12653** Method: **SW6010B**
Analysis Date: **06/23/11 15:40** Units: **mg/kg** **Prep Info:** Prep Date: **6/21/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.6	0.3									
Arsenic	0.8	0.3									
Cadmium	ND	0.02									
Copper	0.2	0.1									
Iron	1	0.3									
Lead	ND	0.6									
Manganese	0.2	0.03									
Zinc	0.3	0.07									

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110623B: 23** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-12653** Method: **SW6010B**
Analysis Date: **06/23/11 15:43** Units: **mg/kg** **Prep Info:** Prep Date: **6/21/2011** 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	0.5535	100	80	120				
Arsenic	49.4	5.0	50	0.8325	97	80	120				
Cadmium	24.5	1.0	25		98	80	120				
Copper	50.0	5.0	50	0.165	100	80	120				
Iron	252	5.0	250	1.24	100	80	120				
Lead	49.4	5.0	50		99	80	120				
Manganese	244	5.0	250	0.192	98	80	120				
Zinc	49.6	5.0	50	0.2815	99	80	120				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110623B: 24** SampType: **Laboratory Control Sample** Sample ID: **LCS-12653** Method: **SW6010B**
Analysis Date: **06/23/11 15:47** Units: **mg/kg** **Prep Info:** Prep Date: **6/21/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	11600	5.0	14550	0.5535	79	50.7	131.3				
Arsenic	268	5.0	339.6	0.8325	79	72.3	106.4				
Cadmium	118	1.0	135.6		87	73	105.1				
Copper	242	5.0	277.2	0.165	87	77.5	109.6				
Iron	18300	5.0	22770	1.24	80	39.6	138.3				
Lead	170	5.0	185.1		92	75.9	108.6				

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: 12653

Run ID :Run Order: **ICP2-HE_110623B: 24** SampType: **Laboratory Control Sample** Sample ID: **LCS-12653** Method: **SW6010B**
Analysis Date: **06/23/11 15:47** Units: **mg/kg** **Prep Info:** Prep Date: **6/21/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	348	5.0	365.3	0.192	95	80.8	115.7				
Zinc	184	5.0	210.9	0.2815	87	74.2	109.9				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110623B: 27** SampType: **Post Digestion/Distillation Spike** Sample ID: **H11060302-009APDS** Method: **SW6010B**
Analysis Date: **06/23/11 15:58** Units: **mg/kg** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	95.5	1.0	63.73	44.93	79	75	125				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110623B: 28** SampType: **Sample Matrix Spike** Sample ID: **H11060302-009AMS** Method: **SW6010B**
Analysis Date: **06/23/11 16:01** Units: **mg/kg** **Prep Info:** Prep Date: **6/21/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8180	5.0	123.8	6553		75	125				A
Arsenic	139	5.0	24.75	110.5		75	125				A
Cadmium	51.6	1.0	12.38	44.93	54	75	125				S
Copper	1510	5.0	24.75	1568		75	125				A
Iron	48500	5.0	123.8	48620		75	125				A
Lead	4690	5.0	24.75	4582		75	125				A
Manganese	10700	5.0	123.8	10000		75	125				A
Zinc	5970	5.0	24.75	6627		75	125				A

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110623B: 29** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060302-009AMSD** Method: **SW6010B**
Analysis Date: **06/23/11 16:05** Units: **mg/kg** **Prep Info:** Prep Date: **6/21/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8950	5.0	123.8	6553		75	125	8179	9.0	20	A
Arsenic	132	5.0	24.75	110.5		75	125	138.9	5.4	20	A
Cadmium	64.6	1.0	12.38	44.93	159	75	125	51.61	22	20	SR
Copper	1560	5.0	24.75	1568		75	125	1511	3.1	20	A
Iron	50900	5.0	123.8	48620		75	125	48550	4.6	20	A

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: 12653

Run ID :Run Order: **ICP2-HE_110623B: 29** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060302-009AMSD** Method: **SW6010B**

Analysis Date: **06/23/11 16:05** Units: **mg/kg** **Prep Info:** Prep Date: **6/21/2011** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4150	5.0	24.75	4582		75	125	4686	12	20	A
Manganese	10200	5.0	123.8	10000		75	125	10740	4.9	20	A
Zinc	8320	5.0	24.75	6627		75	125	5970	33	20	AR

Associated samples: **H11060302-009A**

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: R72030

Run ID :Run Order: **ICP2-HE_110621A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **06/21/11 10:08** 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	3.99	0.10	4		100	95	105				
Arsenic	0.783	0.0074	0.8		98	95	105				
Cadmium	0.385	0.0010	0.4		96	95	105				
Copper	0.796	0.010	0.8		99	95	105				
Iron	3.98	0.030	4		99	95	105				
Lead	0.770	0.013	0.8		96	95	105				
Manganese	3.89	0.010	4		97	95	105				
Zinc	0.771	0.010	0.8		96	95	105				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110621A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **06/21/11 10:22** 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	509	0.10	500		102	80	120				
Arsenic	-0.00770	0.0074				0	0				
Cadmium	0.000510	0.0010				0	0				
Copper	0.00245	0.010				0	0				
Iron	189	0.030	200		94	80	120				
Lead	-0.0162	0.013				0	0				
Manganese	-0.00441	0.010				0	0				
Zinc	0.00642	0.010				0	0				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110621A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **06/21/11 10:26** 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	512	0.10	500		102	80	120				
Arsenic	1.01	0.0074	1		101	80	120				
Cadmium	0.901	0.0010	1		90	80	120				
Copper	0.509	0.010	0.5		102	80	120				
Iron	192	0.030	200		96	80	120				
Lead	0.904	0.013	1		90	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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: R72030

Run ID :Run Order: **ICP2-HE_110621A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **06/21/11 10:26** 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	0.470	0.010	0.5		94	80	120				
Zinc	0.964	0.010	1		96	80	120				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-007A; H11060302-008A**

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: R72113

Run ID :Run Order: **ICP2-HE_110622B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **06/22/11 12:16** 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	3.99	0.10	4		100	90	110				
Arsenic	0.780	0.0074	0.8		97	90	110				
Cadmium	0.381	0.0010	0.4		95	90	110				
Copper	0.797	0.010	0.8		100	90	110				
Iron	3.98	0.030	4		100	90	110				
Lead	0.764	0.013	0.8		96	90	110				
Manganese	3.89	0.010	4		97	90	110				
Zinc	0.761	0.010	0.8		95	90	110				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110622B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **06/22/11 12:31** 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	520	0.10	500		104	80	120				
Arsenic	-0.00274	0.0074				0	0				
Cadmium	0.000390	0.0010				0	0				
Copper	0.00490	0.010				0	0				
Iron	191	0.030	200		95	80	120				
Lead	-0.0146	0.013				0	0				
Manganese	-0.00374	0.010				0	0				
Zinc	0.00661	0.010				0	0				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-008A**

Run ID :Run Order: **ICP2-HE_110622B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **06/22/11 12:35** 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	511	0.10	500		102	80	120				
Arsenic	0.999	0.0074	1		100	80	120				
Cadmium	0.884	0.0010	1		88	80	120				
Copper	0.508	0.010	0.5		102	80	120				
Iron	193	0.030	200		96	80	120				
Lead	0.888	0.013	1		89	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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: R72113

Run ID :Run Order: **ICP2-HE_110622B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **06/22/11 12:35** 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	0.471	0.010	0.5		94	80	120				
Zinc	0.942	0.010	1		94	80	120				

Associated samples: **H11060302-001A; H11060302-002A; H11060302-003A; H11060302-004A; H11060302-005A; H11060302-006A; H11060302-008A**

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: R72134

Run ID :Run Order: **ICP2-HE_110623B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **06/23/11 11:19** 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	3.99	0.10	4		100	95	105				
Arsenic	0.798	0.0074	0.8		100	95	105				
Cadmium	0.389	0.0010	0.4		97	95	105				
Copper	0.790	0.010	0.8		99	95	105				
Lead	0.784	0.013	0.8		98	95	105				
Manganese	3.90	0.010	4		98	95	105				
Zinc	0.780	0.010	0.8		97	95	105				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110623B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **06/23/11 11:34** 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	511	0.10	500		102	80	120				
Arsenic	-0.000470	0.0074				0	0				
Cadmium	-0.000460	0.0010				0	0				
Copper	0.00314	0.010				0	0				
Lead	-0.0102	0.013				0	0				
Manganese	-0.00914	0.010				0	0				
Zinc	0.00671	0.010				0	0				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110623B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **06/23/11 11:38** 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	516	0.10	500		103	80	120				
Arsenic	1.01	0.0074	1		101	80	120				
Cadmium	0.904	0.0010	1		90	80	120				
Copper	0.505	0.010	0.5		101	80	120				
Lead	0.912	0.013	1		91	80	120				
Manganese	0.463	0.010	0.5		93	80	120				
Zinc	0.973	0.010	1		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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: R72134

Run ID :Run Order: **ICP2-HE_110623B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **06/23/11 11:38** 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

Associated samples: **H11060302-009A**

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: H11060302
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-Jun-11*

BatchID: R72200

Run ID :Run Order: **ICP2-HE_110627B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **06/27/11 11:03** 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
Iron	3.99	0.030	4		100	90	110				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110627B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **06/27/11 11:17** 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
Iron	190	0.030	200		95	80	120				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110627B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **06/27/11 11:22** 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	193	0.030	200		96	80	120				

Associated samples: **H11060302-009A**

Run ID :Run Order: **ICP2-HE_110627B: 39** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **06/27/11 16:08** 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
Iron	3.92	0.030	4		98	95	105				

Associated samples: **H11060302-009A**

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

Workorder Receipt Checklist

H11060302

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011
Reviewed by: BL2000\sdull
Received by: elm
Reviewed Date: 6/21/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 of BRSD22 on COC - sample jar has BRSW22. Logged in as BRSD22. Received jar with sample ID of BRSD23 collected on 6/14/11 @ 8:10 that is not on COC. Emailed client. TI 6/16/11. Per email from A. Dreesbach, Sediment sample BRSD22 should be “BRSD22” on the jar also. BRSD23 was mistakenly omitted from the COC and does need to be analyzed. TI 6/17/11.

ENERGY

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Page ____ of ____

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote: H-645	Contact Name: Shollie Haaland; Phone/Fax: 841-5033	Email: shaaland@mt.gov	Sampler: (Please Print) Alan Dreesbach, Marko Stanisich
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 adreesbach@portaginc.com

Shipped by: HAND
Cooler ID(s): 1
Receipt Temp: 5.5 °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	ANALYSIS REQUESTED	SEE ATTACHED	LABORATORY USE ONLY
1	UBMC-BRSD34	6/13/11	1045	S	VBMC Sediment	X	H1060302
2	UBMC-BRSD29		1145				
3	UBMC-BRSD38		1245				
4	UBMC-BRSD22		1410				
5	UBMC-BRSD24		1410				
6	UBMC-BRSD45		1512				
7	UBMC-BRSD1		1608				
8	UBMC-BRSD48	6/13/11	1740	S			
9				6/13/11 AD			
10							

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	6/15/11 @ 1215	[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 6-15-11 12:15 Signature: [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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
Sediment			
Metals by ICP/ICPMS, Total	Aluminum	5	mg/kg
	Arsenic	5	mg/kg
	Cadmium	1	mg/kg
	Copper	5	mg/kg
	Iron	5	mg/kg
	Lead	5	mg/kg
	Manganese	5	mg/kg
	Zinc	5	mg/kg

ANALYTICAL SUMMARY REPORT

June 28, 2011

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

Workorder No.: H11060303 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 2 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060303-001	UBMC-BRSD3A	06/14/11 8:48	06/15/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11060303-002	UMBC-BRSD3B	06/14/11 9:30	06/15/11	Sediment	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC-BRSD3A
Lab ID: H11060303-001
Matrix: Sediment

Project: UBMC
Collection Date: 06/14/11 08:48
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3060	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A	95	12582
Arsenic	28	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A	95	12582
Cadmium	31	mg/kg		1		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A	95	12582
Copper	553	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A	95	12582
Iron	14200	mg/kg		5		SW6010B	06/22/11 21:15 / sld	06/16/11 11:36	ICP2-HE_110622B	41	12582
Lead	217	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A	95	12582
Manganese	17700	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A	95	12582
Zinc	5290	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A	95	12582

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 UMBC-BRSD3B
Lab ID: H11060303-002
Matrix: Sediment

Project: UBMC
Collection Date: 06/14/11 09:30
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3570	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Arsenic	27	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Cadmium	30	mg/kg		1		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Copper	534	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Iron	17900	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Lead	229	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Manganese	13700	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Zinc	4130	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582

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

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 06/28/11
Project: UBMC
Work Order: H11060303

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP2-HE_110621A	
Sample ID: ICV	7	Initial Calibration Verification Standard							06/21/11 10:08	
Aluminum		3.99	mg/L	0.10	100	95	105			
Arsenic		0.783	mg/L	0.0074	98	95	105			
Cadmium		0.385	mg/L	0.0010	96	95	105			
Copper		0.796	mg/L	0.010	99	95	105			
Lead		0.770	mg/L	0.013	96	95	105			
Manganese		3.89	mg/L	0.010	97	95	105			
Zinc		0.771	mg/L	0.010	96	95	105			
Sample ID: ICSA	7	Interference Check Sample A							06/21/11 10:22	
Aluminum		509	mg/L	0.10	102	80	120			
Arsenic		-0.00770	mg/L	0.0074		0	0			
Cadmium		0.000510	mg/L	0.0010		0	0			
Copper		0.00245	mg/L	0.010		0	0			
Lead		-0.0162	mg/L	0.013		0	0			
Manganese		-0.00441	mg/L	0.010		0	0			
Zinc		0.00642	mg/L	0.010		0	0			
Sample ID: ICSAB	7	Interference Check Sample AB							06/21/11 10:26	
Aluminum		512	mg/L	0.10	102	80	120			
Arsenic		1.01	mg/L	0.0074	101	80	120			
Cadmium		0.901	mg/L	0.0010	90	80	120			
Copper		0.509	mg/L	0.010	102	80	120			
Lead		0.904	mg/L	0.013	90	80	120			
Manganese		0.470	mg/L	0.010	94	80	120			
Zinc		0.964	mg/L	0.010	96	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 06/28/11
Project: UBMC
Work Order: H11060303

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP2-HE_110622B	
Sample ID: ICV	8	Initial Calibration Verification Standard							06/22/11 12:16	
Aluminum		3.99	mg/L	0.10	100	90	110			
Arsenic		0.780	mg/L	0.0074	97	90	110			
Cadmium		0.381	mg/L	0.0010	95	90	110			
Copper		0.797	mg/L	0.010	100	90	110			
Iron		3.98	mg/L	0.030	100	90	110			
Lead		0.764	mg/L	0.013	96	90	110			
Manganese		3.89	mg/L	0.010	97	90	110			
Zinc		0.761	mg/L	0.010	95	90	110			
Sample ID: ICSA	8	Interference Check Sample A							06/22/11 12:31	
Aluminum		520	mg/L	0.10	104	80	120			
Arsenic		-0.00274	mg/L	0.0074		0	0			
Cadmium		0.000390	mg/L	0.0010		0	0			
Copper		0.00490	mg/L	0.010		0	0			
Iron		191	mg/L	0.030	95	80	120			
Lead		-0.0146	mg/L	0.013		0	0			
Manganese		-0.00374	mg/L	0.010		0	0			
Zinc		0.00661	mg/L	0.010		0	0			
Sample ID: ICSAB	8	Interference Check Sample AB							06/22/11 12:35	
Aluminum		511	mg/L	0.10	102	80	120			
Arsenic		0.999	mg/L	0.0074	100	80	120			
Cadmium		0.884	mg/L	0.0010	88	80	120			
Copper		0.508	mg/L	0.010	102	80	120			
Iron		193	mg/L	0.030	96	80	120			
Lead		0.888	mg/L	0.013	89	80	120			
Manganese		0.471	mg/L	0.010	94	80	120			
Zinc		0.942	mg/L	0.010	94	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response **Report Date:** 06/28/11

Project: UBMC **Work Order:** H11060303

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 12582
Sample ID: MB-12582	8	Method Blank				Run: ICP2-HE_110621A				06/21/11 14:46
Aluminum		1	mg/kg	0.7						
Arsenic		ND	mg/kg	0.3						
Cadmium		ND	mg/kg	0.02						
Copper		ND	mg/kg	0.1						
Iron		1.0	mg/kg	0.3						
Lead		ND	mg/kg	0.6						
Manganese		0.04	mg/kg	0.03						
Zinc		0.1	mg/kg	0.07						
Sample ID: LFB-12582	8	Laboratory Fortified Blank				Run: ICP2-HE_110621A				06/21/11 14:50
Aluminum		245	mg/kg	5.0	98	80	120			
Arsenic		47.8	mg/kg	5.0	96	80	120			
Cadmium		23.5	mg/kg	1.0	94	80	120			
Copper		49.3	mg/kg	5.0	99	80	120			
Iron		249	mg/kg	5.0	99	80	120			
Lead		47.6	mg/kg	5.0	95	80	120			
Manganese		242	mg/kg	5.0	97	80	120			
Zinc		47.1	mg/kg	5.0	94	80	120			
Sample ID: LCS-12582	8	Laboratory Control Sample				Run: ICP2-HE_110621A				06/21/11 14:53
Aluminum		12200	mg/kg	5.0	83	50.7	131.3			
Arsenic		265	mg/kg	5.0	77	72.3	106.4			
Cadmium		114	mg/kg	1.0	83	73	105.1			
Copper		256	mg/kg	5.0	91	77.5	109.6			
Iron		19300	mg/kg	5.0	84	39.6	138.3			
Lead		170	mg/kg	5.0	91	75.9	108.6			
Manganese		355	mg/kg	5.0	96	80.8	115.7			
Zinc		180	mg/kg	5.0	84	74.2	109.9			
Sample ID: H11060303-002AMS	8	Sample Matrix Spike				Run: ICP2-HE_110621A				06/21/11 15:57
Aluminum		3910	mg/kg	5.0		75	125			A
Arsenic		43.2	mg/kg	5.0	79	75	125			
Cadmium		37.0	mg/kg	1.0	79	75	125			
Copper		509	mg/kg	5.0		75	125			A
Iron		16600	mg/kg	5.0		75	125			A
Lead		223	mg/kg	5.0		75	125			A
Manganese		13400	mg/kg	5.0		75	125			A
Zinc		3780	mg/kg	5.0		75	125			A
Sample ID: H11060303-002AMSD	8	Sample Matrix Spike Duplicate				Run: ICP2-HE_110621A				06/21/11 16:01
Aluminum		3950	mg/kg	5.0		75	125	1.0	20	A
Arsenic		42.7	mg/kg	5.0	78	75	125	1.1	20	
Cadmium		35.0	mg/kg	1.0	63	75	125	5.5	20	S
Copper		527	mg/kg	5.0		75	125	3.5	20	A
Iron		17200	mg/kg	5.0		75	125	3.4	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response **Report Date:** 06/28/11

Project: UBMC **Work Order:** H11060303

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 12582
Sample ID: H11060303-002AMSD	8	Sample Matrix Spike Duplicate				Run: ICP2-HE_110621A				06/21/11 16:01
Lead		233	mg/kg	5.0		75	125	4.3	20	A
Manganese		13500	mg/kg	5.0		75	125	0.7	20	A
Zinc		3690	mg/kg	5.0		75	125	2.4	20	A
Method: SW6010B										Batch: 12582
Sample ID: MB-12582	8	Method Blank				Run: ICP2-HE_110622B				06/22/11 20:12
Aluminum		0.6	mg/kg	0.3						
Arsenic		ND	mg/kg	0.3						
Cadmium		ND	mg/kg	0.02						
Copper		0.2	mg/kg	0.1						
Iron		0.7	mg/kg	0.3						
Lead		ND	mg/kg	0.6						
Manganese		ND	mg/kg	0.03						
Zinc		0.2	mg/kg	0.07						
Sample ID: H11060303-002AMS	8	Sample Matrix Spike				Run: ICP2-HE_110622B				06/22/11 21:37
Aluminum		4270	mg/kg	5.0		75	125			A
Arsenic		48.7	mg/kg	5.0	88	75	125			
Cadmium		41.3	mg/kg	1.0	91	75	125			
Copper		556	mg/kg	5.0		75	125			A
Iron		17800	mg/kg	5.0		75	125			A
Lead		247	mg/kg	5.0		75	125			A
Manganese		14900	mg/kg	5.0		75	125			A
Zinc		4220	mg/kg	5.0		75	125			A
Sample ID: H11060303-002AMSD	8	Sample Matrix Spike Duplicate				Run: ICP2-HE_110622B				06/22/11 21:41
Aluminum		4390	mg/kg	5.0		75	125	2.8	20	A
Arsenic		47.9	mg/kg	5.0	85	75	125	1.7	20	
Cadmium		40.5	mg/kg	1.0	84	75	125	2.1	20	
Copper		586	mg/kg	5.0		75	125	5.3	20	A
Iron		19000	mg/kg	5.0		75	125	6.8	20	A
Lead		268	mg/kg	5.0		75	125	8.2	20	A
Manganese		15300	mg/kg	5.0		75	125	2.7	20	A
Zinc		4260	mg/kg	5.0		75	125	1.0	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

Workorder Receipt Checklist

H11060303

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 6/21/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 BRSD3A has a collection time of 8:48 on the COC - sample bag has a time of 8:43. Emailed client. TI 6/16/11. Per email from A. Dreesbach, The correct sample times for BRSD3A is 0848. TI 6/17/11.

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 - SRS		State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:**	**Phone/Fax:**	**Email:**
Quota: 17-645	Shellie Haaland	841-5033	shaaland@mt.gov
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Sampler: (Please Print) Alan Dressback, Marko Stanisich

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ 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

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX										SEE ATTACHED	Normal Turnaround (TAT)
1	VBMC-BRSD3A	6/14/11	0845	S		VBMC								X	X
2	VBMC-BRSD3B	6/17/11	0930	S			Sediment							X	
3															
4															
5															
6															
7															
8															
9															
10															

6/17/11 MS-

RUSH

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

Comments: Please copy adressback@portageinc.com

Shipped by: HAND

Cooler ID(s): 4

Receipt Temp: 5.5 °C

On Ice: (Yes) No

Custody Seal Y (N)

Intact Y (N)

Signature Match Y N

LABORATORY USE ONLY H11060303

Custody Record MUST be Signed

Relinquished by (print): Alan Dressback	Date/Time: 6/15/11 @ 1215	Signature:	Received by (print):
Relinquished by (print):	Date/Time:	Signature:	Received by (print):
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received By Laboratory: Esther Merrick 6-15-11 12:15

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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
Sediment			
Metals by ICP/ICPMS, Total	Aluminum	5	mg/kg
	Arsenic	5	mg/kg
	Cadmium	1	mg/kg
	Copper	5	mg/kg
	Iron	5	mg/kg
	Lead	5	mg/kg
	Manganese	5	mg/kg
	Zinc	5	mg/kg

ANALYTICAL SUMMARY REPORT

July 11, 2011

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

Workorder No.: H11060352 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 6/17/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060352-001	UBMC TDMW07	06/16/11 7:45	06/17/11	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11060352-002	UBMC TDMW05	06/16/11 8:42	06/17/11	Aqueous	Same As Above
H11060352-003	UBMC TDMW08	06/16/11 9:10	06/17/11	Aqueous	Same As Above
H11060352-004	UBMC TDMW4D	06/16/11 10:25	06/17/11	Aqueous	Same As Above
H11060352-005	UBMC TDMW06	06/16/11 10:25	06/17/11	Aqueous	Same As Above
H11060352-006	UBMC TDMW01	06/16/11 11:40	06/17/11	Aqueous	Same As Above
H11060352-007	UBMC TDMW02D	06/16/11 12:18	06/17/11	Aqueous	Same As Above
H11060352-008	UBMC TDMW02S	06/16/11 12:52	06/17/11	Aqueous	Same As Above
H11060352-009	UBMC TDMW3D	06/16/11 13:45	06/17/11	Aqueous	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 UBMC TDMW07
Lab ID: H11060352-001
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 07:45
DateReceived: 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	06/23/11 17:07 / zeg		MAN-TECH_110623B	12	R72125
Conductivity	1	umhos/cm		1		A2510 B	06/20/11 12:21 / cmm		COND_110620A	35	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:33 / cmm	06/20/11 10:58	124 (14410200)_110620A	80	12622
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/20/11 15:19 / cmm	06/20/11 11:08	124 (14410200)_110620B	34	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 09:26 / zeg		IC101-H_110620A	86	R72019
Sulfate	ND	mg/L	D	2		E300.0	06/21/11 09:26 / zeg		IC101-H_110620A	86	R72019
Hardness as CaCO3	ND	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	9	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Calcium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Magnesium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Sodium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108

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 UBMC TDMW05
Lab ID: H11060352-002
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 08:42
DateReceived: 06/17/11
Report Date: 07/18/11

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	06/23/11 17:13 / zeg		MAN-TECH_110623B	13	R72125
Conductivity	208	umhos/cm		1		A2510 B	06/20/11 12:22 / cmm		COND_110620A	36	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	06/20/11 12:33 / cmm	06/20/11 10:58	124 (14410200)_110620A	81	12622
Solids, Total Dissolved TDS @ 180 C	132	mg/L		10		A2540 C	06/20/11 15:19 / cmm	06/20/11 11:08	124 (14410200)_110620B	35	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 09:41 / zeg		IC101-H_110620A	87	R72019
Sulfate	65	mg/L		1		E300.0	06/21/11 09:41 / zeg		IC101-H_110620A	87	R72019
Hardness as CaCO3	95	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	10	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Calcium	24	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Magnesium	9	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Manganese	0.006	mg/L		0.005		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Sodium	2	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Zinc	ND	mg/L		0.01		E200.8	06/28/11 02:12 / dck		ICPMS204-B_110626A	387	R72189

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 UBMC TDMW08
Lab ID: H11060352-003
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 09:10
DateReceived: 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.		0.1		A4500-H B	06/23/11 17:18 / zeg		MAN-TECH_110623B	14	R72125
Conductivity	3	umhos/cm		1		A2510 B	06/20/11 12:23 / cmm		COND_110620A	3	710620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	06/20/11 12:34 / cmm	06/20/11 10:58	124 (14410200)_110620A	82	12622
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	H	10		A2540 C	06/24/11 14:38 / cmm	06/24/11 14:22	124 (14410200)_110624C	33	12707
The TDS was re-analyzed past the method recommended hold time to confirm sample results. The result of the re-analysis is reported.											
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 10:27 / zeg		IC101-H_110620A	90	R72019
Sulfate	ND	mg/L		1		E300.0	06/21/11 10:27 / zeg		IC101-H_110620A	90	R72019
Hardness as CaCO3	1	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	11	R72279
METALS, DISSOLVED											
Aluminum	0.09	mg/L		0.03		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Calcium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Copper	0.003	mg/L		0.001		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Iron	0.38	mg/L		0.05		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Lead	0.0014	mg/L		0.0005		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Magnesium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Manganese	0.062	mg/L		0.005		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Sodium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108

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 UBMC TDMW4D
Lab ID: H11060352-004
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 10:25
DateReceived: 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	06/23/11 17:25 / zeg		MAN-TECH_110623B	15	R72125
Conductivity	249	umhos/cm		1		A2510 B	06/20/11 12:24 / cmm		COND_110620A	38	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	60	mg/L		10		A2540 D	06/20/11 12:34 / cmm	06/20/11 10:58	-124 (14410200)_110620A	83	12622
Solids, Total Dissolved TDS @ 180 C	152	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	-124 (14410200)_110620B	37	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 10:43 / zeg		IC101-H_110620A	91	R72019
Sulfate	27	mg/L		1		E300.0	06/21/11 10:43 / zeg		IC101-H_110620A	91	R72019
Hardness as CaCO3	87	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	12	R72279
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Calcium	17	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Copper	0.001	mg/L		0.001		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Magnesium	11	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Manganese	0.005	mg/L		0.005		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Sodium	5	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A	419	R72108

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 UBMC TDMW06
Lab ID: H11060352-005
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 10:25
DateReceived: 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	06/23/11 17:32 / zeg		MAN-TECH_110623B	16	R72125
Conductivity	244	umhos/cm		1		A2510 B	06/20/11 12:25 / cmm		COND_110620A	39	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	60	mg/L		10		A2540 D	06/20/11 12:34 / cmm	06/20/11 10:58	-124 (14410200)_110620A	84	12622
Solids, Total Dissolved TDS @ 180 C	156	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	-124 (14410200)_110620B	38	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 10:58 / zeg		IC101-H_110620A	92	R72019
Sulfate	26	mg/L		1		E300.0	06/21/11 10:58 / zeg		IC101-H_110620A	92	R72019
Hardness as CaCO3	86	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	13	R72279
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Calcium	17	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Copper	0.001	mg/L		0.001		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Magnesium	11	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Sodium	5	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108

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 UBMC TDMW01
Lab ID: H11060352-006
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 11:40 **DateReceived:** 06/17/11
Report Date: 07/18/11

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	06/23/11 17:46 / zeg		MAN-TECH_110623B	19	R72125
Conductivity	418	umhos/cm		1		A2510 B	06/20/11 12:26 / cmm		COND_110620A	40	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:35 / cmm	06/20/11 10:58	-124 (14410200)_110620A	85	12622
Solids, Total Dissolved TDS @ 180 C	286	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	-124 (14410200)_110620B	39	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 11:14 / zeg		IC101-H_110620A	93	R72019
Sulfate	170	mg/L		1		E300.0	06/21/11 11:14 / zeg		IC101-H_110620A	93	R72019
Hardness as CaCO3	206	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	14	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Cadmium	0.00035	mg/L		0.00008		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Calcium	38	mg/L		1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Magnesium	27	mg/L		1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Sodium	1	mg/L		1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Zinc	0.35	mg/L		0.01		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108

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 UBMC TDMW02D
Lab ID: H11060352-007
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 12:18 **DateReceived:** 06/17/11
Report Date: 07/18/11

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	06/23/11 17:53 / zeg		MAN-TECH_110623B	20	R72125
Conductivity	209	umhos/cm		1		A2510 B	06/20/11 12:27 / cmm		COND_110620A	41	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:36 / cmm	06/20/11 10:58	124 (14410200)_110620A	86	12622
Solids, Total Dissolved TDS @ 180 C	118	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	124 (14410200)_110620B	40	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 11:29 / zeg		IC101-H_110620A	94	R72019
Sulfate	28	mg/L		1		E300.0	06/21/11 11:29 / zeg		IC101-H_110620A	94	R72019
Hardness as CaCO3	106	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	15	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Calcium	22	mg/L		1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Copper	0.001	mg/L		0.001		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Magnesium	13	mg/L		1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Sodium	1	mg/L		1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108

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 UBMC TDMW02S
Lab ID: H11060352-008
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 12:52 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/23/11 18:00 / zeg		MAN-TECH_110623B	21	R72125
Conductivity	255	umhos/cm		1		A2510 B	06/20/11 12:28 / cmm		COND_110620A	42	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:36 / cmm	06/20/11 10:58	124 (14410200)_110620A	88	12622
Solids, Total Dissolved TDS @ 180 C	148	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	124 (14410200)_110620B	41	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 11:44 / zeg		IC101-H_110620A	95	R72019
Sulfate	53	mg/L		1		E300.0	06/21/11 11:44 / zeg		IC101-H_110620A	95	R72019
Hardness as CaCO3	124	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	16	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Cadmium	0.00088	mg/L		0.00008		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Calcium	25	mg/L		1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Magnesium	15	mg/L		1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Manganese	1.21	mg/L		0.005		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Sodium	1	mg/L		1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Zinc	0.62	mg/L		0.01		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108

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 UBMC TDMW3D
Lab ID: H11060352-009
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 13:45 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	06/23/11 18:06 / zeg		MAN-TECH_110623B	22	R72125
Conductivity	325	umhos/cm		1		A2510 B	06/20/11 12:29 / cmm		COND_110620A	44	10620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:36 / cmm	06/20/11 10:58	124 (14410200)_110620A	89	12622
Solids, Total Dissolved TDS @ 180 C	218	mg/L		10		A2540 C	06/20/11 15:21 / cmm	06/20/11 11:08	124 (14410200)_110620B	42	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 12:31 / zeg		IC101-H_110620A	98	R72019
Sulfate	110	mg/L		1		E300.0	06/21/11 12:31 / zeg		IC101-H_110620A	98	R72019
Hardness as CaCO3	154	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	17	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Cadmium	0.00012	mg/L		0.00008		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Calcium	36	mg/L		1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Magnesium	16	mg/L		1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Sodium	1	mg/L		1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Zinc	0.03	mg/L		0.01		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108

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

Client: MT DEQ-Site Response
Work Order: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: 110620A-COND-PROBE

Run ID :Run Order: **COND_110620A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110620A** Method: **A2510 B**
Analysis Date: **06/20/11 11:35** 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	989	1.0	1000		99	90	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **COND_110620A: 30** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV6_110620A** Method: **A2510 B**
Analysis Date: **06/20/11 12:12** 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	1400	1.0	1412		100	90	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **COND_110620A: 43** SampType: **Sample Duplicate** Sample ID: **H11060352-008ADUP** Method: **A2510 B**
Analysis Date: **06/20/11 12:28** 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	258	1.0						255.2	0.9	10	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **COND_110620A: 55** SampType: **Sample Duplicate** Sample ID: **H11060355-009ADUP** Method: **A2510 B**
Analysis Date: **06/20/11 15:52** 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	1.52	1.0						1.51	0.7	10	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: 12622

Run ID :Run Order: **ACCU-124 (14410200)_110620A: 73** SampType: **Method Blank** Sample ID: **MB-12622** Method: **A2540 D**
Analysis Date: **06/20/11 12:31** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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	1									

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110620A: 74** SampType: **Laboratory Control Sample** Sample ID: **LCS-12622** Method: **A2540 D**
Analysis Date: **06/20/11 12:32** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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	1860	10	2000		93	70	130				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110620A: 76** SampType: **Sample Duplicate** Sample ID: **H11060346-017BDUP** Method: **A2540 D**
Analysis Date: **06/20/11 12:33** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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						2		5	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110620A: 87** SampType: **Sample Duplicate** Sample ID: **H11060352-007ADUP** Method: **A2540 D**
Analysis Date: **06/20/11 12:36** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: 12625

Run ID :Run Order: **ACCU-124 (14410200)_110620B: 26** SampType: **Method Blank** Sample ID: **MB-12625** Method: **A2540 C**
Analysis Date: **06/20/11 15:14** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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	2	1.0									

Associated samples: **H11060352-001A; H11060352-002A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110620B: 27** SampType: **Laboratory Control Sample** Sample ID: **LCS-12625** Method: **A2540 C**
Analysis Date: **06/20/11 15:14** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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	2020	10	2000	2	101	90	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110620B: 29** SampType: **Sample Duplicate** Sample ID: **H11060346-020BDUP** Method: **A2540 C**
Analysis Date: **06/20/11 15:15** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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	1690	10						1624	4.0	5	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110620B: 31** SampType: **Sample Matrix Spike** Sample ID: **H11060349-001AMS** Method: **A2540 C**
Analysis Date: **06/20/11 15:18** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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	2890	10	2000	1054	92	80	120				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110620B: 43** SampType: **Sample Duplicate** Sample ID: **H11060352-009ADUP** Method: **A2540 C**
Analysis Date: **06/20/11 15:21** Units: **mg/L** **Prep Info:** Prep Date: **6/20/2011** 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	228	10						218	4.5	5	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: 12707

Run ID :Run Order: **ACCU-124 (14410200)_110624C: 26** SampType: **Method Blank** Sample ID: **MB-12707** Method: **A2540 C**
Analysis Date: **06/24/11 14:44** Units: **mg/L** **Prep Info:** Prep Date: **6/24/2011** 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: **H11060352-003A**

Run ID :Run Order: **ACCU-124 (14410200)_110624C: 27** SampType: **Laboratory Control Sample** Sample ID: **LCS-12707** Method: **A2540 C**
Analysis Date: **06/24/11 14:44** Units: **mg/L** **Prep Info:** Prep Date: **6/24/2011** 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	2010	10	2000		100	90	110				

Associated samples: **H11060352-003A**

Run ID :Run Order: **ACCU-124 (14410200)_110624C: 29** SampType: **Sample Matrix Spike** Sample ID: **H11060452-011AMS** Method: **A2540 C**
Analysis Date: **06/24/11 14:45** Units: **mg/L** **Prep Info:** Prep Date: **6/24/2011** 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	242	100	80	120				

Associated samples: **H11060352-003A**

Run ID :Run Order: **ACCU-124 (14410200)_110624C: 32** SampType: **Sample Duplicate** Sample ID: **H11060452-013ADUP** Method: **A2540 C**
Analysis Date: **06/24/11 14:47** Units: **mg/L** **Prep Info:** Prep Date: **6/24/2011** 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	330	10						336	1.8	5	

Associated samples: **H11060352-003A**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72019

Run ID :Run Order: **IC101-H_110620A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV062011-12** Method: **E300.0**

Analysis Date: **06/20/11 14:55** 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	51	1.0	50		102	90	110				
Sulfate	200	1.0	200		102	90	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 15** SampType: **Method Blank** Sample ID: **ICB062011-13** Method: **E300.0**

Analysis Date: **06/20/11 15:11** 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	ND	0.2									
Sulfate	ND	0.5									

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB062011-14** Method: **E300.0**

Analysis Date: **06/20/11 15:26** 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		101	90	110				
Sulfate	210	1.1	200		104	90	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFBD062011-14** Method: **E300.0**

Analysis Date: **06/20/11 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	49	1.0	50		99	90	110				
Sulfate	200	1.1	200		101	90	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 74** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV062011-73** Method: **E300.0**

Analysis Date: **06/21/11 06:21** 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		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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72019

Run ID :Run Order: **IC101-H_110620A: 74** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV062011-73** Method: **E300.0**
Analysis Date: **06/21/11 06:21** 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
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H11060352-001A; H11060352-002A**

Run ID :Run Order: **IC101-H_110620A: 83** SampType: **Sample Matrix Spike** Sample ID: **H11060349-002AMS** Method: **E300.0**
Analysis Date: **06/21/11 08:39** 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	120	1.0	50	66.01	104	90	110				
Sulfate	210	1.1	200	9.493	101	90	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 84** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060349-002AMSD** Method: **E300.0**
Analysis Date: **06/21/11 08:55** 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	120	1.0	50	66.01	107	90	110	118	1.3	20	
Sulfate	220	1.1	200	9.493	104	90	110	211.9	3.0	20	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 88** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV062011-87** Method: **E300.0**
Analysis Date: **06/21/11 09:56** 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	100	1.0	100		103	90	110				
Sulfate	420	1.0	400		104	90	110				

Associated samples: **H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 96** SampType: **Sample Matrix Spike** Sample ID: **H11060352-008AMS** Method: **E300.0**
Analysis Date: **06/21/11 12:00** 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	50	1.0	50	0.205	99	90	110				
Sulfate	270	1.1	200	53.06	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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72019

Run ID :Run Order: **IC101-H_110620A: 96** SampType: **Sample Matrix Spike** Sample ID: **H11060352-008AMS** Method: **E300.0**

Analysis Date: **06/21/11 12:00** 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

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **IC101-H_110620A: 97** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060352-008AMSD** Method: **E300.0**

Analysis Date: **06/21/11 12:15** 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	51	1.0	50	0.205	101	90	110	49.53	2.5	20	
Sulfate	270	1.1	200	53.06	109	90	110	266.5	2.0	20	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/22/11 23:20** 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	0.250	0.10	0.25		100	90	110				
Arsenic	0.0495	0.0050	0.05		99	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Calcium	2.53	0.50	2.5		101	90	110				
Copper	0.0509	0.010	0.05		102	90	110				
Iron	0.255	0.030	0.25		102	90	110				
Lead	0.0509	0.010	0.05		102	90	110				
Magnesium	2.52	0.50	2.5		101	90	110				
Manganese	0.248	0.010	0.25		99	90	110				
Potassium	2.51	0.50	2.5		100	90	110				
Sodium	2.48	0.50	2.5		99	90	110				
Zinc	0.0506	0.010	0.05		101	90	110				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/22/11 23:25** 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	41.8	0.10	40		105	70	130				
Arsenic	0.000173	0.0050									
Cadmium	0.000657	0.0010									
Calcium	117	0.50	120		98	70	130				
Copper	0.000457	0.010									
Iron	102	0.030	100		102	70	130				
Lead	0.000130	0.010									
Magnesium	43.4	0.50	40		108	70	130				
Manganese	0.00179	0.010									
Potassium	41.4	0.50	40		104	70	130				
Sodium	108	0.50	100		108	70	130				
Zinc	0.00117	0.010									

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/22/11 23:29** 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	41.3	0.10	40		103	70	130				
Arsenic	0.0109	0.0050	0.01		109	70	130				
Cadmium	0.0109	0.0010	0.01		109	70	130				
Calcium	116	0.50	120		97	70	130				
Copper	0.0210	0.010	0.02		105	70	130				
Iron	103	0.030	100		103	70	130				
Lead	8.00E-05	0.010				0	0				
Magnesium	43.8	0.50	40		110	70	130				
Manganese	0.0230	0.010	0.02		115	70	130				
Potassium	41.2	0.50	40		103	70	130				
Sodium	109	0.50	100		109	70	130				
Zinc	0.0113	0.010	0.01		113	70	130				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 95** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/23/11 05:52** 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	0.247	0.10	0.25		99	90	110				
Arsenic	0.0501	0.0050	0.05		100	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Calcium	2.51	0.50	2.5		101	90	110				
Copper	0.0506	0.010	0.05		101	90	110				
Iron	0.260	0.030	0.25		104	90	110				
Lead	0.0502	0.010	0.05		100	90	110				
Magnesium	2.52	0.50	2.5		101	90	110				
Manganese	0.247	0.010	0.25		99	90	110				
Potassium	2.57	0.50	2.5		103	90	110				
Sodium	2.48	0.50	2.5		99	90	110				
Zinc	0.0522	0.010	0.05		104	90	110				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 96** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/23/11 05:57** 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	40.9	0.10	40		102	70	130				
Arsenic	0.000174	0.0050									
Cadmium	0.000565	0.0010									
Calcium	117	0.50	120		98	70	130				
Copper	0.000462	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000105	0.010									
Magnesium	41.9	0.50	40		105	70	130				
Manganese	0.00197	0.010									
Potassium	41.5	0.50	40		104	70	130				
Sodium	102	0.50	100		102	70	130				
Zinc	0.00119	0.010									

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 97** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/23/11 06:01** 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	40.9	0.10	40		102	70	130				
Arsenic	0.0107	0.0050	0.01		107	70	130				
Cadmium	0.0109	0.0010	0.01		109	70	130				
Calcium	116	0.50	120		97	70	130				
Copper	0.0206	0.010	0.02		103	70	130				
Iron	102	0.030	100		102	70	130				
Lead	6.90E-05	0.010				0	0				
Magnesium	42.1	0.50	40		105	70	130				
Manganese	0.0226	0.010	0.02		113	70	130				
Potassium	41.3	0.50	40		103	70	130				
Sodium	104	0.50	100		104	70	130				
Zinc	0.0106	0.010	0.01		106	70	130				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 103** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **06/23/11 06:28** 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	0.001	0.0007									
Manganese	ND	1E-05									
Potassium	0.02	0.010									
Sodium	0.005	0.003									
Zinc	0.0008	0.0003									

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 104** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **06/23/11 06:33** 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	0.0484	0.10	0.05		97	85	115				
Arsenic	0.0484	0.0050	0.05		97	85	115				
Cadmium	0.0480	0.0010	0.05		96	85	115				
Calcium	44.6	0.50	50		89	85	115				
Copper	0.0498	0.010	0.05		100	85	115				
Iron	4.76	0.030	5		95	85	115				
Lead	0.0497	0.010	0.05		99	85	115				
Magnesium	46.7	0.50	50	0.001176	93	85	115				
Manganese	0.0481	0.010	0.05		96	85	115				
Potassium	48.4	0.50	50	0.01716	97	85	115				
Sodium	47.1	0.50	50	0.004995	94	85	115				
Zinc	0.0495	0.010	0.05	0.0008172	97	85	115				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 220** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/23/11 15:57** 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	0.249	0.10	0.25		99	90	110				
Arsenic	0.0496	0.0050	0.05		99	90	110				
Cadmium	0.0267	0.0010	0.025		107	90	110				
Calcium	2.49	0.50	2.5		99	90	110				
Copper	0.0508	0.010	0.05		102	90	110				
Iron	0.257	0.030	0.25		103	90	110				
Lead	0.0508	0.010	0.05		102	90	110				
Magnesium	2.55	0.50	2.5		102	90	110				
Manganese	0.249	0.010	0.25		100	90	110				
Potassium	2.51	0.50	2.5		100	90	110				
Sodium	2.53	0.50	2.5		101	90	110				
Zinc	0.0513	0.010	0.05		103	90	110				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 221** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/23/11 16:01** 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	38.7	0.10	40		97	70	130				
Arsenic	0.000187	0.0050									
Cadmium	0.000479	0.0010									
Calcium	109	0.50	120		91	70	130				
Copper	0.000381	0.010									
Iron	94.2	0.030	100		94	70	130				
Lead	9.20E-05	0.010									
Magnesium	40.4	0.50	40		101	70	130				
Manganese	0.00201	0.010									
Potassium	39.4	0.50	40		99	70	130				
Sodium	99.3	0.50	100		99	70	130				
Zinc	0.00126	0.010									

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 222** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/23/11 16:06** 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	38.6	0.10	40		96	70	130				
Arsenic	0.0102	0.0050	0.01		102	70	130				
Cadmium	0.0102	0.0010	0.01		102	70	130				
Calcium	109	0.50	120		91	70	130				
Copper	0.0198	0.010	0.02		99	70	130				
Iron	97.7	0.030	100		98	70	130				
Lead	6.90E-05	0.010				0	0				
Magnesium	41.2	0.50	40		103	70	130				
Manganese	0.0216	0.010	0.02		108	70	130				
Potassium	39.5	0.50	40		99	70	130				
Sodium	103	0.50	100		103	70	130				
Zinc	0.0108	0.010	0.01		108	70	130				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 408** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/24/11 06:10** 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	0.257	0.10	0.25		103	90	110				
Arsenic	0.0495	0.0050	0.05		99	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Calcium	2.51	0.50	2.5		100	90	110				
Copper	0.0510	0.010	0.05		102	90	110				
Iron	0.259	0.030	0.25		103	90	110				
Lead	0.0504	0.010	0.05		101	90	110				
Magnesium	2.56	0.50	2.5		102	90	110				
Manganese	0.254	0.010	0.25		102	90	110				
Potassium	2.55	0.50	2.5		102	90	110				
Sodium	2.58	0.50	2.5		103	90	110				
Zinc	0.0509	0.010	0.05		102	90	110				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 409** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/24/11 06:14** 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	39.5	0.10	40		99	70	130				
Arsenic	0.000157	0.0050									
Cadmium	0.000434	0.0010									
Calcium	112	0.50	120		93	70	130				
Copper	0.000443	0.010									
Iron	95.3	0.030	100		95	70	130				
Lead	9.40E-05	0.010									
Magnesium	41.0	0.50	40		102	70	130				
Manganese	0.00207	0.010									
Potassium	39.9	0.50	40		100	70	130				
Sodium	101	0.50	100		101	70	130				
Zinc	0.00138	0.010									

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 410** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/24/11 06:19** 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	38.8	0.10	40		97	70	130				
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Calcium	109	0.50	120		91	70	130				
Copper	0.0201	0.010	0.02		100	70	130				
Iron	96.9	0.030	100		97	70	130				
Lead	6.40E-05	0.010				0	0				
Magnesium	41.1	0.50	40		103	70	130				
Manganese	0.0219	0.010	0.02		109	70	130				
Potassium	39.2	0.50	40		98	70	130				
Sodium	103	0.50	100		103	70	130				
Zinc	0.0109	0.010	0.01		109	70	130				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 424** SampType: **Sample Matrix Spike** Sample ID: **H11060352-008BMS** Method: **E200.8**

Analysis Date: **06/24/11 07:23** 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	0.0487	0.10	0.05		97	70	130				
Arsenic	0.0500	0.0050	0.05	0.0001268	100	70	130				
Cadmium	0.0488	0.0010	0.05	0.0008812	96	70	130				
Calcium	66.1	1.0	50	25.12	82	70	130				
Copper	0.0518	0.010	0.05	0.0005006	103	70	130				
Iron	4.75	0.030	5	0.005135	95	70	130				
Lead	0.0498	0.010	0.05	0.0000512	99	70	130				
Magnesium	61.6	1.0	50	14.81	94	70	130				
Manganese	1.21	0.010	0.05	1.212		70	130				A
Potassium	48.4	1.0	50	0.7299	95	70	130				
Sodium	49.8	1.0	50	1.387	97	70	130				
Zinc	0.631	0.010	0.05	0.6235		70	130				A

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 429** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060352-008BMSD** Method: **E200.8**

Analysis Date: **06/24/11 07:46** 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	0.0476	0.10	0.05		95	70	130	0.04869		20	
Arsenic	0.0489	0.0050	0.05	0.0001268	98	70	130	0.05003	2.3	20	
Cadmium	0.0495	0.0010	0.05	0.0008812	97	70	130	0.04885	1.4	20	
Calcium	65.4	1.0	50	25.12	81	70	130	66.14	1.2	20	
Copper	0.0505	0.010	0.05	0.0005006	100	70	130	0.05185	2.7	20	
Iron	4.61	0.030	5	0.005135	92	70	130	4.749	2.9	20	
Lead	0.0495	0.010	0.05	0.0000512	99	70	130	0.04979	0.6	20	
Magnesium	60.2	1.0	50	14.81	91	70	130	61.62	2.2	20	
Manganese	1.21	0.010	0.05	1.212		70	130	1.208	0.3	20	A
Potassium	47.5	1.0	50	0.7299	94	70	130	48.36	1.8	20	
Sodium	48.7	1.0	50	1.387	95	70	130	49.85	2.3	20	
Zinc	0.621	0.010	0.05	0.6235		70	130	0.6307	1.6	20	A

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 489** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/24/11 12:34** 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	0.247	0.10	0.25		99	90	110				
Arsenic	0.0494	0.0050	0.05		99	90	110				
Cadmium	0.0256	0.0010	0.025		103	90	110				
Calcium	2.52	0.50	2.5		101	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Iron	0.271	0.030	0.25		108	90	110				
Lead	0.0499	0.010	0.05		100	90	110				
Magnesium	2.52	0.50	2.5		101	90	110				
Manganese	0.246	0.010	0.25		98	90	110				
Potassium	2.42	0.50	2.5		97	90	110				
Sodium	2.51	0.50	2.5		101	90	110				
Zinc	0.0511	0.010	0.05		102	90	110				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 490** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/24/11 12:41** 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	38.5	0.10	40		96	70	130				
Arsenic	0.000183	0.0050									
Cadmium	0.000395	0.0010									
Calcium	111	0.50	120		93	70	130				
Copper	0.000413	0.010									
Iron	98.4	0.030	100		98	70	130				
Lead	8.20E-05	0.010									
Magnesium	40.1	0.50	40		100	70	130				
Manganese	0.00190	0.010									
Potassium	39.5	0.50	40		99	70	130				
Sodium	100	0.50	100		100	70	130				
Zinc	0.00141	0.010									

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 491** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/24/11 12:46** 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	38.7	0.10	40		97	70	130				
Arsenic	0.0103	0.0050	0.01		103	70	130				
Cadmium	0.00996	0.0010	0.01		100	70	130				
Calcium	109	0.50	120		91	70	130				
Copper	0.0198	0.010	0.02		99	70	130				
Iron	97.2	0.030	100		97	70	130				
Lead	6.30E-05	0.010				0	0				
Magnesium	40.7	0.50	40		102	70	130				
Manganese	0.0215	0.010	0.02		107	70	130				
Potassium	39.0	0.50	40		98	70	130				
Sodium	101	0.50	100		101	70	130				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 648** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **06/25/11 01:24** 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	0.254	0.10	0.25		102	90	110				
Arsenic	0.0491	0.0050	0.05		98	90	110				
Cadmium	0.0259	0.0010	0.025		104	90	110				
Calcium	2.48	0.50	2.5		99	90	110				
Copper	0.0506	0.010	0.05		101	90	110				
Iron	0.263	0.030	0.25		105	90	110				
Lead	0.0505	0.010	0.05		101	90	110				
Magnesium	2.48	0.50	2.5		99	90	110				
Manganese	0.246	0.010	0.25		98	90	110				
Potassium	2.53	0.50	2.5		101	90	110				
Sodium	2.47	0.50	2.5		99	90	110				
Zinc	0.0507	0.010	0.05		101	90	110				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72108

Run ID :Run Order: **ICPMS204-B_110622A: 649** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **06/25/11 01:29** 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	39.4	0.10	40		98	70	130				
Arsenic	0.000146	0.0050									
Cadmium	0.000352	0.0010									
Calcium	111	0.50	120		92	70	130				
Copper	0.000429	0.010									
Iron	98.5	0.030	100		98	70	130				
Lead	8.40E-05	0.010									
Magnesium	40.6	0.50	40		101	70	130				
Manganese	0.00180	0.010									
Potassium	40.0	0.50	40		100	70	130				
Sodium	101	0.50	100		101	70	130				
Zinc	0.00140	0.010									

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

Run ID :Run Order: **ICPMS204-B_110622A: 650** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/25/11 01:34** 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		98	70	130				
Arsenic	0.0102	0.0050	0.01		102	70	130				
Cadmium	0.0100	0.0010	0.01		100	70	130				
Calcium	111	0.50	120		92	70	130				
Copper	0.0199	0.010	0.02		100	70	130				
Iron	98.8	0.030	100		99	70	130				
Lead	6.50E-05	0.010				0	0				
Magnesium	40.4	0.50	40		101	70	130				
Manganese	0.0210	0.010	0.02		105	70	130				
Potassium	39.4	0.50	40		99	70	130				
Sodium	99.5	0.50	100		100	70	130				
Zinc	0.0108	0.010	0.01		108	70	130				

Associated samples: **H11060352-001B; H11060352-002B; H11060352-003B; H11060352-004B; H11060352-005B; H11060352-006B; H11060352-007B; H11060352-008B; H11060352-009B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72125

Run ID :Run Order: **MAN-TECH_110623B: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1-1905** Method: **A4500-H B**
Analysis Date: **06/23/11 16:37** 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	3.95	0.10	4		99	98	102				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **MAN-TECH_110623B: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1943** Method: **A4500-H B**
Analysis Date: **06/23/11 16:40** 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	6.96	0.10	7		99	98	102				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **MAN-TECH_110623B: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3-2042** Method: **A4500-H B**
Analysis Date: **06/23/11 16:43** 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	9.98	0.10	10		100	98	110				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **MAN-TECH_110623B: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-1943** Method: **A4500-H B**
Analysis Date: **06/23/11 16:45** 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	6.95	0.10	7		99	99	101				

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

Run ID :Run Order: **MAN-TECH_110623B: 18** SampType: **Sample Duplicate** Sample ID: **H11060352-005ADUP** Method: **A4500-H B**
Analysis Date: **06/23/11 17:39** 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	8.17	0.10						8.17	0.0	3	

Associated samples: **H11060352-001A; H11060352-002A; H11060352-003A; H11060352-004A; H11060352-005A; H11060352-006A; H11060352-007A; H11060352-008A; H11060352-009A**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72189

Run ID :Run Order: **ICPMS204-B_110626A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/26/11 21:27** 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
Zinc	0.0519	0.010	0.05		104	90	110				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/26/11 21:31** 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
Zinc	0.00142	0.010									

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/26/11 21:36** 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
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **06/26/11 22:03** 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
Zinc	0.0003	0.0003									

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **06/26/11 22:08** 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
Zinc	0.0479	0.010	0.05	0.0003196	95	85	115				

Associated samples: **H11060352-002B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72189

Run ID :Run Order: **ICPMS204-B_110626A: 174** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/27/11 09:59** 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
Zinc	0.00128	0.010									

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 175** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/27/11 10:04** 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
Zinc	0.0109	0.010	0.01		109	70	130				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 219** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/27/11 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
Zinc	0.0508	0.010	0.05		102	90	110				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 220** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/27/11 13:28** 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
Zinc	0.00134	0.010									

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 221** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/27/11 13:32** 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
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H11060352-002B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72189

Run ID :Run Order: **ICPMS204-B_110626A: 348** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/27/11 23:16** 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
Zinc	0.0514	0.010	0.05		103	90	110				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 349** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/27/11 23:21** 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
Zinc	0.00136	0.010									

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 350** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/27/11 23:25** 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
Zinc	0.0114	0.010	0.01		114	70	130				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 365** SampType: **Sample Matrix Spike** Sample ID: **H11060468-005AMS** Method: **E200.8**
Analysis Date: **06/28/11 00:33** 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
Zinc	0.0488	0.010	0.05	0.002845	92	70	130				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 366** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11060468-005AMSD** Method: **E200.8**
Analysis Date: **06/28/11 00:38** 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
Zinc	0.0495	0.010	0.05	0.002845	93	70	130	0.04884	1.3	20	

Associated samples: **H11060352-002B**

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: H11060352
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *19-Jul-11*

BatchID: R72189

Run ID :Run Order: **ICPMS204-B_110626A: 373** SampType: **Method Blank** Sample ID: **MB-12592** Method: **E200.8**
Analysis Date: **06/28/11 01:09** Units: **mg/L** **Prep Info:** Prep Date: **6/17/2011** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.005	0.0003									

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 423** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **06/28/11 04:56** 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
Zinc	0.0518	0.010	0.05		104	90	110				

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 424** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **06/28/11 05:00** 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
Zinc	0.00143	0.010									

Associated samples: **H11060352-002B**

Run ID :Run Order: **ICPMS204-B_110626A: 425** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **06/28/11 05:05** 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
Zinc	0.0113	0.010	0.01		113	70	130				

Associated samples: **H11060352-002B**

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

Workorder Receipt Checklist

H11060352

MT DEQ-Site Response

Login completed by: Wanda Johnson
Date Received: 6/17/2011

Reviewed by: BL2000\ablackburn
Received by: elm

Reviewed Date: 6/22/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	1.5°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 UBMCTDMW07 raw container was labeled incorrectly as UBMCTDM10T, sample was in with the metals container which was labeled the same as COC. E-mailed A. Dreesbach regarding error. Wj 6/20/11

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ-SRS	Project Name, PWS, Permit, Etc.: UMBC	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote: H-645	Contact Name: Shelley Haaland	Phone/Fax: 841-5033	Email: shaaland@mt.gov
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Sampler: (Please Print) Alan Dreesbach, Marko Stanisich

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

Shipped by: HAND

Cooler ID(s): 4

Receipt Temp: 1.5 °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	UBMCTDMW07	6/16/11	0745	W	UBMC Groundwater	X
2	UBMCTDMW05	6/16/11	0842			
3	UBMCTDMW08	6/16/11	0910			
4	UBMCTDMW4D	6/16/11	1025			
5	UBMCTDMW06	6/16/11	1025			
6	UBMCTDMW01	6/16/11	1140			
7	UBMCTDMW02D	6/16/11	1218			
8	UBMCTDMW02S	6/16/11	1252			
9	UBMCTDMW3D	6/16/11	1345			
10						

MB 6/17/11

LABORATORY USE ONLY H1106035

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 6/17/11 1406 Signature:

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

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

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

Received by Laboratory: Esther Mercatt 6-17-11 14:06 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.

Quotation for Analytical Services # H645

Company: MT DEQ-Site Response
Contact: Shellie Haaland
Address: PO Box 200901
Helena, MT 59620-0901
Phone: (406) 841-5033 Fax:

Submitted By:
Project: UBMC
TAT: 10 Working days
QC Level: LVL4
Quote Date: 30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	**UBMC Surface Water**						
	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$145.00	1	$145.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$320.00**		
			Schedule Total:				**$320.00**
Schedule:	**UBMC Ground Water**						
Aqueous	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$270.00**		
			Schedule Total:				**$270.00**
	No Alkalinity or Acidity						
Schedule:	**UBMC Surface Water Section 35 Baseline**						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

Quotation for Analytical Services # H645

Company: MT DEQ-Site Response
Contact: Shellie Haaland
Address: PO Box 200901
Helena, MT 59620-0901
Phone: (406) 841-5033 Fax:

Submitted By:
Project: UBMC
TAT: 10 Working days
QC Level: LVL4
Quote Date: 30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	**UBMC Surface Water Section 35 Baseline**						
			Schedule Sample Price:		**$425.00**		
			Schedule Total:				**$425.00**
Schedule:	**UBMC Ground Water Section 35 Baseline**						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$560.00**		
			Schedule Total:				**$560.00**
Schedule:	**Sediment**						
	Metals by ICP/ICPMS, Total	E6010.20		1	$80.00	1	$80.00
	Digestion, Total Metals	SW3050 B		1	$25.00	1	$25.00
			Schedule Sample Price:		**$105.00**		
			Schedule Total:				**$105.00**

Quote Comments: Shipping Labels provided at 12.00 a cooler by UPS or FED EX.

Quote Sub Total:	$1,680.00
Misc:	$0.00
Discount:	30.00%
WO Adjustment:	$0.00
QUOTE TOTAL:	**$1,176.00**

General Comments: Price per sampling event. Sampling to be completed by Portage Inc. 1065 N Ewing Helena, MT 406-457-0056

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Ground Water			
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Calcium	1	mg/L
	Copper	0.001	mg/L
	Iron	0.05	mg/L
	Lead	0.0005	mg/L
	Magnesium	1	mg/L
	Manganese	0.005	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

ANALYTICAL SUMMARY REPORT

October 13, 2011

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

Workorder No.: H11090333 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 20 samples for MT DEQ-Site Response on 9/20/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11090333-001	UBMCBRSW01	09/19/11 16:10	09/20/11	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
H11090333-002	UBMCBRSW22	09/19/11 16:45	09/20/11	Aqueous	Same As Above
H11090333-003	UBMCBRSW24	09/19/11 16:50	09/20/11	Aqueous	Same As Above
H11090333-004	UBMCBRSW02	09/19/11 17:10	09/20/11	Aqueous	Same As Above
H11090333-005	UBMCBRSW29	09/20/11 8:15	09/20/11	Aqueous	Same As Above
H11090333-006	UBMCBRSW38	09/20/11 8:40	09/20/11	Aqueous	Same As Above
H11090333-007	UBMCBRSW25	09/20/11 9:10	09/20/11	Aqueous	Same As Above
H11090333-008	UBMCBRSW48	09/20/11 10:35	09/20/11	Aqueous	Same As Above
H11090333-009	UBMCBRSW23	09/20/11 11:20	09/20/11	Aqueous	Same As Above
H11090333-010	UBMCBRSW3A	09/20/11 11:45	09/20/11	Aqueous	Same As Above
H11090333-011	UBMCBRSW3B	09/20/11 12:15	09/20/11	Aqueous	Same As Above
H11090333-012	UBMCBRSD01	09/19/11 16:10	09/20/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11090333-013	UBMCBRSD22	09/19/11 16:45	09/20/11	Sediment	Same As Above
H11090333-014	UBMCBRSD24	09/19/11 16:50	09/20/11	Sediment	Same As Above
H11090333-015	UBMCBRSD29	09/20/11 8:15	09/20/11	Sediment	Same As Above
H11090333-016	UBMCBRSD38	09/20/11 8:40	09/20/11	Sediment	Same As Above
H11090333-017	UBMCBRSD48	09/20/11 10:35	09/20/11	Sediment	Same As Above
H11090333-018	UBMCBRSD23	09/20/11 11:20	09/20/11	Sediment	Same As Above
H11090333-019	UBMCBRSD3A	09/20/11 11:45	09/20/11	Sediment	Same As Above
H11090333-020	UBMCBRSD3B	09/20/11 12:15	09/20/11	Sediment	Same As Above

ANALYTICAL SUMMARY REPORT

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 UBMCBRSW01
Lab ID: H11090333-001
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 16:10
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u.		0.1		A4500-H B	09/21/11 16:32 / zeg		MAN-TECH_110921B	29	R74602
Conductivity	187	umhos/cm		1		A2510 B	09/21/11 11:10 / cmm		COND_110921A	18	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:42 / cmm	09/21/11 12:56	-124 (14410200)_110921A	16	13958
Solids, Total Dissolved TDS @ 180 C	109	mg/L		10		A2540 C	09/21/11 13:56 / cmm	09/21/11 13:03	-124 (14410200)_110921B	15	13960
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	09/21/11 16:32 / zeg		MAN-TECH_110921B	28	R74602
Bicarbonate as HCO3	130	mg/L		4		A2320 B	09/21/11 16:32 / zeg		MAN-TECH_110921B	28	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 16:32 / zeg		MAN-TECH_110921B	28	R74602
Chloride	ND	mg/L		1		E300.0	09/27/11 18:09 / zeg		IC101-H_110927A	41	R74774
Sulfate	4	mg/L		1		E300.0	09/27/11 18:09 / zeg		IC101-H_110927A	41	R74774
Hardness as CaCO3	103	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A	9	R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B	98	R74680
Calcium	22	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B	98	R74680
Magnesium	12	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B	98	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B	98	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B	98	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B	164	13914
Cadmium	ND	mg/L		0.00008		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B	164	13914
Copper	ND	mg/L		0.001		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B	164	13914
Iron	0.25	mg/L		0.03		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B	164	13914
Lead	ND	mg/L		0.0005		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B	164	13914
Manganese	0.008	mg/L		0.005		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B	164	13914
Zinc	ND	mg/L		0.01		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B	164	13914

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: H11090333-002
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 16:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	09/21/11 16:47 / zeg		MAN-TECH_110921B	33	R74602
Conductivity	276	umhos/cm		1		A2510 B	09/21/11 11:11 / cmm		COND_110921A	19	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:42 / cmm	09/21/11 12:56	-124 (14410200)_110921A	17	13958
Solids, Total Dissolved TDS @ 180 C	194	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	-124 (14410200)_110921B	16	13960
INORGANICS											
Alkalinity, Total as CaCO3	89	mg/L		4		A2320 B	09/21/11 16:47 / zeg		MAN-TECH_110921B	32	R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 16:47 / zeg		MAN-TECH_110921B	32	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 16:47 / zeg		MAN-TECH_110921B	32	R74602
Chloride	ND	mg/L		1		E300.0	09/27/11 18:49 / zeg		IC101-H_110927A	44	R74774
Sulfate	65	mg/L		1		E300.0	09/27/11 18:49 / zeg		IC101-H_110927A	44	R74774
Hardness as CaCO3	148	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A	10	R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Calcium	37	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Magnesium	13	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Cadmium	0.0104	mg/L		0.00008		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Copper	0.082	mg/L		0.001		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Iron	ND	mg/L		0.03		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Lead	0.0085	mg/L		0.0005		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Manganese	0.169	mg/L		0.005		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Zinc	1.51	mg/L		0.01		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914

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: H11090333-003
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 16:50
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	09/21/11 16:54 / zeg		MAN-TECH_110921B	35	R74602
Conductivity	265	umhos/cm		1		A2510 B	09/21/11 11:13 / cmm		COND_110921A	21	110921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:42 / cmm	09/21/11 12:56	124 (14410200)_110921A	18	13958
Solids, Total Dissolved TDS @ 180 C	188	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	124 (14410200)_110921B	17	13960
INORGANICS											
Alkalinity, Total as CaCO3	89	mg/L		4		A2320 B	09/21/11 16:54 / zeg		MAN-TECH_110921B	34	R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 16:54 / zeg		MAN-TECH_110921B	34	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 16:54 / zeg		MAN-TECH_110921B	34	R74602
Chloride	ND	mg/L		1		E300.0	09/27/11 19:03 / zeg		IC101-H_110927A	45	R74774
Sulfate	66	mg/L		1		E300.0	09/27/11 19:03 / zeg		IC101-H_110927A	45	R74774
Hardness as CaCO3	149	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A	11	R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B	102	R74680
Calcium	37	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B	102	R74680
Magnesium	13	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B	102	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B	102	R74680
Sodium	ND	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B	102	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B	166	R74742
Cadmium	0.0105	mg/L		0.00008		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B	166	R74742
Copper	0.087	mg/L		0.001		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B	166	R74742
Iron	ND	mg/L		0.03		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B	166	R74742
Lead	0.0083	mg/L		0.0005		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B	166	R74742
Manganese	0.168	mg/L		0.005		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B	166	R74742
Zinc	1.56	mg/L		0.01		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B	166	R74742

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 UBMCBRSW02
Lab ID: H11090333-004
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 17:10
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.9	s.u.		0.1		A4500-H B	09/21/11 17:01 / zeg		MAN-TECH_110921B	37	R74602
Conductivity	1850	umhos/cm		1		A2510 B	09/21/11 11:14 / cmm		COND_110921A	22	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:43 / cmm	09/21/11 12:56	-124 (14410200)_110921A	19	13958
Solids, Total Dissolved TDS @ 180 C	2120	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	-124 (14410200)_110921B	18	13960
INORGANICS											
Alkalinity, Total as CaCO3	34	mg/L		4		A2320 B	09/21/11 17:01 / zeg		MAN-TECH_110921B	36	R74602
Bicarbonate as HCO3	29	mg/L		4		A2320 B	09/21/11 17:01 / zeg		MAN-TECH_110921B	36	R74602
Carbonate as CO3	7	mg/L		4		A2320 B	09/21/11 17:01 / zeg		MAN-TECH_110921B	36	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 21:29 / zeg		IC102-H_110923A	50	R74681
Sulfate	1400	mg/L	D	5		E300.0	09/28/11 15:45 / zeg		IC101-H_110928A	37	R74836
Hardness as CaCO3	1410	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A	12	R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B	103	R74680
Calcium	265	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B	103	R74680
Magnesium	181	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B	103	R74680
Potassium	2	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B	103	R74680
Sodium	ND	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B	103	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B	167	13914
Cadmium	0.00027	mg/L		0.00008		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B	167	13914
Copper	0.006	mg/L		0.001		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B	167	13914
Iron	0.31	mg/L		0.03		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B	167	13914
Lead	0.0213	mg/L		0.0005		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B	167	13914
Manganese	0.139	mg/L		0.005		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B	167	13914
Zinc	0.06	mg/L		0.01		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B	167	13914

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 UBMCBRSW29
Lab ID: H11090333-005
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 08:15
Report Date: 10/13/11
DateReceived: 09/20/11

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	09/21/11 17:08 / zeg		MAN-TECH_110921B	39	R74602
Conductivity	216	umhos/cm		1		A2510 B	09/21/11 11:14 / cmm		COND_110921A	23	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:43 / cmm	09/21/11 12:56	124 (14410200)_110921A	20	13958
Solids, Total Dissolved TDS @ 180 C	142	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	124 (14410200)_110921B	19	13960
INORGANICS											
Alkalinity, Total as CaCO3	87	mg/L		4		A2320 B	09/21/11 17:08 / zeg		MAN-TECH_110921B	38	R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 17:08 / zeg		MAN-TECH_110921B	38	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:08 / zeg		MAN-TECH_110921B	38	R74602
Chloride	2	mg/L		1		E300.0	09/23/11 21:42 / zeg		IC102-H_110923A	51	R74681
Sulfate	30	mg/L		1		E300.0	09/23/11 21:42 / zeg		IC102-H_110923A	51	R74681
Hardness as CaCO3	116	mg/L		1		A2340 B	09/23/11 18:08 / abb		CALC_110926A	564	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Calcium	25	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Magnesium	13	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Cadmium	0.00291	mg/L		0.00008		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Copper	0.003	mg/L		0.001		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Iron	0.08	mg/L		0.03		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Lead	0.0057	mg/L		0.0005		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Manganese	0.315	mg/L		0.005		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Zinc	0.71	mg/L		0.01		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742

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: H11090333-006
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 08:40
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	09/21/11 17:15 / zeg		MAN-TECH_110921B	41	R74602
Conductivity	264	umhos/cm		1		A2510 B	09/21/11 11:14 / cmm		COND_110921A	24	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:44 / cmm	09/21/11 12:56	124 (14410200)_110921A	21	13958
Solids, Total Dissolved TDS @ 180 C	176	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	124 (14410200)_110921B	20	13960
INORGANICS											
Alkalinity, Total as CaCO3	86	mg/L		4		A2320 B	09/21/11 17:15 / zeg		MAN-TECH_110921B	40	R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 17:15 / zeg		MAN-TECH_110921B	40	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:15 / zeg		MAN-TECH_110921B	40	R74602
Chloride	2	mg/L		1		E300.0	09/23/11 21:56 / zeg		IC102-H_110923A	52	R74681
Sulfate	30	mg/L		1		E300.0	09/23/11 21:56 / zeg		IC102-H_110923A	52	R74681
Hardness as CaCO3	138	mg/L		1		A2340 B	09/23/11 18:12 / abb		CALC_110926A	575	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B	107	R74680
Calcium	29	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B	107	R74680
Magnesium	16	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B	107	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B	107	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B	107	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B	169	R74742
Cadmium	0.00462	mg/L		0.00008		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B	169	R74742
Copper	0.005	mg/L		0.001		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B	169	R74742
Iron	0.13	mg/L		0.03		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B	169	R74742
Lead	0.0087	mg/L		0.0005		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B	169	R74742
Manganese	0.672	mg/L		0.005		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B	169	R74742
Zinc	1.05	mg/L		0.01		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B	169	R74742

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: H11090333-007
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 09:10
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	09/21/11 17:20 / zeg		MAN-TECH_110921B	43	R74602
Conductivity	ND	umhos/cm		1		A2510 B	09/21/11 11:15 / cmm		COND_110921A	25	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:44 / cmm	09/21/11 12:56	-124 (14410200)_110921A	22	13958
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	-124 (14410200)_110921B	21	13960
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	09/21/11 17:20 / zeg		MAN-TECH_110921B	42	R74602
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	09/21/11 17:20 / zeg		MAN-TECH_110921B	42	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:20 / zeg		MAN-TECH_110921B	42	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 22:37 / zeg		IC102-H_110923A	55	R74681
Sulfate	ND	mg/L		1		E300.0	09/23/11 22:37 / zeg		IC102-H_110923A	55	R74681
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A	13	R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B	108	R74680
Calcium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B	108	R74680
Magnesium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B	108	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B	108	R74680
Sodium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B	108	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B	170	R74742
Cadmium	ND	mg/L		0.00008		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B	170	R74742
Copper	ND	mg/L		0.001		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B	170	R74742
Iron	ND	mg/L		0.03		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B	170	R74742
Lead	ND	mg/L		0.0005		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B	170	R74742
Manganese	ND	mg/L		0.005		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B	170	R74742
Zinc	ND	mg/L		0.01		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B	170	R74742

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: H11090333-008
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 10:35
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	09/21/11 17:27 / zeg		MAN-TECH_110921B	45	R74602
Conductivity	264	umhos/cm		1		A2510 B	09/21/11 11:15 / cmm		COND_110921A	26	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:45 / cmm	09/21/11 12:56	-124 (14410200)_110921A	23	13958
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	-124 (14410200)_110921B	22	13960
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		4		A2320 B	09/21/11 17:27 / zeg		MAN-TECH_110921B	44	R74602
Bicarbonate as HCO3	120	mg/L		4		A2320 B	09/21/11 17:27 / zeg		MAN-TECH_110921B	44	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:27 / zeg		MAN-TECH_110921B	44	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 22:50 / zeg		IC102-H_110923A	56	R74681
Sulfate	45	mg/L		1		E300.0	09/23/11 22:50 / zeg		IC102-H_110923A	56	R74681
Hardness as CaCO3	139	mg/L		1		A2340 B	09/23/11 18:19 / abb		CALC_110926A	597	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B	109	R74680
Calcium	29	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B	109	R74680
Magnesium	16	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B	109	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B	109	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B	109	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B	171	13914
Cadmium	0.00277	mg/L		0.00008		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B	171	13914
Copper	0.008	mg/L		0.001		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B	171	13914
Iron	0.38	mg/L		0.03		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B	171	13914
Lead	0.0131	mg/L		0.0005		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B	171	13914
Manganese	0.779	mg/L		0.005		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B	171	13914
Zinc	0.58	mg/L		0.01		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B	171	13914

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: H11090333-009
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 11:20
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	09/21/11 17:41 / zeg		MAN-TECH_110921B	49	R74602
Conductivity	258	umhos/cm		1		A2510 B	09/21/11 11:17 / cmm		COND_110921A	27	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:45 / cmm	09/21/11 12:56	-124 (14410200)_110921A	24	13958
Solids, Total Dissolved TDS @ 180 C	161	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	-124 (14410200)_110921B	23	13960
INORGANICS											
Alkalinity, Total as CaCO3	99	mg/L		4		A2320 B	09/21/11 17:41 / zeg		MAN-TECH_110921B	48	R74602
Bicarbonate as HCO3	120	mg/L		4		A2320 B	09/21/11 17:41 / zeg		MAN-TECH_110921B	48	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:41 / zeg		MAN-TECH_110921B	48	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 23:04 / zeg		IC102-H_110923A	57	R74681
Sulfate	39	mg/L		1		E300.0	09/23/11 23:04 / zeg		IC102-H_110923A	57	R74681
Hardness as CaCO3	136	mg/L		1		A2340 B	09/23/11 18:23 / abb		CALC_110926A	608	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Calcium	28	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Magnesium	16	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Cadmium	0.00203	mg/L		0.00008		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Copper	0.008	mg/L		0.001		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Iron	0.12	mg/L		0.03		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Lead	0.128	mg/L		0.0005		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Manganese	0.377	mg/L		0.005		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Zinc	0.47	mg/L		0.01		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914

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: H11090333-010
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 11:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	09/21/11 17:48 / zeg		MAN-TECH_110921B	51	R74602
Conductivity	298	umhos/cm		1		A2510 B	09/21/11 11:18 / cmm		COND_110921A	28	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:46 / cmm	09/21/11 12:57	-124 (14410200)_110921A	27	13959
Solids, Total Dissolved TDS @ 180 C	178	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	-124 (14410200)_110921B	24	13960
INORGANICS											
Alkalinity, Total as CaCO3	96	mg/L		4		A2320 B	09/21/11 17:48 / zeg		MAN-TECH_110921B	50	R74602
Bicarbonate as HCO3	120	mg/L		4		A2320 B	09/21/11 17:48 / zeg		MAN-TECH_110921B	50	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:48 / zeg		MAN-TECH_110921B	50	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 23:18 / zeg		IC102-H_110923A	58	R74681
Sulfate	60	mg/L		1		E300.0	09/23/11 23:18 / zeg		IC102-H_110923A	58	R74681
Hardness as CaCO3	156	mg/L		1		A2340 B	09/23/11 18:27 / abb		CALC_110926A	619	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B	111	R74680
Calcium	32	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B	111	R74680
Magnesium	18	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B	111	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B	111	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B	111	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B	177	13914
Cadmium	0.00236	mg/L		0.00008		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B	177	13914
Copper	0.035	mg/L		0.001		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B	177	13914
Iron	0.56	mg/L		0.03		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B	177	13914
Lead	0.0108	mg/L		0.0005		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B	177	13914
Manganese	0.723	mg/L		0.005		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B	177	13914
Zinc	0.52	mg/L		0.01		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B	177	13914

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: H11090333-011
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 12:15
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	09/21/11 17:55 / zeg		MAN-TECH_110921B	53	R74602
Conductivity	333	umhos/cm		1		A2510 B	09/21/11 11:18 / cmm		COND_110921A	29	10921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:46 / cmm	09/21/11 12:57	124 (14410200)_110921A	29	13959
Solids, Total Dissolved TDS @ 180 C	223	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	124 (14410200)_110921B	25	13960
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	09/21/11 17:55 / zeg		MAN-TECH_110921B	52	R74602
Bicarbonate as HCO3	130	mg/L		4		A2320 B	09/21/11 17:55 / zeg		MAN-TECH_110921B	52	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:55 / zeg		MAN-TECH_110921B	52	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 23:58 / zeg		IC102-H_110923A	61	R74681
Sulfate	79	mg/L		1		E300.0	09/23/11 23:58 / zeg		IC102-H_110923A	61	R74681
Hardness as CaCO3	175	mg/L		1		A2340 B	09/23/11 18:38 / abb		CALC_110926A	630	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Calcium	36	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Magnesium	21	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Potassium	1	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Cadmium	0.00056	mg/L		0.00008		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Copper	0.002	mg/L		0.001		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Iron	ND	mg/L		0.03		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Lead	ND	mg/L		0.0005		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Manganese	0.045	mg/L		0.005		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Zinc	0.79	mg/L		0.01		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742

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: H11090333-012
Matrix: Sediment

Project: UBMC
Collection Date: 09/19/11 16:10
Report Date: 10/13/11
DateReceived: 09/20/11

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	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B	116	14029
Arsenic	18	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B	116	14029
Cadmium	ND	mg/kg		1		SW6010B	10/05/11 16:43 / sld	10/03/11 08:23	ICP2-HE_111005A	89	14108
Copper	13	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B	116	14029
Iron	13500	mg/kg		5		SW6010B	09/30/11 00:17 / sld	09/26/11 14:00	ICP2-HE_110929A	139	14029
Lead	68	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B	116	14029
Manganese	279	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B	116	14029
Zinc	120	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B	116	14029

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: H11090333-013
Matrix: Sediment

Project: UBMC
Collection Date: 09/19/11 16:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	9410	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B	117	14029
Arsenic	57	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B	117	14029
Cadmium	68	mg/kg		1		SW6010B	10/05/11 16:47 / sld	10/03/11 08:23	ICP2-HE_111005A	90	14108
Copper	3370	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B	117	14029
Iron	34500	mg/kg		5		SW6010B	09/30/11 00:21 / sld	09/26/11 14:00	ICP2-HE_110929A	140	14029
Lead	2770	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B	117	14029
Manganese	14800	mg/kg		5		SW6010B	09/30/11 00:21 / sld	09/26/11 14:00	ICP2-HE_110929A	140	14029
Zinc	9640	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B	117	14029

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: H11090333-014
Matrix: Sediment

Project: UBMC
Collection Date: 09/19/11 16:50
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	9810	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029
Arsenic	59	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029
Cadmium	60	mg/kg		1		SW6010B	10/05/11 16:51 / sld	10/03/11 08:23	ICP2-HE_111005A : 91		14108
Copper	3940	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029
Iron	37100	mg/kg		5		SW6010B	09/30/11 00:25 / sld	09/26/11 14:00	ICP2-HE_110929A : 141		14029
Lead	4420	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029
Manganese	17000	mg/kg		5		SW6010B	09/30/11 00:25 / sld	09/26/11 14:00	ICP2-HE_110929A : 141		14029
Zinc	10700	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029

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 UBMCBRSD29
Lab ID: H11090333-015
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 08:15
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6470	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029
Arsenic	37	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029
Cadmium	10	mg/kg		1		SW6010B	10/05/11 16:54 / sld	10/03/11 08:23	ICP2-HE_111005A : 92		14108
Copper	228	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029
Iron	29200	mg/kg		5		SW6010B	09/30/11 00:28 / sld	09/26/11 14:00	ICP2-HE_110929A : 142		14029
Lead	1040	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029
Manganese	2220	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029
Zinc	2040	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029

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: H11090333-016
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 08:40
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6560	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Arsenic	89	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Cadmium	15	mg/kg		1		SW6010B	10/05/11 16:58 / sld	10/03/11 08:23	ICP2-HE_111005A	93	14108
Copper	354	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Iron	35700	mg/kg		5		SW6010B	09/30/11 00:32 / sld	09/26/11 14:00	ICP2-HE_110929A	143	14029
Lead	4020	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Manganese	3770	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Zinc	2690	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029

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: H11090333-017
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 10:35
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5760	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029
Arsenic	62	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029
Cadmium	26	mg/kg		1		SW6010B	10/05/11 17:02 / sld	10/03/11 08:23	ICP2-HE_111005A	94	14108
Copper	768	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029
Iron	41900	mg/kg		5		SW6010B	09/30/11 00:36 / sld	09/26/11 14:00	ICP2-HE_110929A	144	14029
Lead	5030	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029
Manganese	5250	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029
Zinc	5130	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029

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: H11090333-018
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 11:20
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5740	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Arsenic	66	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Cadmium	66	mg/kg		1		SW6010B	10/05/11 17:06 / sld	10/03/11 08:23	ICP2-HE_111005A : 95		14108
Copper	961	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Iron	107000	mg/kg	D	20		SW6010B	09/30/11 17:56 / sld	10/03/11 08:23	ICP2-HE_110930B : 79		14108
Lead	8040	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Manganese	3630	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Zinc	4130	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029

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 UBMCBRSD3A
Lab ID: H11090333-019
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 11:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4490	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029
Arsenic	41	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029
Cadmium	2	mg/kg		1		SW6010B	10/05/11 17:10 / sld	10/03/11 08:23	ICP2-HE_111005A : 96		14108
Copper	137	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029
Iron	38200	mg/kg		5		SW6010B	09/30/11 01:17 / sld	09/26/11 14:00	ICP2-HE_110929A : 155		14029
Lead	109	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029
Manganese	154	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029
Zinc	288	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029

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: H11090333-020
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 12:15
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6930	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029
Arsenic	30	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029
Cadmium	29	mg/kg		1		SW6010B	10/05/11 17:14 / sld	10/03/11 08:23	ICP2-HE_111005A : 97		14108
Copper	793	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029
Iron	20300	mg/kg		5		SW6010B	09/30/11 01:20 / sld	09/26/11 14:00	ICP2-HE_110929A : 156		14029
Lead	368	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029
Manganese	46200	mg/kg		5		SW6010B	09/30/11 18:00 / sld	10/03/11 08:23	ICP2-HE_110930B : 80		14108
Zinc	4840	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029

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

Client: MT DEQ-Site Response
Work Order: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 110921A-COND-PROBE

Run ID :Run Order: **COND_110921A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110921A** Method: **A2510 B**

Analysis Date: **09/21/11 10:12** 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	1020	1.0	1000		102	90	110				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **COND_110921A: 20** SampType: **Sample Duplicate** Sample ID: **H11090333-002ADUP** Method: **A2510 B**

Analysis Date: **09/21/11 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	282	1.0						276	2.2	10	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **COND_110921A: 32** SampType: **Sample Duplicate** Sample ID: **H11090337-001ADUP** Method: **A2510 B**

Analysis Date: **09/21/11 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	1600	1.0						1604	0.4	10	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 13914

Run ID :Run Order: **ICPMS204-B_110923B: 143** SampType: **Method Blank** Sample ID: **MB-13914** Method: **E200.8**
Analysis Date: **09/24/11 11:53** Units: **mg/L** **Prep Info:** Prep Date: **9/19/2011** 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	3E-05	2E-05									
Manganese	ND	6E-05									
Zinc	0.001	0.0003									

Associated samples: **H11090333-001C; H11090333-002C; H11090333-004C; H11090333-008C; H11090333-009C; H11090333-010C**

Run ID :Run Order: **ICPMS204-B_110923B: 144** SampType: **Laboratory Control Sample** Sample ID: **LCS-13914** Method: **E200.8**
Analysis Date: **09/24/11 11:58** Units: **mg/L** **Prep Info:** Prep Date: **9/19/2011** 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	0.0050	0.5		102	85	115				
Cadmium	0.232	0.0010	0.25		93	85	115				
Copper	0.496	0.010	0.5		99	85	115				
Iron	2.54	0.030	2.5	0.002394	102	85	115				
Lead	0.478	0.010	0.5	0.0000266	96	85	115				
Manganese	2.39	0.010	2.5		96	85	115				
Zinc	0.508	0.010	0.5	0.001064	101	85	115				

Associated samples: **H11090333-001C; H11090333-002C; H11090333-004C; H11090333-008C; H11090333-009C; H11090333-010C**

Run ID :Run Order: **ICPMS204-B_110923B: 211** SampType: **Sample Matrix Spike** Sample ID: **H11090324-002DMS3** Method: **E200.8**
Analysis Date: **09/24/11 18:29** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	0.0050	1		102	70	130				
Cadmium	0.520	0.0010	0.5	0.00017	104	70	130				
Copper	1.02	0.010	1	0.005287	101	70	130				
Iron	5.78	0.030	5	0.5339	105	70	130				
Lead	1.02	0.010	1	0.005454	101	70	130				
Manganese	4.87	0.010	5	0.01085	97	70	130				
Zinc	2.73	0.010	1	1.671	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 13914

Run ID :Run Order: **ICPMS204-B_110923B: 211** SampType: **Sample Matrix Spike** Sample ID: **H11090324-002DMS3** Method: **E200.8**

Analysis Date: **09/24/11 18:29** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** Prep Method: **E200.2**

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

Associated samples: **H11090333-001C; H11090333-002C; H11090333-004C; H11090333-008C; H11090333-009C; H11090333-010C**

Run ID :Run Order: **ICPMS204-B_110923B: 212** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090324-002DMSD3** Method: **E200.8**

Analysis Date: **09/24/11 18:34** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	0.0050	1		102	70	130	1.023	0.8	20	
Cadmium	0.538	0.0010	0.5	0.00017	108	70	130	0.5201	3.4	20	
Copper	1.00	0.010	1	0.005287	100	70	130	1.02	1.7	20	
Iron	5.52	0.030	5	0.5339	100	70	130	5.781	4.7	20	
Lead	1.05	0.010	1	0.005454	105	70	130	1.016	3.5	20	
Manganese	5.18	0.010	5	0.01085	103	70	130	4.874	6.1	20	
Zinc	2.71	0.010	1	1.671	104	70	130	2.727	0.7	20	

Associated samples: **H11090333-001C; H11090333-002C; H11090333-004C; H11090333-008C; H11090333-009C; H11090333-010C**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 13958

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 1** SampType: **Method Blank** Sample ID: **MB-13958** Method: **A2540 D**

Analysis Date: **09/21/11 13:37** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	3									

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-13958** Method: **A2540 D**

Analysis Date: **09/21/11 13:38** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	1880	10	2000		94	70	130				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 9** SampType: **Sample Duplicate** Sample ID: **H11090332-001ADUP** Method: **A2540 D**

Analysis Date: **09/21/11 13:40** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 15** SampType: **Sample Duplicate** Sample ID: **H11090332-006ADUP** Method: **A2540 D**

Analysis Date: **09/21/11 13:42** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 13959

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 25** SampType: **Method Blank** Sample ID: **MB-13959** Method: **A2540 D**
Analysis Date: **09/21/11 13:45** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	3									

Associated samples: **H11090333-010A; H11090333-011A**

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-13959** Method: **A2540 D**
Analysis Date: **09/21/11 13:45** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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: **H11090333-010A; H11090333-011A**

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 28** SampType: **Sample Duplicate** Sample ID: **H11090333-010ADUP** Method: **A2540 D**
Analysis Date: **09/21/11 13:46** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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: **H11090333-010A; H11090333-011A**

Run ID :Run Order: **ACCU-124 (14410200)_110921A: 38** SampType: **Sample Duplicate** Sample ID: **H11090337-008ADUP** Method: **A2540 D**
Analysis Date: **09/21/11 13:49** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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: **H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 13960

Run ID :Run Order: **ACCU-124 (14410200)_110921B: 1** SampType: **Method Blank** Sample ID: **MB-13960** Method: **A2540 C**
Analysis Date: **09/21/11 13:52** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **ACCU-124 (14410200)_110921B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-13960** Method: **A2540 C**
Analysis Date: **09/21/11 13:52** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	2020	10	2000		101	90	110				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **ACCU-124 (14410200)_110921B: 7** SampType: **Sample Duplicate** Sample ID: **H11090332-001ADUP** Method: **A2540 C**
Analysis Date: **09/21/11 13:54** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	118	10						116	1.7	5	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **ACCU-124 (14410200)_110921B: 9** SampType: **Sample Matrix Spike** Sample ID: **H11090332-002AMS** Method: **A2540 C**
Analysis Date: **09/21/11 13:54** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	2160	10	2000	140	101	80	120				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **ACCU-124 (14410200)_110921B: 14** SampType: **Sample Duplicate** Sample ID: **H11090332-006ADUP** Method: **A2540 C**
Analysis Date: **09/21/11 13:55** Units: **mg/L** **Prep Info:** Prep Date: **9/21/2011** 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	138	10						142	2.9	5	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14029

Run ID :Run Order: **ICP2-HE_110928B: 113** SampType: **Method Blank** Sample ID: **MB-14029** Method: **SW6010B**
Analysis Date: **09/28/11 20:02** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** 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	0.3									
Copper	ND	0.1									
Iron	0.8	0.3									
Lead	ND	0.6									
Manganese	0.07	0.03									
Zinc	0.2	0.07									

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110928B: 114** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-14029** Method: **SW6010B**
Analysis Date: **09/28/11 20:05** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	242	5.0	250	0.3255	97	80	120				
Arsenic	48.0	5.0	50		96	80	120				
Copper	48.6	5.0	50		97	80	120				
Iron	232	5.0	250	0.7615	92	80	120				
Lead	47.6	5.0	50		95	80	120				
Manganese	239	5.0	250	0.0715	96	80	120				
Zinc	48.4	5.0	50	0.186	96	80	120				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110928B: 115** SampType: **Laboratory Control Sample** Sample ID: **LCS-14029** Method: **SW6010B**
Analysis Date: **09/28/11 20:09** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	12300	5.0	14700	0.3255	84	50.7	131.3				
Arsenic	286	5.0	343		83	72.3	106.4				
Copper	248	5.0	280		89	77.5	109.6				
Iron	18000	5.0	23000	0.7615	78	39.6	138.3				
Lead	180	5.0	187		96	75.9	108.6				
Manganese	361	5.0	369	0.0715	98	80.8	115.7				
Zinc	195	5.0	213	0.186	92	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14029

Run ID :Run Order: **ICP2-HE_110928B: 115** SampType: **Laboratory Control Sample** Sample ID: **LCS-14029** Method: **SW6010B**
Analysis Date: **09/28/11 20:09** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

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

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110928B: 136** SampType: **Sample Matrix Spike** Sample ID: **H11090333-020AMS** Method: **SW6010B**
Analysis Date: **09/28/11 21:28** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	7500	5.0	123.2	6933		75	125				A
Arsenic	49.5	5.0	24.63	29.83	80	75	125				
Copper	731	5.0	24.63	793.2		75	125				A
Lead	339	5.0	24.63	367.8		75	125				A
Manganese	17500	5.0	123.2	18990		75	125				A
Zinc	4380	5.0	24.63	4837		75	125				A

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110928B: 137** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090333-020AMSD** Method: **SW6010B**
Analysis Date: **09/28/11 21:32** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	7710	5.0	123.2	6933		75	125	7498	2.8	20	A
Arsenic	51.0	5.0	24.63	29.83	86	75	125	49.53	3.0	20	
Copper	761	5.0	24.63	793.2		75	125	731.2	4.0	20	A
Lead	366	5.0	24.63	367.8		75	125	339	7.7	20	A
Manganese	18400	5.0	123.2	18990		75	125	17520	4.9	20	A
Zinc	4230	5.0	24.63	4837		75	125	4377	3.3	20	A

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110929A: 138** SampType: **Method Blank** Sample ID: **MB-14029** Method: **SW6010B**
Analysis Date: **09/30/11 00:13** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.4	0.3									
Arsenic	ND	0.3									
Copper	ND	0.1									

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14029

Run ID :Run Order: **ICP2-HE_110929A: 138** SampType: **Method Blank** Sample ID: **MB-14029** Method: **SW6010B**
Analysis Date: **09/30/11 00:13** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.7	0.3									
Lead	ND	0.6									
Manganese	0.1	0.03									
Zinc	0.2	0.07									

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110929A: 157** SampType: **Sample Matrix Spike** Sample ID: **H11090333-020AMS** Method: **SW6010B**
Analysis Date: **09/30/11 01:24** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8880	7.2	123.2	8031		75	125				A
Arsenic	45.2	5.0	24.63	32.98	50	75	125				S
Copper	882	5.0	24.63	929.4		75	125				A
Iron	20900	5.0	123.2	20340		75	125				A
Lead	332	6.1	24.63	403.1		75	125				A
Manganese	23600	5.0	123.2	24660		75	125				A
Zinc	4220	5.0	24.63	5273		75	125				A

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110929A: 158** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090333-020AMSD** Method: **SW6010B**
Analysis Date: **09/30/11 01:28** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8990	7.2	123.2	8031		75	125	8877	1.3	20	A
Arsenic	48.7	5.0	24.63	32.98	64	75	125	45.22	7.5	20	S
Copper	909	5.0	24.63	929.4		75	125	882.5	3.0	20	A
Iron	21100	5.0	123.2	20340		75	125	20880	1.0	20	A
Lead	376	6.1	24.63	403.1		75	125	331.7	13	20	A
Manganese	24300	5.0	123.2	24660		75	125	23560	3.1	20	A
Zinc	4300	5.0	24.63	5273		75	125	4219	1.8	20	A

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14029

Run ID :Run Order: **ICP2-HE_110930B: 78** SampType: **Method Blank** Sample ID: **MB-14029** Method: **SW6010B**

Analysis Date: **09/30/11 17:52** Units: **mg/kg** **Prep Info:** Prep Date: **9/26/2011** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.4	0.3									
Arsenic	0.4	0.3									
Copper	ND	0.1									
Iron	0.6	0.3									
Lead	ND	0.6									
Manganese	0.06	0.03									
Zinc	0.6	0.07									

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14108

Run ID :Run Order: **ICP2-HE_111005A: 84** SampType: **Method Blank** Sample ID: **MB-14108** Method: **SW6010B**
Analysis Date: **10/05/11 16:25** Units: **mg/kg** **Prep Info:** Prep Date: **10/3/2011** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	0.02									
Iron	0.9	0.3									
Manganese	0.06	0.03									

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_111005A: 85** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-14108** Method: **SW6010B**
Analysis Date: **10/05/11 16:29** Units: **mg/kg** **Prep Info:** Prep Date: **10/3/2011** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	22.4	1.0	25		90	80	120				
Iron	226	5.0	250	0.8785	90	80	120				
Manganese	235	5.0	250	0.0555	94	80	120				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_111005A: 88** SampType: **Laboratory Control Sample** Sample ID: **LCS-14108** Method: **SW6010B**
Analysis Date: **10/05/11 16:39** Units: **mg/kg** **Prep Info:** Prep Date: **10/3/2011** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	111	1.0	135.6		82	73	105.1				
Iron	18000	5.0	22770	0.8785	79	39.6	138.3				
Manganese	350	5.0	365.3	0.0555	96	80.8	115.7				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_111005A: 102** SampType: **Sample Matrix Spike** Sample ID: **H11090333-020AMS** Method: **SW6010B**
Analysis Date: **10/05/11 17:32** Units: **mg/kg** **Prep Info:** Prep Date: **10/3/2011** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	38.5	1.0	12.5	28.9	77	75	125				
Iron	16800	5.0	125	18330		75	125				A
Manganese	20200	5.0	125	20670		75	125				A

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14108

Run ID :Run Order: **ICP2-HE_111005A: 103** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090333-020AMSD** Method: **SW6010B**

Analysis Date: **10/05/11 17:36** Units: **mg/kg** **Prep Info:** Prep Date: **10/3/2011** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	37.8	1.0	12.5	28.9	71	75	125	38.46	1.7	20	S
Iron	17200	5.0	125	18330		75	125	16820	2.1	20	A
Manganese	19600	5.0	125	20670		75	125	20210	3.1	20	A

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74602

Run ID :Run Order: **MAN-TECH_110921B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **09/21/11 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	2	2									

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-09152011** Method: **A2320 B**
Analysis Date: **09/21/11 15:28** 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
Alkalinity, Total as CaCO3	610	4.0	600	1.97	101	90	110				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 20** SampType: **Sample Matrix Spike** Sample ID: **H11090332-003AMS** Method: **A2320 B**
Analysis Date: **09/21/11 16:04** 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	690	4.0	600	114.7	97	80	120				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 30** SampType: **Sample Duplicate** Sample ID: **H11090333-001ADUP** Method: **A2320 B**
Analysis Date: **09/21/11 16:40** 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	110	4.0						108.3	0.3	10	
Bicarbonate as HCO3	130	4.0						132.2	0.3	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 46** SampType: **Sample Duplicate** Sample ID: **H11090333-008ADUP** Method: **A2320 B**
Analysis Date: **09/21/11 17:34** 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
Alkalinity, Total as CaCO3	97	4.0						96.67	0.0	10	
Bicarbonate as HCO3	120	4.0						117.9	0.0	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74602

Run ID :Run Order: **MAN-TECH_110921B: 46** SampType: **Sample Duplicate** Sample ID: **H11090333-008ADUP** Method: **A2320 B**
Analysis Date: **09/21/11 17:34** 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

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 59** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **09/21/11 18:16** 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
Alkalinity, Total as CaCO3	ND	2									

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 61** SampType: **Laboratory Control Sample** Sample ID: **LCS-09152011** Method: **A2320 B**
Analysis Date: **09/21/11 18:24** 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
Alkalinity, Total as CaCO3	610	4.0	600		101	90	110				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 69** SampType: **Sample Matrix Spike** Sample ID: **H11090337-005AMS** Method: **A2320 B**
Analysis Date: **09/21/11 18:52** 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	850	4.0	600	263.7	98	80	120				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 77** SampType: **Sample Duplicate** Sample ID: **H11090337-008ADUP** Method: **A2320 B**
Analysis Date: **09/21/11 19:18** 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	370	4.0						369.1	0.3	10	
Bicarbonate as HCO3	450	4.0						450.3	0.3	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74602

Run ID :Run Order: **MAN-TECH_110921B: 88** SampType: **Sample Duplicate** Sample ID: **H11090324-001ADUP** Method: **A2320 B**

Analysis Date: **09/21/11 20:02** 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	350	4.0						342.1	1.7	10	
Bicarbonate as HCO3	420	4.0						417.3	1.7	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74602

Run ID :Run Order: **MAN-TECH_110921B: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1-2199** Method: **A4500-H B**
Analysis Date: **09/21/11 15:02** 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	3.91	0.10	4		98	97	103				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-2145** Method: **A4500-H B**
Analysis Date: **09/21/11 15:05** 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	7.02	0.10	7		100	98	102				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3-2042** Method: **A4500-H B**
Analysis Date: **09/21/11 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	10.1	0.10	10		101	99	101				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-2100** Method: **A4500-H B**
Analysis Date: **09/21/11 15:10** 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: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 31** SampType: **Sample Duplicate** Sample ID: **H11090333-001ADUP** Method: **A4500-H B**
Analysis Date: **09/21/11 16:40** 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	8.28	0.10						8.27	0.1	3	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74602

Run ID :Run Order: **MAN-TECH_110921B: 47** SampType: **Sample Duplicate** Sample ID: **H11090333-008ADUP** Method: **A4500-H B**

Analysis Date: **09/21/11 17:34** 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	8.12	0.10						8.11	0.1	3	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 78** SampType: **Sample Duplicate** Sample ID: **H11090337-008ADUP** Method: **A4500-H B**

Analysis Date: **09/21/11 19:18** 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	7.93	0.10						7.93	0.0	3	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **MAN-TECH_110921B: 89** SampType: **Sample Duplicate** Sample ID: **H11090324-001ADUP** Method: **A4500-H B**

Analysis Date: **09/21/11 20:02** 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	7.97	0.10						7.94	0.4	3	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A; H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74680

Run ID :Run Order: **ICP2-HE_110923B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **09/23/11 11:16** 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	3.91	0.10	4		98	95	105				
Calcium	38.6	1.0	40		96	95	105				
Magnesium	38.2	1.0	40		96	95	105				
Potassium	39.3	1.0	40		98	95	105				
Sodium	39.5	1.0	40		99	95	105				

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **09/23/11 11:19** 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	95	105				
Calcium	24.6	1.0	25		99	95	105				
Magnesium	24.3	1.0	25		97	95	105				
Potassium	24.9	1.0	25		99	95	105				
Sodium	24.9	1.0	25		99	95	105				

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **09/23/11 11:30** 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	511	0.10	500		102	80	120				
Calcium	459	1.0	500		92	80	120				
Magnesium	499	1.0	500		100	80	120				
Potassium	-0.0762	1.0				0	0				
Sodium	0.0264	1.0				0	0				

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74680

Run ID :Run Order: **ICP2-HE_110923B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **09/23/11 11:35** 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
Aluminum	516	0.10	500		103	80	120				
Calcium	459	1.0	500		92	80	120				
Magnesium	503	1.0	500		101	80	120				
Potassium	20.8	1.0	20		104	80	120				
Sodium	20.7	1.0	20		103	80	120				

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**

Analysis Date: **09/23/11 11:42** 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	0.01	0.003									
Potassium	ND	0.04									
Sodium	ND	0.01									

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**

Analysis Date: **09/23/11 11:46** 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	4.70	0.10	5		94	85	115				
Calcium	46.7	1.0	50	0.04078	93	85	115				
Magnesium	46.0	1.0	50	0.01211	92	85	115				
Potassium	47.4	1.0	50		95	85	115				
Sodium	47.6	1.0	50		95	85	115				

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74680

Run ID :Run Order: **ICP2-HE_110923B: 88** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **09/23/11 17:02** 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	2.47	0.10	2.5		99	90	110				
Calcium	23.8	1.0	25		95	90	110				
Magnesium	22.8	1.0	25		91	90	110				
Potassium	24.8	1.0	25		99	90	110				
Sodium	25.2	1.0	25		101	90	110				

Associated samples: **H11090333-001B; H11090333-002B**

Run ID :Run Order: **ICP2-HE_110923B: 100** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **09/23/11 17:46** 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	90	110				
Calcium	24.3	1.0	25		97	90	110				
Magnesium	23.1	1.0	25		92	90	110				
Potassium	24.9	1.0	25		100	90	110				
Sodium	25.4	1.0	25		102	90	110				

Associated samples: **H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B**

Run ID :Run Order: **ICP2-HE_110923B: 104** SampType: **Sample Matrix Spike** Sample ID: **H11090333-004BMS2** Method: **E200.7**

Analysis Date: **09/23/11 18:01** 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	4.37	0.10	5		87	70	130				
Calcium	307	1.0	50	264.5		70	130				A
Magnesium	228	1.0	50	180.9	95	70	130				
Potassium	50.8	1.0	50	2.17	97	70	130				
Sodium	50.5	1.0	50	0.6913	100	70	130				

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 105** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090333-004BMSD2** Method: **E200.7**

Analysis Date: **09/23/11 18:04** 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	4.42	0.10	5		88	70	130	4.366	1.3	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74680

Run ID :Run Order: **ICP2-HE_110923B: 105** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090333-004BMSD2** Method: **E200.7**

Analysis Date: **09/23/11 18:04** 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
Calcium	309	1.0	50	264.5		70	130	306.7	0.6	20	A
Magnesium	229	1.0	50	180.9	96	70	130	228.4	0.3	20	
Potassium	50.3	1.0	50	2.17	96	70	130	50.78	1.0	20	
Sodium	50.1	1.0	50	0.6913	99	70	130	50.5	0.8	20	

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 112** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **09/23/11 18:30** 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	25.1	1.0	25		100	90	110				
Magnesium	23.2	1.0	25		93	90	110				
Potassium	24.4	1.0	25		98	90	110				
Sodium	24.9	1.0	25		100	90	110				

Associated samples: **H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 118** SampType: **Sample Matrix Spike** Sample ID: **H11090337-003BMS2** Method: **E200.7**

Analysis Date: **09/23/11 18:54** 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	4.58	0.10	5		92	70	130				
Calcium	187	1.0	50	145.4	82	70	130				
Magnesium	81.6	1.0	50	36.24	91	70	130				
Potassium	55.3	1.0	50	6.988	97	70	130				
Sodium	208	1.0	50	158.4	100	70	130				

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

Run ID :Run Order: **ICP2-HE_110923B: 119** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090337-003BMSD2** Method: **E200.7**

Analysis Date: **09/23/11 18:57** 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	4.44	0.10	5		89	70	130	4.582	3.1	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74680

Run ID :Run Order: **ICP2-HE_110923B: 119** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090337-003BMSD2** Method: **E200.7**

Analysis Date: **09/23/11 18:57** 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
Calcium	190	1.0	50	145.4	89	70	130	186.6	1.8	20	
Magnesium	80.9	1.0	50	36.24	89	70	130	81.63	0.9	20	
Potassium	54.7	1.0	50	6.988	95	70	130	55.28	1.1	20	
Sodium	208	1.0	50	158.4	100	70	130	208.1	0.1	20	

Associated samples: **H11090333-001B; H11090333-002B; H11090333-003B; H11090333-004B; H11090333-005B; H11090333-006B; H11090333-007B; H11090333-008B; H11090333-009B; H11090333-010B; H11090333-011B**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74681

Run ID :Run Order: **IC102-H_110923A: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV092311-12** Method: **E300.0**
Analysis Date: **09/23/11 13:33** 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	110	1.0	100		110	90	110				
Sulfate	420	1.0	400		104	90	110				

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **IC102-H_110923A: 16** SampType: **Method Blank** Sample ID: **ICB092311-13** Method: **E300.0**
Analysis Date: **09/23/11 13:46** 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	ND	0.02									
Sulfate	ND	0.02									

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **IC102-H_110923A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB092311-14** Method: **E300.0**
Analysis Date: **09/23/11 14:00** 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		102	90	110				
Sulfate	200	1.1	200		99	90	110				

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **IC102-H_110923A: 47** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV092311-44** Method: **E300.0**
Analysis Date: **09/23/11 20:48** 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	110	1.0	100		107	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A**

Run ID :Run Order: **IC102-H_110923A: 53** SampType: **Sample Matrix Spike** Sample ID: **H11090333-006AMS** Method: **E300.0**
Analysis Date: **09/23/11 22:10** 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	1.953	99	90	110				
Sulfate	260	1.1	200	30.16	117	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74681

Run ID :Run Order: **IC102-H_110923A: 53** SampType: **Sample Matrix Spike** Sample ID: **H11090333-006AMS** Method: **E300.0**
Analysis Date: **09/23/11 22:10** 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

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **IC102-H_110923A: 54** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090333-006AMSD** Method: **E300.0**
Analysis Date: **09/23/11 22:23** 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	54	1.0	50	1.953	103	90	110	51.48	4.1	20	
Sulfate	270	1.1	200	30.16	121	90	110	263.6	2.8	20	S

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **IC102-H_110923A: 59** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV092311-58** Method: **E300.0**
Analysis Date: **09/23/11 23:31** 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	110	1.0	100		107	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H11090333-011A**

Run ID :Run Order: **IC102-H_110923A: 66** SampType: **Sample Matrix Spike** Sample ID: **H11090337-004AMS** Method: **E300.0**
Analysis Date: **09/24/11 01:06** 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		101	90	110				
Sulfate	200	1.1	200		99	90	110				

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

Run ID :Run Order: **IC102-H_110923A: 67** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090337-004AMSD** Method: **E300.0**
Analysis Date: **09/24/11 01:20** 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	52	1.0	50		105	90	110	50.57	3.4	20	
Sulfate	200	1.1	200		101	90	110	198.4	2.2	20	

Associated samples: **H11090333-004A; H11090333-005A; H11090333-006A; H11090333-007A; H11090333-008A; H11090333-009A; H11090333-010A; H11090333-011A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74742

Run ID :Run Order: **ICPMS204-B_110923B: 24** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **09/23/11 14:22** 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	0.0531	0.0050	0.05		106	90	110				
Cadmium	0.0271	0.0010	0.025		108	90	110				
Copper	0.0543	0.010	0.05		109	90	110				
Iron	0.256	0.030	0.25		102	90	110				
Lead	0.0513	0.010	0.05		103	90	110				
Manganese	0.257	0.010	0.25		103	90	110				
Zinc	0.0544	0.010	0.05		109	90	110				

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 25** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **09/23/11 14:26** 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	0.000153	0.0050									
Cadmium	0.000548	0.0010									
Copper	0.000441	0.010									
Iron	104	0.030	100		104	70	130				
Lead	9.20E-05	0.010									
Manganese	0.00227	0.010									
Zinc	0.00106	0.010									

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 26** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/23/11 14:31** 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
Arsenic	0.0112	0.0050	0.01		112	70	130				
Cadmium	0.0114	0.0010	0.01		114	70	130				
Copper	0.0217	0.010	0.02		109	70	130				
Iron	106	0.030	100		106	70	130				
Lead	8.20E-05	0.010				0	0				
Manganese	0.0247	0.010	0.02		123	70	130				
Zinc	0.0120	0.010	0.01		120	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74742

Run ID :Run Order: **ICPMS204-B_110923B: 26** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **09/23/11 14:31** 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

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 42** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **09/23/11 16:25** 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
Arsenic	0.0484	0.0050	0.05		97	90	110				
Cadmium	0.0263	0.0010	0.025		105	90	110				
Copper	0.0501	0.010	0.05		100	90	110				
Iron	0.257	0.030	0.25		103	90	110				
Lead	0.0510	0.010	0.05		102	90	110				
Manganese	0.252	0.010	0.25		101	90	110				
Zinc	0.0502	0.010	0.05		100	90	110				

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 49** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **09/23/11 16:57** 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	ND	3E-05									
Cadmium	ND	1E-05									
Copper	5E-05	3E-05									
Iron	0.001	0.0002									
Lead	ND	1.0E-05									
Manganese	8E-05	1E-05									
Zinc	0.0005	0.0003									

Associated samples: **H11090333-003C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 55** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **09/23/11 17:48** 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	0.0478	0.0050	0.05		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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74742

Run ID :Run Order: **ICPMS204-B_110923B: 55** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/23/11 17:48** 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
Cadmium	0.0480	0.0010	0.05		96	85	115				
Copper	0.0470	0.010	0.05	0.0000499	94	85	115				
Iron	4.92	0.030	5	0.001374	98	85	115				
Lead	0.0504	0.010	0.05		101	85	115				
Manganese	0.0492	0.010	0.05	0.0000793	98	85	115				
Zinc	0.0483	0.010	0.05	0.0004938	96	85	115				

Associated samples: **H11090333-003C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 67** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **09/24/11 01:51** 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
Arsenic	0.0492	0.0050	0.05		98	90	110				
Cadmium	0.0260	0.0010	0.025		104	90	110				
Copper	0.0511	0.010	0.05		102	90	110				
Iron	0.261	0.030	0.25		104	90	110				
Lead	0.0509	0.010	0.05		102	90	110				
Manganese	0.246	0.010	0.25		99	90	110				
Zinc	0.0518	0.010	0.05		104	90	110				

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 68** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **09/24/11 01:55** 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	0.000257	0.0050									
Cadmium	0.000531	0.0010									
Copper	0.000466	0.010									
Iron	106	0.030	100		106	70	130				
Lead	9.30E-05	0.010									
Manganese	0.00225	0.010									
Zinc	0.00109	0.010									

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74742

Run ID :Run Order: **ICPMS204-B_110923B: 69** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/24/11 02:00** 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	0.0112	0.0050	0.01		113	70	130				
Cadmium	0.0109	0.0010	0.01		109	70	130				
Copper	0.0217	0.010	0.02		108	70	130				
Iron	106	0.030	100		106	70	130				
Lead	7.90E-05	0.010				0	0				
Manganese	0.0244	0.010	0.02		122	70	130				
Zinc	0.0115	0.010	0.01		115	70	130				

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 130** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **09/24/11 10:54** 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	0.0505	0.0050	0.05		101	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Copper	0.0523	0.010	0.05		105	90	110				
Iron	0.258	0.030	0.25		103	90	110				
Lead	0.0515	0.010	0.05		103	90	110				
Manganese	0.250	0.010	0.25		100	90	110				
Zinc	0.0529	0.010	0.05		106	90	110				

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 131** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **09/24/11 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	0.000183	0.0050									
Cadmium	0.000466	0.0010									
Copper	0.000435	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000107	0.010									
Manganese	0.00194	0.010									
Zinc	0.00110	0.010									

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74742

Run ID :Run Order: **ICPMS204-B_110923B: 131** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **09/24/11 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

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 132** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **09/24/11 11:03** 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	0.0111	0.0050	0.01		111	70	130				
Cadmium	0.0110	0.0010	0.01		109	70	130				
Copper	0.0216	0.010	0.02		108	70	130				
Iron	105	0.030	100		105	70	130				
Lead	8.10E-05	0.010				0	0				
Manganese	0.0242	0.010	0.02		121	70	130				
Zinc	0.0118	0.010	0.01		118	70	130				

Associated samples: **H11090333-001C; H11090333-002C; H11090333-003C; H11090333-004C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-008C; H11090333-009C; H11090333-010C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 155** SampType: **Sample Matrix Spike** Sample ID: **H11090332-004CMS** Method: **E200.8**
Analysis Date: **09/24/11 12:48** 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	0.0490	0.0050	0.05		98	70	130				
Cadmium	0.0470	0.0010	0.05		94	70	130				
Copper	0.0483	0.010	0.05	0.001344	94	70	130				
Iron	4.91	0.030	5	0.1393	95	70	130				
Lead	0.0498	0.010	0.05	0.0000293	100	70	130				
Manganese	0.0685	0.010	0.05	0.02232	92	70	130				
Zinc	0.0496	0.010	0.05	0.001382	96	70	130				

Associated samples: **H11090333-003C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 156** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090332-004CMSD** Method: **E200.8**
Analysis Date: **09/24/11 12:52** 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	0.0483	0.0050	0.05		97	70	130	0.049	1.5	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74742

Run ID :Run Order: **ICPMS204-B_110923B: 156** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090332-004CMSD** Method: **E200.8**

Analysis Date: **09/24/11 12:52** 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
Cadmium	0.0461	0.0010	0.05		92	70	130	0.04698	1.8	20	
Copper	0.0481	0.010	0.05	0.001344	94	70	130	0.0483	0.4	20	
Iron	4.83	0.030	5	0.1393	94	70	130	4.913	1.7	20	
Lead	0.0485	0.010	0.05	0.0000293	97	70	130	0.04979	2.6	20	
Manganese	0.0676	0.010	0.05	0.02232	91	70	130	0.06851	1.4	20	
Zinc	0.0491	0.010	0.05	0.001382	95	70	130	0.04958	1.0	20	

Associated samples: **H11090333-003C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 184** SampType: **Sample Matrix Spike** Sample ID: **H11090337-005BMS** Method: **E200.8**

Analysis Date: **09/24/11 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	7.62	0.0050	0.05	7.722		70	130				A
Cadmium	0.0471	0.0010	0.05	0.0002825	94	70	130				
Copper	0.0491	0.010	0.05	0.002582	93	70	130				
Iron	4.97	0.030	5	0.03293	99	70	130				
Lead	0.0506	0.010	0.05	0.0001477	101	70	130				
Manganese	3.30	0.010	0.05	3.315		70	130				A
Zinc	0.0501	0.010	0.05	0.003589	93	70	130				

Associated samples: **H11090333-003C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-011C**

Run ID :Run Order: **ICPMS204-B_110923B: 185** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090337-005BMSD** Method: **E200.8**

Analysis Date: **09/24/11 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	7.31	0.0050	0.05	7.722		70	130	7.617	4.2	20	A
Cadmium	0.0477	0.0010	0.05	0.0002825	95	70	130	0.04712	1.2	20	
Copper	0.0478	0.010	0.05	0.002582	90	70	130	0.04909	2.7	20	
Iron	4.66	0.030	5	0.03293	93	70	130	4.969	6.4	20	
Lead	0.0512	0.010	0.05	0.0001477	102	70	130	0.05065	1.1	20	
Manganese	3.25	0.010	0.05	3.315		70	130	3.301	1.6	20	A
Zinc	0.0491	0.010	0.05	0.003589	91	70	130	0.05013	2.0	20	

Associated samples: **H11090333-003C; H11090333-005C; H11090333-006C; H11090333-007C; H11090333-011C**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74774

Run ID :Run Order: **IC101-H_110927A: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV092711-12** Method: **E300.0**
Analysis Date: **09/27/11 12:20** 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	110	1.0	100		107	90	110				
Sulfate	420	1.0	400		106	90	110				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A**

Run ID :Run Order: **IC101-H_110927A: 16** SampType: **Method Blank** Sample ID: **ICB092711-13** Method: **E300.0**
Analysis Date: **09/27/11 12:34** 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	0.07									
Sulfate	ND	0.1									

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A**

Run ID :Run Order: **IC101-H_110927A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB092711-14** Method: **E300.0**
Analysis Date: **09/27/11 12:47** 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		102	90	110				
Sulfate	200	1.1	200		102	90	110				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A**

Run ID :Run Order: **IC101-H_110927A: 34** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV092711-30** Method: **E300.0**
Analysis Date: **09/27/11 16:35** 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	100	1.0	100		105	90	110				
Sulfate	420	1.0	400		105	90	110				

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A**

Run ID :Run Order: **IC101-H_110927A: 42** SampType: **Sample Matrix Spike** Sample ID: **H11090333-001AMS** Method: **E300.0**
Analysis Date: **09/27/11 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	50	1.0	50	0.127	100	90	110				
Sulfate	210	1.1	200	4.2	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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74774

Run ID :Run Order: **IC101-H_110927A: 42** SampType: **Sample Matrix Spike** Sample ID: **H11090333-001AMS** Method: **E300.0**

Analysis Date: **09/27/11 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

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A**

Run ID :Run Order: **IC101-H_110927A: 43** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090333-001AMSD** Method: **E300.0**

Analysis Date: **09/27/11 18:36** 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	0.127	100	90	110	50.02	0.3	20	
Sulfate	210	1.1	200	4.2	101	90	110	207.8	0.5	20	

Associated samples: **H11090333-001A; H11090333-002A; H11090333-003A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74836

Run ID :Run Order: **IC101-H_110928A: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV092811-12** Method: **E300.0**
Analysis Date: **09/28/11 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
Sulfate	430	1.0	400		107	90	110				

Associated samples: **H11090333-004A**

Run ID :Run Order: **IC101-H_110928A: 16** SampType: **Method Blank** Sample ID: **ICB092811-13** Method: **E300.0**
Analysis Date: **09/28/11 11:04** 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
Sulfate	ND	0.1									

Associated samples: **H11090333-004A**

Run ID :Run Order: **IC101-H_110928A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB092811-14** Method: **E300.0**
Analysis Date: **09/28/11 11:17** 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
Sulfate	200	1.1	200		102	90	110				

Associated samples: **H11090333-004A**

Run ID :Run Order: **IC101-H_110928A: 34** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV092811-28** Method: **E300.0**
Analysis Date: **09/28/11 15:05** 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
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H11090333-004A**

Run ID :Run Order: **IC101-H_110928A: 44** SampType: **Sample Matrix Spike** Sample ID: **H11090378-001AMS** Method: **E300.0**
Analysis Date: **09/28/11 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
Sulfate	260	1.1	200	42.69	109	90	110				

Associated samples: **H11090333-004A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74836

Run ID :Run Order: **IC101-H_110928A: 45** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090378-001AMSD** Method: **E300.0**

Analysis Date: **09/28/11 17:33** 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	270	1.1	200	42.69	112	90	110	260	2.2	20	S

Associated samples: **H11090333-004A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74840

Run ID :Run Order: **ICP2-HE_110928B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **09/28/11 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
Aluminum	3.94	0.10	4		98	90	110				
Arsenic	0.790	0.0074	0.8		99	90	110				
Copper	0.795	0.010	0.8		99	90	110				
Lead	0.776	0.013	0.8		97	90	110				
Manganese	3.96	0.010	4		99	90	110				
Zinc	0.780	0.010	0.8		97	90	110				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110928B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **09/28/11 12:55** 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	519	0.10	500		104	80	120				
Arsenic	0.00642	0.0074				0	0				
Copper	0.00400	0.010				0	0				
Lead	0.0238	0.013				0	0				
Manganese	-0.0126	0.010				0	0				
Zinc	0.00568	0.010				0	0				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110928B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **09/28/11 13:00** 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	524	0.10	500		105	80	120				
Arsenic	1.04	0.0074	1		104	80	120				
Copper	0.520	0.010	0.5		104	80	120				
Lead	0.973	0.013	1		97	80	120				
Manganese	0.474	0.010	0.5		95	80	120				
Zinc	0.980	0.010	1		98	80	120				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74869

Run ID :Run Order: **ICP2-HE_110929A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **09/29/11 12:27** 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
Iron	3.84	0.030	4		96	90	110				
Manganese	3.98	0.010	4		100	90	110				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110929A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **09/29/11 12:41** 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	183	0.030	200		92	80	120				
Manganese	-0.0169	0.010				0	0				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110929A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **09/29/11 12:46** 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
Iron	187	0.030	200		94	80	120				
Manganese	0.474	0.010	0.5		95	80	120				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-019A; H11090333-020A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74920

Run ID :Run Order: **ICP2-HE_110930B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **09/30/11 12:01** 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
Iron	3.85	0.030	4		96	90	110				
Manganese	3.95	0.010	4		99	90	110				

Associated samples: **H11090333-018A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110930B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **09/30/11 12:15** 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
Iron	187	0.030	200		93	80	120				
Manganese	-0.0152	0.010				0	0				

Associated samples: **H11090333-018A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_110930B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **09/30/11 12:19** 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	188	0.030	200		94	80	120				
Manganese	0.470	0.010	0.5		94	80	120				

Associated samples: **H11090333-018A; H11090333-020A**

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: H11090333
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R75086

Run ID :Run Order: **ICP2-HE_111005A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **10/05/11 10:14** 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
Cadmium	0.394	0.0010	0.4		99	90	110				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_111005A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **10/05/11 10:28** 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
Cadmium	-0.00289	0.0010				0	0				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

Run ID :Run Order: **ICP2-HE_111005A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **10/05/11 10:32** 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
Cadmium	0.912	0.0010	1		91	80	120				

Associated samples: **H11090333-012A; H11090333-013A; H11090333-014A; H11090333-015A; H11090333-016A; H11090333-017A; H11090333-018A; H11090333-019A; H11090333-020A**

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

H11090333

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 9/20/2011

Reviewed by: BL2000\ablackburn
Received by: elm

Reviewed Date: 9/28/2011
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:	3.4°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 2

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ-SRS	Project Name, PWS, Permit, Etc. UBMC Surface water/sediment	Sample Origin State: Mt	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 shaaland@mt.gov	Email:	Sampler: (Please Print) Alan Dreesbach Jackie Janosko
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

Standard Turnaround (TAT)

RUSH

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

Comments: Please copy results to a dreesbach@portageinc.com

Shipped by: HAND
Cooler ID(s): 4
Receipt Temp 3.4 °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	ANALYSIS REQUESTED	SEE ATTACHED	Standard Turnaround (TAT)	RUSH	LABORATORY USE ONLY
1 UBMCBRSW01	9/19/11	1610	W	UBMC Surface water/sediments	X			H11090333
2 UBMCBRSD01	"	"	S					
3 UBMCBRSW22	9/19/11	1645	W					
4 UBMCBRSD22	"	"	S					
5 UBMCBRSW24	9/19/11	1650	W					
6 UBMCBRSD24	"	"	S					
7 UBMCBRSW02	9/19/11	1710	W					
8 UBMCBRSW29	9/20/11	0815	W					
9 UBMCBRSD29	"	"	S					
10 UBMCBRSW38	9/20/11	0840	W		X			

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	9/20/11 0945	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Esther Merritt	Date/Time: 9.20.11 14:45	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.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ-SRS	Project Name, PWS, Permit, Etc. VBMC Surface water - sediment	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Phone/Fax: Shallia Haaland 841-5033 shaalan@dnrt.gov	Email:	Sampler: (Please Print) Alan Droesbeke Jackie Jansko
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)

R U S H

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

Comments: Please copy results to adroesbeke portageinc.com

Shipped by: Hand

Cooler ID(s): Y

Receipt Temp 3.4 °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 H11090333

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	UBMC BRSD38	9/20/11	0840	S	X
2	UBMCBRSW25	9/20/11	0910	W	
3	UBMCBRSW48	9/20/11	1035	W	
4	UBMCBRSD 48	"	"	S	
5	UBMCBRSW 23	9/20/11	1120	W	
6	UBMCBRSD 23	"	"	S	
7	UBMCBRSW3A	9/20/11	1145	W	
8	UBMCBRSD3A	"	"	S	
9	UBMCBRSW3B	9/20/11	1215	W	
10	UBMCBRSD3B	"	"	S	X

SEE ATTACHED: Surface water / sediment

Custody Record MUST be Signed

Relinquished by (print): Alan Droesbeke	Date/Time: 9/20/2011 1445	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 Morrill	Date/Time: 9.20.11 14:45	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.

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Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

Quotation for Analytical Services # H645

Company: MT DEQ-Site Response
Contact: Shellie Haaland
Address: PO Box 200901
Helena, MT 59620-0901
Phone: (406) 841-5033 Fax:

Submitted By:
Project: UBMC
TAT: 10 Working days
QC Level: STD
Quote Date: 30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	**UBMC Surface Water**						
	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$145.00	1	$145.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$320.00**		
			Schedule Total:				**$320.00**
Schedule:	**UBMC Ground Water**						
Aqueous	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$270.00**		
			Schedule Total:				**$270.00**
	No Alkalinity or Acidity						
Schedule:	**UBMC Surface Water Section 35 Baseline**						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

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Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

Quotation for Analytical Services # H645

Company: MT DEQ-Site Response
Contact: Shellie Haaland
Address: PO Box 200901
Helena, MT 59620-0901
Phone: (406) 841-5033 Fax:

Submitted By:
Project: UBMC
TAT: 10 Working days
QC Level: STD
Quote Date: 30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	UBMC Surface Water Section 35 Baseline						
			Schedule Sample Price:		**$425.00**		
			Schedule Total:				**$425.00**
Schedule:	UBMC Ground Water Section 35 Baseline						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$560.00**		
			Schedule Total:				**$560.00**
Schedule:	Sediment						
	Metals by ICP/ICPMS, Total	E6010.20		1	$80.00	1	$80.00
	Digestion, Total Metals	SW3050 B		1	$25.00	1	$25.00
			Schedule Sample Price:		**$105.00**		
			Schedule Total:				**$105.00**

Quote Comments: Shipping Labels provided at 12.00 a cooler by UPS or FED EX.

Quote Sub Total:	$1,680.00
Misc:	$0.00
Discount:	30.00%
WO Adjustment:	$0.00
QUOTE TOTAL:	**$1,176.00**

General Comments: Price per sampling event. Sampling to be completed by Portage Inc. 1065 N Ewing Helena, MT 406-457-0056

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

ANALYTICAL SUMMARY REPORT

October 13, 2011

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

Workorder No.: H11090404 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 9/23/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11090404-001	UBMCTDMW05	09/22/11 7:50	09/23/11	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11090404-002	UBMCTDMW4D	09/22/11 10:20	09/23/11	Aqueous	Same As Above
H11090404-003	UBMCTDMW06	09/22/11 10:30	09/23/11	Aqueous	Same As Above
H11090404-004	UBMCTDMW07	09/22/11 12:03	09/23/11	Aqueous	Same As Above
H11090404-005	UBMCTDMW08	09/22/11 12:15	09/23/11	Aqueous	Same As Above
H11090404-006	UBMCTDMW3D	09/22/11 12:45	09/23/11	Aqueous	Same As Above
H11090404-007	UBMCTDMW1	09/22/11 14:55	09/23/11	Aqueous	Same As Above
H11090404-008	UBMCTDMW2D	09/22/11 15:30	09/23/11	Aqueous	Same As Above
H11090404-009	UBMCTDMW2S	09/22/11 15:55	09/23/11	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 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 UBMCTDMW05
Lab ID: H11090404-001
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 07:50
DateReceived: 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	09/26/11 18:49 / zeg		MAN-TECH_110926A	22	R74718
Conductivity	285	umhos/cm		1		A2510 B	09/26/11 11:39 / cmm		COND_110926A	22	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:16 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	3	14027
Solids, Total Dissolved TDS @ 180 C	182	mg/L		10		A2540 C	09/26/11 14:37 / cmm	09/26/11 14:04	J-124 (14410200)_110926B	8	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:06 / zeg		IC101-H_111005A	21	R75087
Sulfate	46	mg/L		1		E300.0	10/05/11 13:06 / zeg		IC101-H_111005A	21	R75087
Hardness as CaCO3	155	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	18	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Cadmium	0.00008	mg/L		0.00008		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Calcium	35	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Magnesium	17	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Manganese	ND	mg/L		0.005		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Sodium	3	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807
Zinc	0.02	mg/L		0.01		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B	149	R74807

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: H11090404-002
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 10:20
DateReceived: 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u.		0.1		A4500-H B	09/26/11 18:56 / zeg		MAN-TECH_110926A	23	R74718
Conductivity	289	umhos/cm		1		A2510 B	09/26/11 11:40 / cmm		COND_110926A	23	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	58	mg/L		10		A2540 D	09/26/11 14:17 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	5	14027
Solids, Total Dissolved TDS @ 180 C	174	mg/L		10		A2540 C	09/26/11 14:38 / cmm	09/26/11 14:04	-124 (14410200)_110926B	10	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:20 / zeg		IC101-H_111005A	22	R75087
Sulfate	26	mg/L		1		E300.0	10/05/11 13:20 / zeg		IC101-H_111005A	22	R75087
Hardness as CaCO3	143	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	19	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Calcium	25	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Magnesium	19	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Manganese	0.012	mg/L		0.005		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Sodium	14	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807

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: H11090404-003
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 10:30
DateReceived: 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u.		0.1		A4500-H B	09/26/11 19:03 / zeg		MAN-TECH_110926A	24	R74718
Conductivity	290	umhos/cm		1		A2510 B	09/26/11 11:39 / cmm		COND_110926A	24	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	40	mg/L		10		A2540 D	09/26/11 14:17 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	6	14027
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	09/26/11 14:38 / cmm	09/26/11 14:04	-124 (14410200)_110926B	12	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:33 / zeg		IC101-H_111005A	23	R75087
Sulfate	27	mg/L		1		E300.0	10/05/11 13:33 / zeg		IC101-H_111005A	23	R75087
Hardness as CaCO3	138	mg/L		1		A2340 B	10/05/11 07:42 / sld		WATERCALC_111005A	8	R75020
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Calcium	24	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Magnesium	19	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Manganese	0.009	mg/L		0.005		E200.8	10/01/11 05:32 / dck		ICPMS204-B_110930B	98	R74966
Potassium	ND	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Sodium	13	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B	151	R74807

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: H11090404-004
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 12:03
DateReceived: 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.9	s.u.		0.1		A4500-H B	09/26/11 19:08 / zeg		MAN-TECH_110926A	26	R74718
Conductivity	3	umhos/cm		1		A2510 B	09/26/11 11:38 / cmm		COND_110926A	25	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:17 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	7	14027
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/26/11 14:38 / cmm	09/26/11 14:04	-124 (14410200)_110926B	13	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:47 / zeg		IC101-H_111005A	24	R75087
Sulfate	ND	mg/L		1		E300.0	10/05/11 13:47 / zeg		IC101-H_111005A	24	R75087
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	20	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Calcium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Magnesium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Manganese	ND	mg/L		0.005		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Sodium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B	152	R74807

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: H11090404-005
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 12:15
DateReceived: 09/23/11
Report Date: 10/13/11

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	09/26/11 19:22 / zeg		MAN-TECH_110926A	29	R74718
Conductivity	18	umhos/cm		1		A2510 B	09/26/11 11:40 / cmm		COND_110926A	26	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	8	14027
Solids, Total Dissolved TDS @ 180 C	12	mg/L		10		A2540 C	09/26/11 14:39 / cmm	09/26/11 14:04	-124 (14410200)_110926B	14	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 14:27 / zeg		IC101-H_111005A	27	R75087
Sulfate	ND	mg/L		1		E300.0	10/05/11 14:27 / zeg		IC101-H_111005A	27	R75087
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	21	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Calcium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Copper	0.001	mg/L		0.001		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Iron	0.11	mg/L		0.05		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Lead	0.0018	mg/L		0.0005		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Magnesium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Manganese	0.015	mg/L		0.005		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Sodium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807

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: H11090404-006
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 12:45
DateReceived: 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	09/26/11 19:28 / zeg		MAN-TECH_110926A	30	R74718
Conductivity	230	umhos/cm		1		A2510 B	09/26/11 11:41 / cmm		COND_110926A	2710926A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	9	14027
Solids, Total Dissolved TDS @ 180 C	146	mg/L		10		A2540 C	09/26/11 14:39 / cmm	09/26/11 14:04	-124 (14410200)_110926B	15	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 14:40 / zeg		IC101-H_111005A	28	R75087
Sulfate	59	mg/L		1		E300.0	10/05/11 14:40 / zeg		IC101-H_111005A	28	R75087
Hardness as CaCO3	116	mg/L		1		A2340 B	10/05/11 07:42 / sld		WATERCALC_111005A	9	R75020
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Calcium	26	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Lead	0.0005	mg/L		0.0005		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Magnesium	12	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Manganese	0.006	mg/L		0.005		E200.8	10/01/11 06:08 / dck		ICPMS204-B_110930B	106	R74966
Potassium	ND	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807

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 UBMCTDMW1
Lab ID: H11090404-007
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 14:55
DateReceived: 09/23/11
Report Date: 10/13/11

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	09/26/11 19:35 / zeg		MAN-TECH_110926A	31	R74718
Conductivity	717	umhos/cm		1		A2510 B	09/26/11 11:41 / cmm		COND_110926A	28	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	-124 (14410200)_110926A	10	14027
Solids, Total Dissolved TDS @ 180 C	588	mg/L		10		A2540 C	09/26/11 14:40 / cmm	09/26/11 14:04	-124 (14410200)_110926B	17	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 14:54 / zeg		IC101-H_111005A	29	R75087
Sulfate	370	mg/L		1		E300.0	10/05/11 14:54 / zeg		IC101-H_111005A	29	R75087
Hardness as CaCO3	438	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	22	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Cadmium	0.00461	mg/L		0.00008		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Calcium	71	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Magnesium	63	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Manganese	1.25	mg/L		0.005		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Potassium	2	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Zinc	1.18	mg/L		0.01		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807

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: H11090404-008
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 15:30
DateReceived: 09/23/11
Report Date: 10/13/11

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	09/26/11 19:42 / zeg		MAN-TECH_110926A	32	R74718
Conductivity	206	umhos/cm		1		A2510 B	09/26/11 11:42 / cmm		COND_110926A	29	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	124 (14410200)_110926A	11	14027
Solids, Total Dissolved TDS @ 180 C	124	mg/L		10		A2540 C	09/26/11 14:40 / cmm	09/26/11 14:04	124 (14410200)_110926B	18	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 15:07 / zeg		IC101-H_111005A	30	R75087
Sulfate	23	mg/L		1		E300.0	10/05/11 15:07 / zeg		IC101-H_111005A	30	R75087
Hardness as CaCO3	119	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	23	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Calcium	23	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Magnesium	15	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Manganese	ND	mg/L		0.005		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807

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: H11090404-009
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 15:55
DateReceived: 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	09/26/11 19:49 / zeg		MAN-TECH_110926A	33	R74718
Conductivity	406	umhos/cm		1		A2510 B	09/26/11 11:52 / cmm		COND_110926A	31	110926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:19 / cmm	09/26/11 13:56	124 (14410200)_110926A	12	14027
Solids, Total Dissolved TDS @ 180 C	286	mg/L		10		A2540 C	09/26/11 14:40 / cmm	09/26/11 14:04	124 (14410200)_110926B	19	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 15:20 / zeg		IC101-H_111005A	31	R75087
Sulfate	140	mg/L		1		E300.0	10/05/11 15:20 / zeg		IC101-H_111005A	31	R75087
Hardness as CaCO3	238	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	24	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Cadmium	0.00208	mg/L		0.00008		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Calcium	43	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Magnesium	32	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Manganese	2.66	mg/L		0.005		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Zinc	1.33	mg/L		0.01		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807

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

Client: MT DEQ-Site Response
Work Order: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 110926A-COND-PROBE

Run ID :Run Order: **COND_110926A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_110926A** Method: **A2510 B**

Analysis Date: **09/26/11 11:19** 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	1010	1.0	1000		101	90	110				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **COND_110926A: 30** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV6_110926A** Method: **A2510 B**

Analysis Date: **09/26/11 11:50** 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	1420	1.0	1412		100	90	110				

Associated samples: **H11090404-009A**

Run ID :Run Order: **COND_110926A: 32** SampType: **Sample Duplicate** Sample ID: **H11090404-009ADUP** Method: **A2510 B**

Analysis Date: **09/26/11 11:52** 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	414	1.0						406.1	1.8	10	

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **COND_110926A: 43** SampType: **Sample Duplicate** Sample ID: **H11090406-002ADUP** Method: **A2510 B**

Analysis Date: **09/26/11 13:11** 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	635	1.0						621.2	2.3	10	

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14027

Run ID :Run Order: **ACCU-124 (14410200)_110926A: 1** SampType: **Method Blank** Sample ID: **MB-14027** Method: **A2540 D**

Analysis Date: **09/26/11 14:16** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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	3									

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110926A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-14027** Method: **A2540 D**

Analysis Date: **09/26/11 14:16** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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	1770	10	2000		89	70	130				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110926A: 4** SampType: **Sample Duplicate** Sample ID: **H11090404-001ADUP** Method: **A2540 D**

Analysis Date: **09/26/11 14:16** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110926A: 15** SampType: **Sample Duplicate** Sample ID: **H11090405-002ADUP** Method: **A2540 D**

Analysis Date: **09/26/11 14:19** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: 14030

Run ID :Run Order: **ACCU-124 (14410200)_110926B: 1** SampType: **Method Blank** Sample ID: **MB-14030** Method: **A2540 C**
Analysis Date: **09/26/11 14:35** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110926B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-14030** Method: **A2540 C**
Analysis Date: **09/26/11 14:36** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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	2010	10	2000		101	90	110				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110926B: 9** SampType: **Sample Duplicate** Sample ID: **H11090404-001ADUP** Method: **A2540 C**
Analysis Date: **09/26/11 14:38** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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	184	10						182	1.1	5	

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110926B: 11** SampType: **Sample Matrix Spike** Sample ID: **H11090404-002AMS** Method: **A2540 C**
Analysis Date: **09/26/11 14:38** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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	2140	10	2000	174	98	80	120				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **ACCU-124 (14410200)_110926B: 16** SampType: **Sample Duplicate** Sample ID: **H11090404-006ADUP** Method: **A2540 C**
Analysis Date: **09/26/11 14:39** Units: **mg/L** **Prep Info:** Prep Date: **9/26/2011** 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	150	10						146	2.7	5	

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74718

Run ID :Run Order: **MAN-TECH_110926A: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1-2199** Method: **A4500-H B**
Analysis Date: **09/26/11 17:34** 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	3.91	0.10	4		98	97	103				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **MAN-TECH_110926A: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-2145** Method: **A4500-H B**
Analysis Date: **09/26/11 17:37** 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	7.02	0.10	7		100	98	102				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **MAN-TECH_110926A: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3-2042** Method: **A4500-H B**
Analysis Date: **09/26/11 17:40** 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	10.0	0.10	10		101	99	101				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **MAN-TECH_110926A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-2100** Method: **A4500-H B**
Analysis Date: **09/26/11 17:43** 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	6.99	0.10	7		100	98	102				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **MAN-TECH_110926A: 39** SampType: **Sample Duplicate** Sample ID: **H11090405-002ADUP** Method: **A4500-H B**
Analysis Date: **09/26/11 20:05** 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	5.56	0.10						5.84	4.9	3	R

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74718

Run ID :Run Order: **MAN-TECH_110926A: 62** SampType: **Sample Duplicate** Sample ID: **H11090406-002ADUP** Method: **A4500-H B**

Analysis Date: **09/26/11 21:24** 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	8.04	0.10						8.03	0.1	3	

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **MAN-TECH_110926A: 88** SampType: **Sample Duplicate** Sample ID: **H11090406-013ADUP** Method: **A4500-H B**

Analysis Date: **09/26/11 22:57** 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	8.04	0.10						8.05	0.1	3	

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74807

Run ID :Run Order: **ICPMS204-B_110927B: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **09/27/11 20:33** 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	0.251	0.10	0.25		100	90	110				
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0270	0.0010	0.025		108	90	110				
Calcium	2.59	0.50	2.5		104	90	110				
Copper	0.0518	0.010	0.05		104	90	110				
Iron	0.255	0.030	0.25		102	90	110				
Lead	0.0511	0.010	0.05		102	90	110				
Magnesium	2.57	0.50	2.5		103	90	110				
Manganese	0.250	0.010	0.25		100	90	110				
Potassium	2.51	0.50	2.5		100	90	110				
Sodium	2.55	0.50	2.5		102	90	110				
Zinc	0.0509	0.010	0.05		102	90	110				

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

Run ID :Run Order: **ICPMS204-B_110927B: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **09/27/11 20:37** 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	40.7	0.10	40		102	70	130				
Arsenic	0.000190	0.0050									
Cadmium	0.000373	0.0010									
Calcium	120	0.50	120		100	70	130				
Copper	0.000536	0.010									
Iron	102	0.030	100		102	70	130				
Lead	7.60E-05	0.010									
Magnesium	42.6	0.50	40		107	70	130				
Manganese	0.00220	0.010									
Potassium	41.8	0.50	40		105	70	130				
Sodium	105	0.50	100		105	70	130				
Zinc	0.00114	0.010									

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74807

Run ID :Run Order: **ICPMS204-B_110927B: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/27/11 20:42** 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	40.8	0.10	40		102	70	130				
Arsenic	0.0109	0.0050	0.01		109	70	130				
Cadmium	0.0104	0.0010	0.01		104	70	130				
Calcium	119	0.50	120		99	70	130				
Copper	0.0214	0.010	0.02		107	70	130				
Iron	100.0	0.030	100		100	70	130				
Lead	6.40E-05	0.010				0	0				
Magnesium	42.7	0.50	40		107	70	130				
Manganese	0.0231	0.010	0.02		115	70	130				
Potassium	41.9	0.50	40		105	70	130				
Sodium	105	0.50	100		105	70	130				
Zinc	0.0112	0.010	0.01		113	70	130				

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

Run ID :Run Order: **ICPMS204-B_110927B: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **09/27/11 21:09** 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	0.0008	0.0003									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Calcium	0.005	0.003									
Copper	4E-05	3E-05									
Iron	0.001	0.0002									
Lead	ND	1.0E-05									
Magnesium	0.001	0.0007									
Manganese	ND	1E-05									
Potassium	0.02	0.010									
Sodium	0.02	0.003									
Zinc	0.0009	0.0003									

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74807

Run ID :Run Order: **ICPMS204-B_110927B: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/27/11 21:13** 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	0.0521	0.10	0.05	0.0007996	103	85	115				
Arsenic	0.0496	0.0050	0.05		99	85	115				
Cadmium	0.0489	0.0010	0.05		98	85	115				
Calcium	47.2	0.50	50	0.00461	94	85	115				
Copper	0.0495	0.010	0.05	0.0000438	99	85	115				
Iron	4.86	0.030	5	0.001012	97	85	115				
Lead	0.0505	0.010	0.05		101	85	115				
Magnesium	47.6	0.50	50	0.001123	95	85	115				
Manganese	0.0504	0.010	0.05		101	85	115				
Potassium	47.5	0.50	50	0.0179	95	85	115				
Sodium	48.1	0.50	50	0.01927	96	85	115				
Zinc	0.0504	0.010	0.05	0.0008875	99	85	115				

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

Run ID :Run Order: **ICPMS204-B_110927B: 153** SampType: **Sample Matrix Spike** Sample ID: **H11090404-004BMS** Method: **E200.8**

Analysis Date: **09/28/11 07:29** 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	0.0589	0.10	0.05	0.008431	101	70	130				
Arsenic	0.0492	0.0050	0.05	0.0001724	98	70	130				
Cadmium	0.0493	0.0010	0.05		99	70	130				
Calcium	45.4	1.0	50	0.02078	91	70	130				
Copper	0.0503	0.010	0.05		101	70	130				
Iron	4.82	0.030	5	0.001678	96	70	130				
Lead	0.0508	0.010	0.05	0.0000503	101	70	130				
Magnesium	49.5	1.0	50	0.003646	99	70	130				
Manganese	0.0516	0.010	0.05	0.001351	100	70	130				
Potassium	45.7	1.0	50		91	70	130				
Sodium	50.3	1.0	50	0.1165	100	70	130				
Zinc	0.0508	0.010	0.05	0.001037	99	70	130				

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74807

Run ID :Run Order: **ICPMS204-B_110927B: 154** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090404-004BMSD** Method: **E200.8**

Analysis Date: **09/28/11 07:34** 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	0.0586	0.10	0.05	0.008431	100	70	130	0.0589		20	
Arsenic	0.0495	0.0050	0.05	0.0001724	99	70	130	0.04918	0.7	20	
Cadmium	0.0494	0.0010	0.05		99	70	130	0.04928	0.3	20	
Calcium	45.5	1.0	50	0.02078	91	70	130	45.45	0.0	20	
Copper	0.0498	0.010	0.05		100	70	130	0.0503	0.9	20	
Iron	4.87	0.030	5	0.001678	97	70	130	4.82	0.9	20	
Lead	0.0496	0.010	0.05	0.0000503	99	70	130	0.05076	2.4	20	
Magnesium	48.2	1.0	50	0.003646	96	70	130	49.46	2.5	20	
Manganese	0.0514	0.010	0.05	0.001351	100	70	130	0.05156	0.4	20	
Potassium	45.9	1.0	50		92	70	130	45.71	0.4	20	
Sodium	49.3	1.0	50	0.1165	98	70	130	50.31	2.0	20	
Zinc	0.0507	0.010	0.05	0.001037	99	70	130	0.05075	0.1	20	

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

Run ID :Run Order: **ICPMS204-B_110927B: 176** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **09/28/11 09:15** 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	0.258	0.10	0.25		103	90	110				
Arsenic	0.0513	0.0050	0.05		103	90	110				
Cadmium	0.0269	0.0010	0.025		108	90	110				
Calcium	2.63	0.50	2.5		105	90	110				
Copper	0.0523	0.010	0.05		105	90	110				
Iron	0.256	0.030	0.25		102	90	110				
Lead	0.0520	0.010	0.05		104	90	110				
Magnesium	2.60	0.50	2.5		104	90	110				
Manganese	0.253	0.010	0.25		101	90	110				
Potassium	2.61	0.50	2.5		104	90	110				
Sodium	2.58	0.50	2.5		103	90	110				
Zinc	0.0521	0.010	0.05		104	90	110				

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74807

Run ID :Run Order: **ICPMS204-B_110927B: 177** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **09/28/11 09:19** 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	40.9	0.10	40		102	70	130				
Arsenic	0.000136	0.0050									
Cadmium	0.000300	0.0010									
Calcium	123	0.50	120		102	70	130				
Copper	0.000427	0.010									
Iron	105	0.030	100		105	70	130				
Lead	8.40E-05	0.010									
Magnesium	42.8	0.50	40		107	70	130				
Manganese	0.00161	0.010									
Potassium	41.8	0.50	40		104	70	130				
Sodium	107	0.50	100		107	70	130				
Zinc	0.00111	0.010									

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

Run ID :Run Order: **ICPMS204-B_110927B: 178** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/28/11 09:24** 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	41.4	0.10	40		103	70	130				
Arsenic	0.0111	0.0050	0.01		111	70	130				
Cadmium	0.0107	0.0010	0.01		107	70	130				
Calcium	121	0.50	120		101	70	130				
Copper	0.0212	0.010	0.02		106	70	130				
Iron	105	0.030	100		105	70	130				
Lead	7.30E-05	0.010				0	0				
Magnesium	42.4	0.50	40		106	70	130				
Manganese	0.0226	0.010	0.02		113	70	130				
Potassium	42.0	0.50	40		105	70	130				
Sodium	106	0.50	100		106	70	130				
Zinc	0.0118	0.010	0.01		118	70	130				

Associated samples: **H11090404-001B; H11090404-002B; H11090404-003B; H11090404-004B; H11090404-005B; H11090404-006B; H11090404-007B; H11090404-008B; H11090404-009B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74966

Run ID :Run Order: **ICPMS204-B_110930B: 7** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **09/30/11 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
Manganese	0.246	0.010	0.25		98	90	110				

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 8** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **09/30/11 17:26** 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
Manganese	0.00190	0.010									

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 9** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **09/30/11 17:30** 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
Manganese	0.0202	0.010	0.02		101	70	130				

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **09/30/11 18:07** 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
Manganese	0.0468	0.010	0.05	0.0000133	94	85	115				

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 19** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **09/30/11 18:16** 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
Manganese	1.33E-05	0.0050									

Associated samples: **H11090404-003B; H11090404-006B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74966

Run ID :Run Order: **ICPMS204-B_110930B: 58** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **10/01/11 02:32** 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
Manganese	0.245	0.010	0.25		98	90	110				

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 59** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **10/01/11 02:36** 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
Manganese	0.00192	0.010									

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 60** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **10/01/11 02:41** 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
Manganese	0.0206	0.010	0.02		103	70	130				

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 99** SampType: **Sample Matrix Spike** Sample ID: **H11090404-003BMS** Method: **E200.8**
Analysis Date: **10/01/11 05:37** 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
Manganese	0.0565	0.010	0.05	0.008961	95	70	130				

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 100** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090404-003BMSD** Method: **E200.8**
Analysis Date: **10/01/11 05:41** 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
Manganese	0.0562	0.010	0.05	0.008961	95	70	130	0.05655	0.6	20	

Associated samples: **H11090404-003B; H11090404-006B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R74966

Run ID :Run Order: **ICPMS204-B_110930B: 113** SampType: **Sample Matrix Spike** Sample ID: **H11090405-002CMS** Method: **E200.8**

Analysis Date: **10/01/11 06:39** 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
Manganese	0.0479	0.010	0.05		96	70	130				

Associated samples: **H11090404-003B; H11090404-006B**

Run ID :Run Order: **ICPMS204-B_110930B: 118** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090405-002CMSD** Method: **E200.8**

Analysis Date: **10/01/11 07:02** 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
Manganese	0.0476	0.010	0.05		95	70	130	0.0479	0.6	20	

Associated samples: **H11090404-003B; H11090404-006B**

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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R75087

Run ID :Run Order: **IC101-H_111005A: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV100511-12** Method: **E300.0**

Analysis Date: **10/05/11 11:46** 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		101	90	110				
Sulfate	400	1.0	400		100	90	110				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **IC101-H_111005A: 16** SampType: **Method Blank** Sample ID: **ICB100511-13** Method: **E300.0**

Analysis Date: **10/05/11 11:59** 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	0.07									
Sulfate	ND	0.1									

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **IC101-H_111005A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB100511-14** Method: **E300.0**

Analysis Date: **10/05/11 12:13** 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	47	1.0	50		95	90	110				
Sulfate	190	1.1	200		95	90	110				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **IC101-H_111005A: 18** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-100511-15** Method: **E300.0**

Analysis Date: **10/05/11 12:26** 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	400	1.0	400		99	90	110				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **IC101-H_111005A: 25** SampType: **Sample Matrix Spike** Sample ID: **H11090404-004AMS** Method: **E300.0**

Analysis Date: **10/05/11 14:00** 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	47	1.0	50		94	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: H11090404
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *13-Oct-11*

BatchID: R75087

Run ID :Run Order: **IC101-H_111005A: 25** SampType: **Sample Matrix Spike** Sample ID: **H11090404-004AMS** Method: **E300.0**

Analysis Date: **10/05/11 14:00** 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
Sulfate	190	1.1	200	0.204	95	90	110				

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

Run ID :Run Order: **IC101-H_111005A: 26** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11090404-004AMSD** Method: **E300.0**

Analysis Date: **10/05/11 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
Chloride	48	1.0	50		95	90	110	47.1	0.9	20	
Sulfate	190	1.1	200	0.204	95	90	110	189.6	0.6	20	

Associated samples: **H11090404-001A; H11090404-002A; H11090404-003A; H11090404-004A; H11090404-005A; H11090404-006A; H11090404-007A; H11090404-008A; H11090404-009A**

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

Workorder Receipt Checklist

H11090404

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 9/23/2011

Reviewed by: BL2000\ablackburn
Received by: elm

Reviewed Date: 9/28/2011
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:	6.0°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 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	Alan Drasbach, Jackie Janoski
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 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	VBMC Groundwater	SEE ATTACHED
1 VBMCTDMW05	9/22/11	0750	W	X	X
2 VBMCTDMW4D		1020			
3 VBMCTDMW06		1030			
4 VBMCTDMW07		1203			
5 VBMCTDMW08		1215			
6 VBMCTDMW3D		1245			
7 VBMCTDMW1		1455			
8 VBMCTDMW2D		1530			
9 VBMCTDMW2S	9/22/11	1555	W	X	X
10			9/22/11 AM		

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 adrasbach@portageinc.com

40-5135

Shipped by: HAND

Cooler ID(s): 4

Receipt Temp 6.0 °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 H1190404

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Drasbach	9/23/11 1135				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Esther Merritt	Date/Time: 9-23-11 11:35	Signature: Esther Merritt

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

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.

Quotation for Analytical Services # H645

Company:	MT DEQ-Site Response	Submitted By:	
Contact:	Shellie Haaland	Project:	UBMC
Address:	PO Box 200901	TAT:	10 Working days
	Helena, MT 59620-0901	QC Level:	STD
Phone:	(406) 841-5033 Fax:	Quote Date:	30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	**UBMC Surface Water**						
	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$145.00	1	$145.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$320.00**		
			Schedule Total:				**$320.00**
Schedule:	**UBMC Ground Water**						
Aqueous	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$270.00**		
			Schedule Total:				**$270.00**
	No Alkalinity or Acidity						
Schedule:	**UBMC Surface Water Section 35 Baseline**						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

ANALYTICAL SUMMARY REPORT

December 27, 2011

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

Workorder No.: H11120149 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water

Energy Laboratories Inc Helena MT received the following 17 samples for MT DEQ-Site Response on 12/12/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11120149-001	UBMCBRSW25	12/11/11 8:30	12/12/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11120149-002	UBMCBRSW38	12/11/11 9:00	12/12/11	Surface Water	Same As Above
H11120149-003	UBMCBRSW48	12/11/11 10:40	12/12/11	Surface Water	Same As Above
H11120149-004	UBMCBRSW23	12/11/11 11:05	12/12/11	Surface Water	Same As Above
H11120149-005	UBMCBRSW3A	12/11/11 11:35	12/12/11	Surface Water	Same As Above
H11120149-006	UBMCBRSW3B	12/11/11 11:55	12/12/11	Surface Water	Same As Above
H11120149-007	UBMCBRSW22	12/11/11 13:30	12/12/11	Surface Water	Same As Above
H11120149-008	UBMCBRSW24	12/11/11 13:35	12/12/11	Surface Water	Same As Above
H11120149-009	UBMCBRSW1	12/11/11 14:20	12/12/11	Surface Water	Same As Above
H11120149-010	UBMCBRSD38	12/11/11 9:00	12/12/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11120149-011	UBMCBRSD48	12/11/11 10:40	12/12/11	Sediment	Same As Above
H11120149-012	UBMCBRSD23	12/11/11 11:05	12/12/11	Sediment	Same As Above
H11120149-013	UBMCBRSD3A	12/11/11 11:35	12/12/11	Sediment	Same As Above
H11120149-014	UBMCBRSD3B	12/11/11 11:55	12/12/11	Sediment	Same As Above
H11120149-015	UBMCBRSD22	12/11/11 13:30	12/12/11	Sediment	Same As Above
H11120149-016	UBMCBRSD24	12/11/11 13:35	12/12/11	Sediment	Same As Above
H11120149-017	UBMCBRSD1	12/11/11 14:20	12/12/11	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.

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 UBMCBRSW25
Lab ID: H11120149-001
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 08:30 **DateReceived:** 12/12/11
Report Date: 12/27/11

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	12/12/11 17:42 / cmm		MAN-TECH_111212B	13	R76690
Conductivity	1	umhos/cm		1		A2510 B	12/12/11 11:31 / zeg		COND_111212A	2	111212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:31 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	3	15073
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/12/11 15:01 / cmm	12/12/11 14:42	J-124 (14410200)_111212B	5	15075
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/12/11 17:42 / cmm		MAN-TECH_111212B	12	R76690
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/12/11 17:42 / cmm		MAN-TECH_111212B	12	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 17:42 / cmm		MAN-TECH_111212B	12	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 19:11 / zeg		IC102-H_111212A	37	R76698
Sulfate	ND	mg/L		1		E300.0	12/12/11 19:11 / zeg		IC102-H_111212A	37	R76698
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	1	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:08 / sld		ICP2-HE_111213A	15	R76725
Calcium	ND	mg/L		1		E200.7	12/13/11 12:08 / sld		ICP2-HE_111213A	15	R76725
Magnesium	ND	mg/L		1		E200.7	12/13/11 12:08 / sld		ICP2-HE_111213A	15	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:08 / sld		ICP2-HE_111213A	15	R76725
Sodium	ND	mg/L		1		E200.7	12/13/11 12:08 / sld		ICP2-HE_111213A	15	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 17:43 / dck		ICPMS204-B_111214A	57	R76786
Cadmium	ND	mg/L		0.00008		E200.8	12/14/11 17:43 / dck		ICPMS204-B_111214A	57	R76786
Copper	ND	mg/L		0.001		E200.8	12/14/11 17:43 / dck		ICPMS204-B_111214A	57	R76786
Iron	ND	mg/L		0.03		E200.8	12/14/11 17:43 / dck		ICPMS204-B_111214A	57	R76786
Lead	ND	mg/L		0.0005		E200.8	12/14/11 17:43 / dck		ICPMS204-B_111214A	57	R76786
Manganese	ND	mg/L		0.005		E200.8	12/14/11 17:43 / dck		ICPMS204-B_111214A	57	R76786
Zinc	ND	mg/L		0.01		E200.8	12/14/11 17:43 / dck		ICPMS204-B_111214A	57	R76786

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: H11120149-002
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 09:00 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	12/12/11 17:49 / cmm		MAN-TECH_111212B	15	R76690
Conductivity	317	umhos/cm		1		A2510 B	12/12/11 11:32 / zeg		COND_111212A	2	211212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:31 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	4	15073
Solids, Total Dissolved TDS @ 180 C	206	mg/L		10		A2540 C	12/12/11 15:01 / cmm	12/12/11 14:42	J-124 (14410200)_111212B	6	15075
INORGANICS											
Alkalinity, Total as CaCO3	82	mg/L		4		A2320 B	12/12/11 17:49 / cmm		MAN-TECH_111212B	14	R76690
Bicarbonate as HCO3	100	mg/L		4		A2320 B	12/12/11 17:49 / cmm		MAN-TECH_111212B	14	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 17:49 / cmm		MAN-TECH_111212B	14	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 19:25 / zeg		IC102-H_111212A	38	R76698
Sulfate	79	mg/L		1		E300.0	12/12/11 19:25 / zeg		IC102-H_111212A	38	R76698
Hardness as CaCO3	150	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	2	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A	21	R76725
Calcium	32	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A	21	R76725
Magnesium	17	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A	21	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A	21	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A	21	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A	65	R76786
Cadmium	0.00467	mg/L		0.00008		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A	65	R76786
Copper	0.004	mg/L		0.001		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A	65	R76786
Iron	0.17	mg/L		0.03		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A	65	R76786
Lead	0.0065	mg/L		0.0005		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A	65	R76786
Manganese	0.775	mg/L		0.005		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A	65	R76786
Zinc	1.22	mg/L		0.01		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A	65	R76786

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: H11120149-003
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 10:40 **DateReceived:** 12/12/11
Report Date: 12/27/11

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	12/12/11 17:56 / cmm		MAN-TECH_111212B	17	R76690
Conductivity	301	umhos/cm		1		A2510 B	12/12/11 11:33 / zeg		COND_111212A	2	311212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:31 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	5	15073
Solids, Total Dissolved TDS @ 180 C	202	mg/L		10		A2540 C	12/12/11 15:01 / cmm	12/12/11 14:42	J-124 (14410200)_111212B	7	15075
INORGANICS											
Alkalinity, Total as CaCO3	98	mg/L		4		A2320 B	12/12/11 17:56 / cmm		MAN-TECH_111212B	16	R76690
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/12/11 17:56 / cmm		MAN-TECH_111212B	16	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 17:56 / cmm		MAN-TECH_111212B	16	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 19:38 / zeg		IC102-H_111212A	39	R76698
Sulfate	64	mg/L		1		E300.0	12/12/11 19:38 / zeg		IC102-H_111212A	39	R76698
Hardness as CaCO3	151	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	3	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Calcium	31	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Magnesium	18	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Cadmium	0.00296	mg/L		0.00008		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Copper	0.009	mg/L		0.001		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Iron	0.80	mg/L		0.03		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Lead	0.0191	mg/L		0.0005		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Manganese	1.41	mg/L		0.005		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Zinc	0.80	mg/L		0.01		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786

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: H11120149-004
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 11:05 **DateReceived:** 12/12/11
Report Date: 12/27/11

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	12/12/11 18:03 / cmm		MAN-TECH_111212B	19	R76690
Conductivity	291	umhos/cm		1		A2510 B	12/12/11 11:34 / zeg		COND_111212A	2	411212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:31 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	6	15073
Solids, Total Dissolved TDS @ 180 C	182	mg/L		10		A2540 C	12/12/11 15:02 / cmm	12/12/11 14:42	J-124 (14410200)_111212B	8	15075
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/12/11 18:03 / cmm		MAN-TECH_111212B	18	R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:03 / cmm		MAN-TECH_111212B	18	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:03 / cmm		MAN-TECH_111212B	18	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 20:19 / zeg		IC102-H_111212A	42	R76698
Sulfate	50	mg/L		1		E300.0	12/12/11 20:19 / zeg		IC102-H_111212A	42	R76698
Hardness as CaCO3	141	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	4	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A	23	R76725
Calcium	29	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A	23	R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A	23	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A	23	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A	23	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A	67	R76786
Cadmium	0.00175	mg/L		0.00008		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A	67	R76786
Copper	0.005	mg/L		0.001		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A	67	R76786
Iron	0.11	mg/L		0.03		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A	67	R76786
Lead	0.0073	mg/L		0.0005		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A	67	R76786
Manganese	0.553	mg/L		0.005		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A	67	R76786
Zinc	0.56	mg/L		0.01		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A	67	R76786

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: H11120149-005
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 11:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

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	12/12/11 18:18 / cmm		MAN-TECH_111212B	23	R76690
Conductivity	299	umhos/cm		1		A2510 B	12/12/11 11:35 / zeg		COND_111212A	2	511212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	7	15073
Solids, Total Dissolved TDS @ 180 C	204	mg/L		10		A2540 C	12/12/11 15:02 / cmm	12/12/11 14:42	J-124 (14410200)_111212B	9	15075
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/12/11 18:18 / cmm		MAN-TECH_111212B	22	R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:18 / cmm		MAN-TECH_111212B	22	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:18 / cmm		MAN-TECH_111212B	22	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 20:33 / zeg		IC102-H_111212A	43	R76698
Sulfate	55	mg/L		1		E300.0	12/12/11 20:33 / zeg		IC102-H_111212A	43	R76698
Hardness as CaCO3	155	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	5	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Calcium	34	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Magnesium	17	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Cadmium	0.00083	mg/L		0.00008		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Copper	0.001	mg/L		0.001		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Iron	0.08	mg/L		0.03		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Lead	0.0023	mg/L		0.0005		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Manganese	0.595	mg/L		0.005		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Zinc	0.48	mg/L		0.01		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786

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: H11120149-006
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 11:55 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	12/12/11 18:24 / cmm		MAN-TECH_111212B	25	R76690
Conductivity	301	umhos/cm		1		A2510 B	12/12/11 11:35 / zeg		COND_111212A	2611212A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	8	15073
Solids, Total Dissolved TDS @ 180 C	192	mg/L		10		A2540 C	12/12/11 15:02 / cmm	12/12/11 14:42	-124 (14410200)_111212B	10	15075
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/12/11 18:24 / cmm		MAN-TECH_111212B	24	R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:24 / cmm		MAN-TECH_111212B	24	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:24 / cmm		MAN-TECH_111212B	24	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 20:46 / zeg		IC102-H_111212A	44	R76698
Sulfate	51	mg/L		1		E300.0	12/12/11 20:46 / zeg		IC102-H_111212A	44	R76698
Hardness as CaCO3	150	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	6	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A	25	R76725
Calcium	33	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A	25	R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A	25	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A	25	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A	25	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A	78	15103
Cadmium	0.00080	mg/L		0.00008		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A	78	15103
Copper	0.004	mg/L		0.001		E200.8	12/20/11 16:41 / dck	12/13/11 11:08	ICPMS204-B_111220A	90	15103
Iron	0.31	mg/L		0.03		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A	78	15103
Lead	0.0115	mg/L		0.0005		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A	78	15103
Manganese	0.303	mg/L		0.005		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A	78	15103
Zinc	0.49	mg/L		0.01		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A	78	15103

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: H11120149-007
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 13:30 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	12/12/11 18:31 / cmm		MAN-TECH_111212B	27	R76690
Conductivity	400	umhos/cm		1		A2510 B	12/12/11 11:37 / zeg		COND_111212A	2711212A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	9	15073
Solids, Total Dissolved TDS @ 180 C	280	mg/L		10		A2540 C	12/12/11 15:03 / cmm	12/12/11 14:42	-124 (14410200)_111212B	11	15075
INORGANICS											
Alkalinity, Total as CaCO3	87	mg/L		4		A2320 B	12/12/11 18:31 / cmm		MAN-TECH_111212B	26	R76690
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/12/11 18:31 / cmm		MAN-TECH_111212B	26	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:31 / cmm		MAN-TECH_111212B	26	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 21:00 / zeg		IC102-H_111212A	45	R76698
Sulfate	120	mg/L		1		E300.0	12/12/11 21:00 / zeg		IC102-H_111212A	45	R76698
Hardness as CaCO3	199	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	7	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Calcium	53	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Cadmium	0.00958	mg/L		0.00008		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Copper	0.018	mg/L		0.001		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Iron	ND	mg/L		0.03		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Lead	0.0054	mg/L		0.0005		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Manganese	ND	mg/L		0.005		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Zinc	2.11	mg/L		0.01		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786

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: H11120149-008
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 13:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	12/12/11 18:38 / cmm		MAN-TECH_111212B	29	R76690
Conductivity	402	umhos/cm		1		A2510 B	12/12/11 11:38 / zeg		COND_111212A	2811212A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	-124 (14410200)_111212A	10	15073
Solids, Total Dissolved TDS @ 180 C	278	mg/L		10		A2540 C	12/12/11 15:03 / cmm	12/12/11 14:42	-124 (14410200)_111212B	12	15075
INORGANICS											
Alkalinity, Total as CaCO3	87	mg/L		4		A2320 B	12/12/11 18:38 / cmm		MAN-TECH_111212B	28	R76690
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/12/11 18:38 / cmm		MAN-TECH_111212B	28	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:38 / cmm		MAN-TECH_111212B	28	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 21:14 / zeg		IC102-H_111212A	46	R76698
Sulfate	120	mg/L		1		E300.0	12/12/11 21:14 / zeg		IC102-H_111212A	46	R76698
Hardness as CaCO3	200	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	8	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A	27	R76725
Calcium	53	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A	27	R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A	27	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A	27	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A	27	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A	84	R76786
Cadmium	0.00964	mg/L		0.00008		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A	84	R76786
Copper	0.018	mg/L		0.001		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A	84	R76786
Iron	ND	mg/L		0.03		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A	84	R76786
Lead	0.0054	mg/L		0.0005		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A	84	R76786
Manganese	ND	mg/L		0.005		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A	84	R76786
Zinc	2.13	mg/L		0.01		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A	84	R76786

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 UBMCBRSW1
Lab ID: H11120149-009
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 14:20
DateReceived: 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u.		0.1		A4500-H B	12/12/11 18:45 / cmm		MAN-TECH_111212B	31	R76690
Conductivity	190	umhos/cm		1		A2510 B	12/12/11 11:39 / zeg		COND_111212A	2911212A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:33 / cmm	12/12/11 14:34	-124 (14410200)_111212A	12	15073
Solids, Total Dissolved TDS @ 180 C	110	mg/L		10		A2540 C	12/12/11 15:03 / cmm	12/12/11 14:42	-124 (14410200)_111212B	14	15075
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/12/11 18:45 / cmm		MAN-TECH_111212B	30	R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:45 / cmm		MAN-TECH_111212B	30	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:45 / cmm		MAN-TECH_111212B	30	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 21:27 / zeg		IC102-H_111212A	47	R76698
Sulfate	5	mg/L		1		E300.0	12/12/11 21:27 / zeg		IC102-H_111212A	47	R76698
Hardness as CaCO3	101	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	9	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A	28	R76725
Calcium	21	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A	28	R76725
Magnesium	12	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A	28	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A	28	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A	28	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A	85	15103
Cadmium	ND	mg/L		0.00008		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A	85	15103
Copper	ND	mg/L		0.001		E200.8	12/20/11 16:48 / dck	12/13/11 11:08	ICPMS204-B_111220A	91	15103
Iron	0.08	mg/L		0.03		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A	85	15103
Lead	ND	mg/L		0.0005		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A	85	15103
Manganese	0.006	mg/L		0.005		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A	85	15103
Zinc	ND	mg/L		0.01		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A	85	15103

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: H11120149-010
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 09:00 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6830	mg/kg		5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Arsenic	32	mg/kg		5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Cadmium	10	mg/kg		1		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Copper	258	mg/kg		5		SW6010B	12/16/11 17:49 / sld	12/13/11 14:15	ICP2-HE_111216B : 84		15107
Iron	25200	mg/kg		5		SW6010B	12/16/11 17:49 / sld	12/13/11 14:15	ICP2-HE_111216B : 84		15107
Lead	950	mg/kg		5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Manganese	1930	mg/kg		5		SW6010B	12/16/11 17:49 / sld	12/13/11 14:15	ICP2-HE_111216B : 84		15107
Zinc	2050	mg/kg		5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107

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: H11120149-011
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 10:40 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7140	mg/kg		5		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107
Arsenic	115	mg/kg		5		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107
Cadmium	52	mg/kg		1		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107
Copper	2850	mg/kg		5		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Iron	65800	mg/kg	D	8		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Lead	15200	mg/kg	D	20		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Manganese	4190	mg/kg		5		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Zinc	9060	mg/kg		5		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107

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 UBMCBRSD23
Lab ID: H11120149-012
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 11:05 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6760	mg/kg		5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Arsenic	52	mg/kg		5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Cadmium	16	mg/kg		1		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Copper	2430	mg/kg		5		SW6010B	12/16/11 18:04 / sld	12/13/11 14:15	ICP2-HE_111216B : 88		15107
Iron	41400	mg/kg		5		SW6010B	12/16/11 18:04 / sld	12/13/11 14:15	ICP2-HE_111216B : 88		15107
Lead	2890	mg/kg		5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Manganese	6200	mg/kg		5		SW6010B	12/16/11 18:04 / sld	12/13/11 14:15	ICP2-HE_111216B : 88		15107
Zinc	3300	mg/kg		5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107

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: H11120149-013
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 11:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4150	mg/kg		5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Arsenic	33	mg/kg		5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Cadmium	40	mg/kg		1		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Copper	471	mg/kg		5		SW6010B	12/16/11 18:08 / sld	12/13/11 14:15	ICP2-HE_111216B : 89		15107
Iron	15600	mg/kg		5		SW6010B	12/16/11 18:08 / sld	12/13/11 14:15	ICP2-HE_111216B : 89		15107
Lead	400	mg/kg		5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Manganese	10900	mg/kg		5		SW6010B	12/16/11 18:08 / sld	12/13/11 14:15	ICP2-HE_111216B : 89		15107
Zinc	2880	mg/kg		5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107

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: H11120149-014
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 11:55 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4830	mg/kg		5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Arsenic	65	mg/kg		5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Cadmium	7	mg/kg		1		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Copper	244	mg/kg		5		SW6010B	12/16/11 18:11 / sld	12/13/11 14:15	ICP2-HE_111216B : 90		15107
Iron	36500	mg/kg		5		SW6010B	12/16/11 18:11 / sld	12/13/11 14:15	ICP2-HE_111216B : 90		15107
Lead	333	mg/kg		5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Manganese	5300	mg/kg		5		SW6010B	12/16/11 18:11 / sld	12/13/11 14:15	ICP2-HE_111216B : 90		15107
Zinc	1380	mg/kg		5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107

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: H11120149-015
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 13:30 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	9130	mg/kg		5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Arsenic	49	mg/kg		5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Cadmium	31	mg/kg		1		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Copper	905	mg/kg		5		SW6010B	12/16/11 18:15 / sld	12/13/11 14:15	ICP2-HE_111216B : 91		15107
Iron	32800	mg/kg		5		SW6010B	12/16/11 18:15 / sld	12/13/11 14:15	ICP2-HE_111216B : 91		15107
Lead	2320	mg/kg		5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Manganese	9280	mg/kg		5		SW6010B	12/16/11 18:15 / sld	12/13/11 14:15	ICP2-HE_111216B : 91		15107
Zinc	4420	mg/kg		5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107

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: H11120149-016
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 13:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8800	mg/kg		5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Arsenic	27	mg/kg		5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Cadmium	26	mg/kg		1		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Copper	642	mg/kg		5		SW6010B	12/16/11 18:18 / sld	12/13/11 14:15	ICP2-HE_111216B : 92		15107
Iron	22800	mg/kg		5		SW6010B	12/16/11 18:18 / sld	12/13/11 14:15	ICP2-HE_111216B : 92		15107
Lead	1480	mg/kg		5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Manganese	8390	mg/kg		5		SW6010B	12/16/11 18:18 / sld	12/13/11 14:15	ICP2-HE_111216B : 92		15107
Zinc	3390	mg/kg		5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107

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 UBMCBRSD1
Lab ID: H11120149-017
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 14:20 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6890	mg/kg		5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Arsenic	11	mg/kg		5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Cadmium	ND	mg/kg		1		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Copper	11	mg/kg		5		SW6010B	12/16/11 18:22 / sld	12/13/11 14:15	ICP2-HE_111216B : 93		15107
Iron	14100	mg/kg		5		SW6010B	12/16/11 18:22 / sld	12/13/11 14:15	ICP2-HE_111216B : 93		15107
Lead	19	mg/kg		5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Manganese	257	mg/kg		5		SW6010B	12/16/11 18:22 / sld	12/13/11 14:15	ICP2-HE_111216B : 93		15107
Zinc	69	mg/kg		5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107

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

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R76690
Sample ID: MBLK		Method Blank				Run: MAN-TECH_111212B			12/12/11 17:29	
Alkalinity, Total as CaCO3		ND	mg/L	2						
Sample ID: LCS-11282011		Laboratory Control Sample				Run: MAN-TECH_111212B			12/12/11 17:37	
Alkalinity, Total as CaCO3		610	mg/L	4.0	102	90	110			
Sample ID: H11120149-004ADUP	3	Sample Duplicate				Run: MAN-TECH_111212B			12/12/11 18:11	
Alkalinity, Total as CaCO3		100	mg/L	4.0				0.4	10	
Bicarbonate as HCO3		130	mg/L	4.0				0.4	10	
Carbonate as CO3		ND	mg/L	4.0					10	
Sample ID: H11120150-003AMS		Sample Matrix Spike				Run: MAN-TECH_111212B			12/12/11 19:15	
Alkalinity, Total as CaCO3		670	mg/L	4.0	93	80	120			
Sample ID: H11120150-006ADUP	3	Sample Duplicate				Run: MAN-TECH_111212B			12/12/11 19:42	
Alkalinity, Total as CaCO3		76	mg/L	4.0				0.3	10	
Bicarbonate as HCO3		92	mg/L	4.0				0.2	10	
Carbonate as CO3		ND	mg/L	4.0					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B									Analytical Run: COND_111212A	
Sample ID: ICV1_111212A	Initial Calibration Verification Standard								12/12/11 09:18	
Conductivity		1010	umhos/cm	1.0	101	90	110			
Method: A2510 B									Batch: 111212A-COND-PROBE-W	
Sample ID: H11120145-011ADUP	Sample Duplicate					Run: COND_111212A			12/12/11 09:33	
Conductivity		3.97	umhos/cm	1.0				7.2	10	
Sample ID: H11120150-004ADUP	Sample Duplicate					Run: COND_111212A			12/12/11 11:43	
Conductivity		133	umhos/cm	1.0				0.5	10	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 15075
Sample ID: MB-15075		Method Blank				Run: ACCU-124 (14410200)_111212				12/12/11 14:59
Solids, Total Dissolved TDS @ 180 C		4	mg/L	3						
Sample ID: LCS-15075		Laboratory Control Sample				Run: ACCU-124 (14410200)_111212				12/12/11 15:00
Solids, Total Dissolved TDS @ 180 C		2130	mg/L	10	106	90	110			
Sample ID: H11120149-008ADUP		Sample Duplicate				Run: ACCU-124 (14410200)_111212				12/12/11 15:03
Solids, Total Dissolved TDS @ 180 C		282	mg/L	10				1.4	5	
Sample ID: H11120150-004AMS		Sample Matrix Spike				Run: ACCU-124 (14410200)_111212				12/12/11 15:07
Solids, Total Dissolved TDS @ 180 C		2190	mg/L	10	105	80	120			
Sample ID: H11120156-004ADUP		Sample Duplicate				Run: ACCU-124 (14410200)_111212				12/12/11 15:08
Solids, Total Dissolved TDS @ 180 C		218	mg/L	10					5	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D										Batch: 15073
Sample ID: MB-15073		Method Blank				Run: ACCU-124 (14410200)_111212				12/12/11 15:30
Solids, Total Suspended TSS @ 105 C		ND	mg/L	3						
Sample ID: LCS-15073		Laboratory Control Sample				Run: ACCU-124 (14410200)_111212				12/12/11 15:31
Solids, Total Suspended TSS @ 105 C		1690	mg/L	10	85	70	130			
Sample ID: H11120149-008ADUP		Sample Duplicate				Run: ACCU-124 (14410200)_111212				12/12/11 15:33
Solids, Total Suspended TSS @ 105 C		ND	mg/L	10					5	
Sample ID: H11120156-008ADUP		Sample Duplicate				Run: ACCU-124 (14410200)_111212				12/12/11 15:37
Solids, Total Suspended TSS @ 105 C		4.00	mg/L	10					5	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B									Analytical Run: MAN-TECH_111212B	
Sample ID: CCV1-2199		Continuing Calibration Verification Standard							12/12/11 17:11	
pH		3.94	s.u.	0.10	99	97	103			
Sample ID: CCV-2290		Continuing Calibration Verification Standard							12/12/11 17:14	
pH		7.02	s.u.	0.10	100	98	102			
Sample ID: ICV-2326		Initial Calibration Verification Standard							12/12/11 17:20	
pH		7.02	s.u.	0.10	100	98	102			
Method: A4500-H B									Batch: R76690	
Sample ID: CCV3-2326		Continuing Calibration Verification Standard				Run: MAN-TECH_111212B			12/12/11 17:17	
pH		10.0	s.u.	0.10	101	99	101			
Sample ID: H11120149-004ADUP		Sample Duplicate				Run: MAN-TECH_111212B			12/12/11 18:11	
pH		8.05	s.u.	0.10				0.0	3	
Sample ID: H11120150-006ADUP		Sample Duplicate				Run: MAN-TECH_111212B			12/12/11 19:42	
pH		8.06	s.u.	0.10				0.0	3	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP2-HE_111213A	
Sample ID: ICV	5	Initial Calibration Verification Standard							12/13/11 11:34	
Aluminum		4.07	mg/L	0.10	102	95	105			
Calcium		39.8	mg/L	1.0	100	95	105			
Magnesium		39.4	mg/L	1.0	98	95	105			
Potassium		39.2	mg/L	1.0	98	95	105			
Sodium		39.4	mg/L	1.0	99	95	105			
Sample ID: CCV-1	5	Continuing Calibration Verification Standard							12/13/11 11:38	
Aluminum		2.53	mg/L	0.10	101	95	105			
Calcium		24.6	mg/L	1.0	98	95	105			
Magnesium		24.2	mg/L	1.0	97	95	105			
Potassium		23.8	mg/L	1.0	95	95	105			
Sodium		23.9	mg/L	1.0	95	95	105			
Sample ID: ICSA	5	Interference Check Sample A							12/13/11 11:49	
Aluminum		515	mg/L	0.10	103	80	120			
Calcium		456	mg/L	1.0	91	80	120			
Magnesium		476	mg/L	1.0	95	80	120			
Potassium		-0.00395	mg/L	1.0		0	0			
Sodium		0.0891	mg/L	1.0		0	0			
Sample ID: ICSAB	5	Interference Check Sample AB							12/13/11 11:53	
Aluminum		516	mg/L	0.10	103	80	120			
Calcium		463	mg/L	1.0	93	80	120			
Magnesium		479	mg/L	1.0	96	80	120			
Potassium		20.3	mg/L	1.0	101	80	120			
Sodium		20.2	mg/L	1.0	101	80	120			
Sample ID: CCV	5	Continuing Calibration Verification Standard							12/13/11 12:23	
Aluminum		2.54	mg/L	0.10	102	90	110			
Calcium		24.4	mg/L	1.0	97	90	110			
Magnesium		23.0	mg/L	1.0	92	90	110			
Potassium		22.7	mg/L	1.0	91	90	110			
Sodium		22.9	mg/L	1.0	92	90	110			
Method: E200.7									Batch: R76725	
Sample ID: ICB	5	Method Blank				Run: ICP2-HE_111213A			12/13/11 12:01	
Aluminum		ND	mg/L	0.002						
Calcium		0.03	mg/L	0.008						
Magnesium		ND	mg/L	0.003						
Potassium		ND	mg/L	0.04						
Sodium		0.05	mg/L	0.01						
Sample ID: LFB	5	Laboratory Fortified Blank				Run: ICP2-HE_111213A			12/13/11 12:05	
Aluminum		4.80	mg/L	0.10	96	85	115			
Calcium		46.4	mg/L	1.0	93	85	115			
Magnesium		43.8	mg/L	1.0	88	85	115			

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: R76725
Sample ID: LFB	5	Laboratory Fortified Blank				Run: ICP2-HE_111213A			12/13/11 12:05	
Potassium		44.5	mg/L	1.0	89	85	115			
Sodium		45.2	mg/L	1.0	90	85	115			
Sample ID: H11120149-001BMS2	5	Sample Matrix Spike				Run: ICP2-HE_111213A			12/13/11 12:16	
Aluminum		4.71	mg/L	0.10	94	70	130			
Calcium		48.3	mg/L	1.0	97	70	130			
Magnesium		45.8	mg/L	1.0	92	70	130			
Potassium		45.5	mg/L	1.0	91	70	130			
Sodium		46.2	mg/L	1.0	92	70	130			
Sample ID: H11120149-001BMSD2	5	Sample Matrix Spike Duplicate				Run: ICP2-HE_111213A			12/13/11 12:19	
Aluminum		4.67	mg/L	0.10	93	70	130	0.9	20	
Calcium		48.2	mg/L	1.0	96	70	130	0.3	20	
Magnesium		45.6	mg/L	1.0	91	70	130	0.2	20	
Potassium		45.5	mg/L	1.0	91	70	130	0.0	20	
Sodium		46.1	mg/L	1.0	92	70	130	0.1	20	
Sample ID: H11120150-002BMS2	5	Sample Matrix Spike				Run: ICP2-HE_111213A			12/13/11 13:18	
Aluminum		4.67	mg/L	0.10	93	70	130			
Calcium		73.5	mg/L	1.0	97	70	130			
Magnesium		53.1	mg/L	1.0	91	70	130			
Potassium		47.1	mg/L	1.0	93	70	130			
Sodium		49.2	mg/L	1.0	94	70	130			
Sample ID: H11120150-002BMSD2	5	Sample Matrix Spike Duplicate				Run: ICP2-HE_111213A			12/13/11 13:22	
Aluminum		4.66	mg/L	0.10	93	70	130	0.1	20	
Calcium		73.5	mg/L	1.0	97	70	130	0.0	20	
Magnesium		53.2	mg/L	1.0	91	70	130	0.1	20	
Potassium		46.4	mg/L	1.0	91	70	130	1.5	20	
Sodium		48.5	mg/L	1.0	93	70	130	1.4	20	

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_111215B		
Sample ID: ICV	5	Initial Calibration Verification Standard							12/15/11 13:33	
Aluminum		4.08	mg/L	0.10	102	90	110			
Arsenic		0.783	mg/L	0.0074	98	90	110			
Cadmium		0.392	mg/L	0.0010	98	90	110			
Lead		0.785	mg/L	0.013	98	90	110			
Zinc		0.785	mg/L	0.010	98	90	110			
Sample ID: ICSA	5	Interference Check Sample A							12/15/11 13:47	
Aluminum		517	mg/L	0.10	103	80	120			
Arsenic		-0.00304	mg/L	0.0074		0	0			
Cadmium		-0.00375	mg/L	0.0010		0	0			
Lead		0.0428	mg/L	0.013		0	0			
Zinc		0.00288	mg/L	0.010		0	0			
Sample ID: ICSAB	5	Interference Check Sample AB							12/15/11 13:51	
Aluminum		520	mg/L	0.10	104	80	120			
Arsenic		1.04	mg/L	0.0074	104	80	120			
Cadmium		0.906	mg/L	0.0010	91	80	120			
Lead		0.945	mg/L	0.013	94	80	120			
Zinc		0.993	mg/L	0.010	99	80	120			
Method: E200.7								Analytical Run: ICP2-HE_111216B		
Sample ID: ICV	4	Initial Calibration Verification Standard							12/16/11 12:05	
Copper		0.809	mg/L	0.010	101	90	110			
Iron		4.01	mg/L	0.030	100	90	110			
Lead		0.774	mg/L	0.013	97	90	110			
Manganese		4.03	mg/L	0.010	101	90	110			
Sample ID: ICSA	4	Interference Check Sample A							12/16/11 12:19	
Copper		0.00164	mg/L	0.010		0	0			
Iron		189	mg/L	0.030	95	80	120			
Lead		0.0350	mg/L	0.013		0	0			
Manganese		-0.0112	mg/L	0.010		0	0			
Sample ID: ICSAB	4	Interference Check Sample AB							12/16/11 12:23	
Copper		0.513	mg/L	0.010	103	80	120			
Iron		190	mg/L	0.030	95	80	120			
Lead		0.937	mg/L	0.013	94	80	120			
Manganese		0.467	mg/L	0.010	93	80	120			

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QA/QC Summary Report

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Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_111214A		
Sample ID: ICV STD	7	Initial Calibration Verification Standard							12/14/11 10:56	
Arsenic		0.0515	mg/L	0.0050	103	90	110			
Cadmium		0.0272	mg/L	0.0010	109	90	110			
Copper		0.0537	mg/L	0.010	107	90	110			
Iron		0.258	mg/L	0.030	103	90	110			
Lead		0.0514	mg/L	0.010	103	90	110			
Manganese		0.264	mg/L	0.010	106	90	110			
Zinc		0.0545	mg/L	0.010	109	90	110			
Sample ID: ICSA	7	Interference Check Sample A							12/14/11 11:02	
Arsenic		4.90E-05	mg/L	0.0050						
Cadmium		0.000841	mg/L	0.0010						
Copper		0.000528	mg/L	0.010						
Iron		96.7	mg/L	0.030	97	70	130			
Lead		0.000123	mg/L	0.010						
Manganese		0.000144	mg/L	0.010						
Zinc		0.00117	mg/L	0.010						
Sample ID: ICSAB	7	Interference Check Sample AB							12/14/11 11:09	
Arsenic		0.0104	mg/L	0.0050	104	70	130			
Cadmium		0.0106	mg/L	0.0010	106	70	130			
Copper		0.0203	mg/L	0.010	102	70	130			
Iron		100	mg/L	0.030	100	70	130			
Lead		0.000128	mg/L	0.010		0	0			
Manganese		0.0201	mg/L	0.010	100	70	130			
Zinc		0.0112	mg/L	0.010	113	70	130			
Sample ID: ICV STD	7	Initial Calibration Verification Standard							12/14/11 23:47	
Arsenic		0.0510	mg/L	0.0050	102	90	110			
Cadmium		0.0271	mg/L	0.0010	108	90	110			
Copper		0.0537	mg/L	0.010	107	90	110			
Iron		0.255	mg/L	0.030	102	90	110			
Lead		0.0524	mg/L	0.010	105	90	110			
Manganese		0.271	mg/L	0.010	108	90	110			
Zinc		0.0534	mg/L	0.010	107	90	110			
Sample ID: ICSA	7	Interference Check Sample A							12/14/11 23:54	
Arsenic		5.90E-05	mg/L	0.0050						
Cadmium		0.000778	mg/L	0.0010						
Copper		0.000396	mg/L	0.010						
Iron		95.6	mg/L	0.030	96	70	130			
Lead		0.000128	mg/L	0.010						
Manganese		7.60E-05	mg/L	0.010						
Zinc		0.00117	mg/L	0.010						
Sample ID: ICSAB	7	Interference Check Sample AB							12/15/11 00:00	
Arsenic		0.0104	mg/L	0.0050	104	70	130			

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QA/QC Summary Report

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Client: MT DEQ-Site Response **Report Date:** 12/30/11

Project: UBMC Surface Water **Work Order:** H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_111214A		
Sample ID: ICSAB	7	Interference Check Sample AB							12/15/11 00:00	
Cadmium		0.0105	mg/L	0.0010	105	70	130			
Copper		0.0204	mg/L	0.010	102	70	130			
Iron		101	mg/L	0.030	101	70	130			
Lead		0.000124	mg/L	0.010		0	0			
Manganese		0.0198	mg/L	0.010	99	70	130			
Zinc		0.0111	mg/L	0.010	111	70	130			
Sample ID: ICSA	7	Interference Check Sample A							12/15/11 14:57	
Arsenic		5.70E-05	mg/L	0.0050						
Cadmium		0.000794	mg/L	0.0010						
Copper		0.000136	mg/L	0.010						
Iron		96.5	mg/L	0.030	96	70	130			
Lead		0.000114	mg/L	0.010						
Manganese		6.00E-06	mg/L	0.010						
Zinc		0.00114	mg/L	0.010						
Sample ID: ICSAB	7	Interference Check Sample AB							12/15/11 15:04	
Arsenic		0.0108	mg/L	0.0050	107	70	130			
Cadmium		0.0106	mg/L	0.0010	106	70	130			
Copper		0.0204	mg/L	0.010	102	70	130			
Iron		101	mg/L	0.030	101	70	130			
Lead		0.000126	mg/L	0.010		0	0			
Manganese		0.0198	mg/L	0.010	99	70	130			
Zinc		0.0114	mg/L	0.010	114	70	130			
Method: E200.8									Batch: 15103	
Sample ID: MB-15103	7	Method Blank				Run: ICPMS204-B_111214A			12/14/11 19:07	
Arsenic		ND	mg/L	5E-05						
Cadmium		ND	mg/L	2E-05						
Copper		0.001	mg/L	0.0004						
Iron		0.001	mg/L	0.0006						
Lead		ND	mg/L	2E-05						
Manganese		0.0001	mg/L	6E-05						
Zinc		0.001	mg/L	0.0003						
Sample ID: LCS-15103	7	Laboratory Control Sample				Run: ICPMS204-B_111214A			12/14/11 19:14	
Arsenic		0.489	mg/L	0.0050	98	85	115			
Cadmium		0.256	mg/L	0.0010	103	85	115			
Copper		0.488	mg/L	0.010	97	85	115			
Iron		2.50	mg/L	0.030	100	85	115			
Lead		0.509	mg/L	0.010	102	85	115			
Manganese		2.47	mg/L	0.010	99	85	115			
Zinc		0.497	mg/L	0.010	99	85	115			
Sample ID: H11120149-006CMS3	7	Sample Matrix Spike				Run: ICPMS204-B_111214A			12/14/11 20:06	
Arsenic		0.498	mg/L	0.0050	99	70	130			

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response **Report Date:** 12/30/11

Project: UBMC Surface Water **Work Order:** H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 15103
Sample ID: H11120149-006CMS3	7	Sample Matrix Spike				Run: ICPMS204-B_111214A				12/14/11 20:06
Cadmium		0.258	mg/L	0.0010	103	70	130			
Copper		0.493	mg/L	0.010	97	70	130			
Iron		2.81	mg/L	0.030	100	70	130			
Lead		0.531	mg/L	0.010	104	70	130			
Manganese		2.81	mg/L	0.010	100	70	130			
Zinc		0.981	mg/L	0.010	97	70	130			
Sample ID: H11120149-006CMSD3	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_111214A				12/14/11 20:12
Arsenic		0.498	mg/L	0.0050	99	70	130	0.2	20	
Cadmium		0.259	mg/L	0.0010	103	70	130	0.1	20	
Copper		0.494	mg/L	0.010	97	70	130	0.4	20	
Iron		2.84	mg/L	0.030	101	70	130	1.3	20	
Lead		0.526	mg/L	0.010	103	70	130	0.9	20	
Manganese		2.84	mg/L	0.010	102	70	130	1.2	20	
Zinc		0.975	mg/L	0.010	96	70	130	0.6	20	
Method: E200.8										Batch: R76786
Sample ID: ICB	7	Method Blank				Run: ICPMS204-B_111214A				12/14/11 14:18
Arsenic		ND	mg/L	3E-05						
Cadmium		ND	mg/L	1E-05						
Copper		ND	mg/L	3E-05						
Iron		ND	mg/L	0.0002						
Lead		ND	mg/L	1.0E-05						
Manganese		2E-05	mg/L	1E-05						
Zinc		0.0008	mg/L	0.0003						
Sample ID: LFB	7	Laboratory Fortified Blank				Run: ICPMS204-B_111214A				12/14/11 14:25
Arsenic		0.0507	mg/L	0.0050	101	85	115			
Cadmium		0.0490	mg/L	0.0010	98	85	115			
Copper		0.0492	mg/L	0.010	98	85	115			
Iron		5.04	mg/L	0.030	101	85	115			
Lead		0.0505	mg/L	0.010	101	85	115			
Manganese		0.0495	mg/L	0.010	99	85	115			
Zinc		0.0508	mg/L	0.010	100	85	115			
Sample ID: H11120149-001CMS	7	Sample Matrix Spike				Run: ICPMS204-B_111214A				12/14/11 17:49
Arsenic		0.0485	mg/L	0.0050	97	70	130			
Cadmium		0.0470	mg/L	0.0010	94	70	130			
Copper		0.0466	mg/L	0.010	93	70	130			
Iron		4.80	mg/L	0.030	96	70	130			
Lead		0.0485	mg/L	0.010	97	70	130			
Manganese		0.0478	mg/L	0.010	95	70	130			
Zinc		0.0498	mg/L	0.010	98	70	130			
Sample ID: H11120149-001CMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_111214A				12/14/11 17:56
Arsenic		0.0480	mg/L	0.0050	96	70	130	1.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R76786
Sample ID: H11120149-001CMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_111214A				12/14/11 17:56
Cadmium		0.0465	mg/L	0.0010	93	70	130	0.9	20	
Copper		0.0468	mg/L	0.010	94	70	130	0.4	20	
Iron		4.80	mg/L	0.030	96	70	130	0.1	20	
Lead		0.0477	mg/L	0.010	95	70	130	1.6	20	
Manganese		0.0478	mg/L	0.010	95	70	130	0.0	20	
Zinc		0.0489	mg/L	0.010	96	70	130	1.9	20	
Sample ID: H11120150-002CMS	7	Sample Matrix Spike				Run: ICPMS204-B_111214A				12/14/11 21:30
Arsenic		0.0499	mg/L	0.0050	99	70	130			
Cadmium		0.0469	mg/L	0.0010	94	70	130			
Copper		0.0473	mg/L	0.010	95	70	130			
Iron		4.78	mg/L	0.030	94	70	130			
Lead		0.0484	mg/L	0.010	97	70	130			
Manganese		0.0509	mg/L	0.010	96	70	130			
Zinc		0.0509	mg/L	0.010	99	70	130			
Sample ID: H11120150-002CMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_111214A				12/14/11 21:37
Arsenic		0.0491	mg/L	0.0050	97	70	130	1.5	20	
Cadmium		0.0460	mg/L	0.0010	92	70	130	1.9	20	
Copper		0.0471	mg/L	0.010	94	70	130	0.4	20	
Iron		4.84	mg/L	0.030	95	70	130	1.3	20	
Lead		0.0476	mg/L	0.010	95	70	130	1.6	20	
Manganese		0.0512	mg/L	0.010	96	70	130	0.5	20	
Zinc		0.0492	mg/L	0.010	96	70	130	3.5	20	
Sample ID: H11120183-002EMS	7	Sample Matrix Spike				Run: ICPMS204-B_111214A				12/15/11 22:20
Arsenic		0.505	mg/L	0.0050	100	70	130			
Cadmium		0.414	mg/L	0.0010	83	70	130			
Copper		0.480	mg/L	0.010	95	70	130			
Iron		47.6	mg/L	0.030	95	70	130			
Lead		0.483	mg/L	0.010	97	70	130			
Manganese		0.699	mg/L	0.010	94	70	130			
Zinc		0.482	mg/L	0.010	92	70	130			
Sample ID: H11120183-002EMSD	7	Sample Matrix Spike Duplicate				Run: ICPMS204-B_111214A				12/15/11 22:27
Arsenic		0.502	mg/L	0.0050	100	70	130	0.5	20	
Cadmium		0.411	mg/L	0.0010	82	70	130	0.8	20	
Copper		0.481	mg/L	0.010	95	70	130	0.2	20	
Iron		47.5	mg/L	0.030	95	70	130	0.3	20	
Lead		0.484	mg/L	0.010	97	70	130	0.2	20	
Manganese		0.699	mg/L	0.010	93	70	130	0.0	20	
Zinc		0.464	mg/L	0.010	89	70	130	3.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									Analytical Run: ICPMS204-B_111220A	
Sample ID: ICV STD		Initial Calibration Verification Standard							12/19/11 14:04	
Copper		0.0511	mg/L	0.010	102	90	110			
Sample ID: ICSA		Interference Check Sample A							12/19/11 14:11	
Copper		0.000389	mg/L	0.010						
Sample ID: ICSAB		Interference Check Sample AB							12/19/11 14:17	
Copper		0.0220	mg/L	0.010	110	70	130			
Sample ID: ICV STD		Initial Calibration Verification Standard							12/20/11 03:19	
Copper		0.0515	mg/L	0.010	103	90	110			
Sample ID: ICSA		Interference Check Sample A							12/20/11 03:25	
Copper		0.000230	mg/L	0.010						
Sample ID: ICSAB		Interference Check Sample AB							12/20/11 03:32	
Copper		0.0222	mg/L	0.010	111	70	130			
Sample ID: ICSA		Interference Check Sample A							12/20/11 12:44	
Copper		0.000276	mg/L	0.010						
Sample ID: ICSAB		Interference Check Sample AB							12/20/11 12:50	
Copper		0.0218	mg/L	0.010	109	70	130			
Method: E200.8									Batch: 15103	
Sample ID: MB-15103	7	Method Blank				Run: ICPMS204-B_111220A			12/20/11 16:35	
Arsenic		7E-05	mg/L	5E-05						
Cadmium		ND	mg/L	2E-05						
Copper		ND	mg/L	0.0004						
Iron		0.0007	mg/L	0.0006						
Lead		ND	mg/L	2E-05						
Manganese		ND	mg/L	6E-05						
Zinc		0.001	mg/L	0.0003						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC102-H_111212A	
Sample ID: ICV121211-12	2	Initial Calibration Verification Standard							12/12/11 14:12	
Chloride		100	mg/L	1.0	100	90	110			
Sulfate		400	mg/L	1.0	101	90	110			
Sample ID: CCV121211-30	2	Continuing Calibration Verification Standard							12/12/11 18:30	
Chloride		100	mg/L	1.0	100	90	110			
Sulfate		400	mg/L	1.0	100	90	110			
Method: E300.0									Batch: R76698	
Sample ID: ICB121211-13	2	Method Blank				Run: IC102-H_111212A			12/12/11 14:26	
Chloride		ND	mg/L	0.02						
Sulfate		ND	mg/L	0.02						
Sample ID: LFB121211-14	2	Laboratory Fortified Blank				Run: IC102-H_111212A			12/12/11 14:39	
Chloride		49	mg/L	1.0	99	90	110			
Sulfate		190	mg/L	1.1	97	90	110			
Sample ID: H11120149-003AMS	2	Sample Matrix Spike				Run: IC102-H_111212A			12/12/11 19:52	
Chloride		50	mg/L	1.0	99	90	110			
Sulfate		270	mg/L	1.1	102	90	110			
Sample ID: H11120149-003AMSD	2	Sample Matrix Spike Duplicate				Run: IC102-H_111212A			12/12/11 20:06	
Chloride		50	mg/L	1.0	99	90	110	0.2	20	
Sulfate		270	mg/L	1.1	102	90	110	0.2	20	
Sample ID: H11120150-003AMS	2	Sample Matrix Spike				Run: IC102-H_111212A			12/12/11 22:49	
Chloride		50	mg/L	1.0	99	90	110			
Sulfate		190	mg/L	1.1	97	90	110			
Sample ID: H11120150-003AMSD	2	Sample Matrix Spike Duplicate				Run: IC102-H_111212A			12/12/11 23:02	
Chloride		50	mg/L	1.0	100	90	110	0.7	20	
Sulfate		200	mg/L	1.1	98	90	110	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 15107
Sample ID: MB-15107	6	Method Blank				Run: ICP2-HE_111215B				12/16/11 02:20
Aluminum		ND	mg/kg	0.7						
Arsenic		ND	mg/kg	0.3						
Cadmium		ND	mg/kg	0.02						
Iron		2	mg/kg	0.3						
Lead		ND	mg/kg	0.6						
Zinc		0.3	mg/kg	0.07						
Sample ID: LFB-15107	6	Laboratory Fortified Blank				Run: ICP2-HE_111215B				12/16/11 02:24
Aluminum		256	mg/kg	5.0	102	80	120			
Arsenic		49.4	mg/kg	5.0	99	80	120			
Cadmium		24.7	mg/kg	1.0	99	80	120			
Iron		249	mg/kg	5.0	99	80	120			
Lead		48.7	mg/kg	5.0	97	80	120			
Zinc		50.6	mg/kg	5.0	101	80	120			
Sample ID: LCS-15107	6	Laboratory Control Sample				Run: ICP2-HE_111215B				12/16/11 02:27
Aluminum		18900	mg/kg	5.0	130	50.7	131.3			
Arsenic		267	mg/kg	5.0	79	72.3	106.4			
Cadmium		113	mg/kg	1.0	83	73	105.1			
Iron		27000	mg/kg	5.0	118	39.6	138.3			
Lead		170	mg/kg	5.0	92	75.9	108.6			
Zinc		181	mg/kg	5.0	86	74.2	109.9			
Sample ID: H11120149-017AMS	6	Sample Matrix Spike				Run: ICP2-HE_111215B				12/16/11 03:17
Aluminum		8080	mg/kg	5.0		75	125			A
Arsenic		31.1	mg/kg	5.0	82	75	125			
Cadmium		10.8	mg/kg	1.0	87	75	125			
Iron		15100	mg/kg	5.0		75	125			A
Lead		43.7	mg/kg	5.0	98	75	125			
Zinc		88.8	mg/kg	5.0	80	75	125			
Sample ID: H11120149-017AMSD	6	Sample Matrix Spike Duplicate				Run: ICP2-HE_111215B				12/16/11 03:20
Aluminum		9330	mg/kg	5.0		75	125	14	20	A
Arsenic		32.3	mg/kg	5.0	87	75	125	3.8	20	
Cadmium		11.0	mg/kg	1.0	89	75	125	1.6	20	
Iron		14400	mg/kg	5.0		75	125	4.7	20	A
Lead		40.0	mg/kg	5.0	83	75	125	8.9	20	
Zinc		97.1	mg/kg	5.0	114	75	125	9.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: 15107
Sample ID: MB-15107	8	Method Blank				Run: ICP2-HE_111216B				12/16/11 17:39
Aluminum		ND	mg/kg	0.7						
Arsenic		ND	mg/kg	0.3						
Cadmium		0.03	mg/kg	0.02						
Copper		0.3	mg/kg	0.1						
Iron		2	mg/kg	0.3						
Lead		ND	mg/kg	0.6						
Manganese		0.2	mg/kg	0.03						
Zinc		0.3	mg/kg	0.07						
Sample ID: LFB-15107	8	Laboratory Fortified Blank				Run: ICP2-HE_111216B				12/16/11 17:42
Aluminum		250	mg/kg	5.0	100	80	120			
Arsenic		48.5	mg/kg	5.0	97	80	120			
Cadmium		23.9	mg/kg	1.0	96	80	120			
Copper		50.5	mg/kg	5.0	100	80	120			
Iron		245	mg/kg	5.0	97	80	120			
Lead		47.7	mg/kg	5.0	95	80	120			
Manganese		244	mg/kg	5.0	97	80	120			
Zinc		48.9	mg/kg	5.0	97	80	120			
Sample ID: LCS-15107	8	Laboratory Control Sample				Run: ICP2-HE_111216B				12/16/11 17:46
Aluminum		13700	mg/kg	5.0	94	50.7	131.3			
Arsenic		288	mg/kg	5.0	85	72.3	106.4			
Cadmium		122	mg/kg	1.0	90	73	105.1			
Copper		271	mg/kg	5.0	98	77.5	109.6			
Iron		20300	mg/kg	5.0	89	39.6	138.3			
Lead		185	mg/kg	5.0	100	75.9	108.6			
Manganese		395	mg/kg	5.0	108	80.8	115.7			
Zinc		195	mg/kg	5.0	92	74.2	109.9			
Sample ID: H11120149-017AMS	8	Sample Matrix Spike				Run: ICP2-HE_111216B				12/16/11 18:33
Aluminum		7080	mg/kg	5.0		75	125			A
Arsenic		35.2	mg/kg	5.0	88	75	125			
Cadmium		12.2	mg/kg	1.0	99	75	125			
Copper		38.5	mg/kg	5.0	110	75	125			
Iron		13900	mg/kg	5.0		75	125			A
Lead		53.5	mg/kg	5.0	142	75	125			S
Manganese		385	mg/kg	5.0	104	75	125			
Zinc		99.8	mg/kg	5.0	87	75	125			
Sample ID: H11120149-017AMSD	8	Sample Matrix Spike Duplicate				Run: ICP2-HE_111216B				12/16/11 18:44
Aluminum		7210	mg/kg	5.0		75	125	1.8	20	A
Arsenic		38.6	mg/kg	5.0	102	75	125	9.4	20	
Cadmium		12.2	mg/kg	1.0	99	75	125	0.3	20	
Copper		36.7	mg/kg	5.0	103	75	125	4.8	20	
Iron		11600	mg/kg	5.0		75	125	18	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Report Date: 12/30/11
Project: UBMC Surface Water
Work Order: H11120149

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: 15107	
Sample ID: H11120149-017AMSD	8	Sample Matrix Spike Duplicate			Run: ICP2-HE_111216B				12/16/11 18:44	
Lead		45.0	mg/kg	5.0	107	75	125	17	20	
Manganese		425	mg/kg	5.0	136	75	125	9.8	20	S
Zinc		108	mg/kg	5.0	119	75	125	7.6	20	

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

Workorder Receipt Checklist

H11120149

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 12/12/2011

Reviewed by: BL2000\sdull
Received by: wjj

Reviewed Date: 12/13/2011
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 with a temperature of 0.4C and cooler #2 @ 2.3C. Tl 12/12/11.

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:**
Quote H-6455	Shellie Haaland	841-5033	shaaland@mt.gov
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Sampler: (Please Print) Alan Dreesbach, Jackie Jamiska

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

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	UBMC Surface Water	SEE ATTACHED
2	1 UBMCBRSW25	12/11/2011	0830	W	X	
2	2 UBMCBRSW38		0900			
2	3 UBMCBRSW48		1040			
2	4 UBMCBRSW23		1105			
2	5 UBMCBRSW3A		1135			
2	6 UBMCBRSW3B		1155			
2	7 UBMCBRSW22		1330			
2	8 UBMCBRSW24		1335			
2	9 UBMCBRSW1	12/11/2011	1420	W	X	
	10					

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 490-5135

Shipped by: hand del
Cooler ID(s): 4
Receipt Temp: see attachments C 2.3
On Ice: Y N
Custody Seal: On Bottle Y N; On Cooler Y N
Intact Y N
Signature Match Y N

Cooler #1 white 1 0.4
Cooler #2 Red 2 2.3

H11120149

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 12/12/11 0746 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 Z Date/Time: 12-12-11 7:40 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:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC ~~Surface Water~~ Sediments mr 12/11/2011	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, 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 23 °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	Sediments-UBMC	SEE ATTACHED		LABORATORY USE ONLY
1	UBMCBRSD38	12/11/2011	0900	Sediment	X		see front page	H11120149
2	UBMCBRSD48		1040					
3	UBMCBRSD23		1105					
4	UBMCBRSD3A		1135					
5	UBMCBRSD3B		1155					
6	UBMCBRSD22		1330					
7	UBMCBRSD24		1335					
8	UBMCBRSD1	12/11/2011	1420	Sediment	X			
9								
10								

2

mr 12/11/2011

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	12/12/11 0746	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Wanda Jon	Date/Time: 12-12-11 7:46	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.

ENERGY LABORATORIES
www.energylab.com
Analytical Excellence Since 1952
Helena, MT 877-472-0711 • Billings, MT 800-735-4489 • Casper, WY 888-235-0515
Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

Quotation for Analytical Services # H645

Company:	MT DEQ-Site Response	Submitted By:	
Contact:	Shellie Haaland	Project:	UBMC
Address:	PO Box 200901	TAT:	10 Working days
	Helena, MT 59620-0901	QC Level:	STD
Phone:	(406) 841-5033 Fax:	Quote Date:	30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
*Schedule:	UBMC Surface Water						
	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$145.00	1	$145.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$320.00**		
			Schedule Total:				**$320.00**
Schedule:	UBMC Ground Water						
Aqueous	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$270.00**		
			Schedule Total:				**$270.00**
	No Alkalinity or Acidity						
Schedule:	UBMC Surface Water Section 35 Baseline						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
Sediment			
Metals by ICP/ICPMS, Total	Aluminum	5	mg/kg
	Arsenic	5	mg/kg
	Cadmium	1	mg/kg
	Copper	5	mg/kg
	Iron	5	mg/kg
	Lead	5	mg/kg
	Manganese	5	mg/kg
	Zinc	5	mg/kg

ANALYTICAL SUMMARY REPORT

January 04, 2012

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

Workorder No.: H11120229 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 12/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11120229-001	UBMCTDMW07	12/14/11 9:40	12/15/11	Groundwater	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11120229-002	UBMCTDMW05	12/14/11 9:55	12/15/11	Groundwater	Same As Above
H11120229-003	UBMCTDMW08	12/14/11 10:20	12/15/11	Groundwater	Same As Above
H11120229-004	UBMCTDMW4D	12/14/11 11:15	12/15/11	Groundwater	Same As Above
H11120229-005	UBMCTDMW06	12/14/11 11:20	12/15/11	Groundwater	Same As Above
H11120229-006	UBMCTDMW3D	12/14/11 13:10	12/15/11	Groundwater	Same As Above
H11120229-007	UBMCTDMW01	12/14/11 13:45	12/15/11	Groundwater	Same As Above
H11120229-008	UBMCTDMW2D	12/14/11 14:20	12/15/11	Groundwater	Same As Above
H11120229-009	UBMCTDMW2S	12/14/11 14:35	12/15/11	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 UBMCTDMW07
Lab ID: H11120229-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 09:40
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.		0.10		A4500-H B	12/19/11 13:18 / cmm		PHSC_101-H_111219A	36	R76850
Conductivity @ 25 C	3.0	umhos/cm		1.0		A2510 B	12/19/11 13:18 / cmm		PHSC_101-H_111219A	6	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:34 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	3	15143
Solids, Total Dissolved TDS @ 180 C	18	mg/L		10		A2540 C	12/16/11 09:43 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	3	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:04 / zeg		IC102-H_111216A	36	R76837
Sulfate	ND	mg/L		1		E300.0	12/16/11 17:04 / zeg		IC102-H_111216A	36	R76837
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	1	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Calcium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Magnesium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Sodium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A	429	R76896

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: H11120229-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 09:55
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.10		A4500-H B	12/19/11 13:23 / cmm		PHSC_101-H_111219A	38	R76850
Conductivity @ 25 C	280	umhos/cm		1.0		A2510 B	12/19/11 13:23 / cmm		PHSC_101-H_111219A	8	R76850
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	12/16/11 09:35 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	5	15143
Solids, Total Dissolved TDS @ 180 C	158	mg/L		10		A2540 C	12/16/11 09:44 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	5	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:18 / zeg		IC102-H_111216A	37	R76837
Sulfate	46	mg/L		1		E300.0	12/16/11 17:18 / zeg		IC102-H_111216A	37	R76837
Hardness as CaCO3	132	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	2	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Calcium	29	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Iron	0.05	mg/L		0.05		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Magnesium	14	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Sodium	2	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Zinc	0.01	mg/L		0.01		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896

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: H11120229-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 10:20
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.		0.10		A4500-H B	12/19/11 13:26 / cmm		PHSC_101-H_111219A	39	R76850
Conductivity @ 25 C	3.0	umhos/cm		1.0		A2510 B	12/19/11 13:26 / cmm		PHSC_101-H_111219A	9	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:35 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	6	15143
Solids, Total Dissolved TDS @ 180 C	12	mg/L		10		A2540 C	12/16/11 09:44 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	7	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:32 / zeg		IC102-H_111216A	38	R76837
Sulfate	ND	mg/L		1		E300.0	12/16/11 17:32 / zeg		IC102-H_111216A	38	R76837
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	3	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Calcium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Iron	0.06	mg/L		0.05		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Magnesium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Manganese	0.006	mg/L		0.005		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Sodium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896

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: H11120229-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 11:15
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.10		A4500-H B	12/19/11 13:29 / cmm		PHSC_101-H_111219A	40	R76850
Conductivity @ 25 C	320	umhos/cm		1.0		A2510 B	12/19/11 13:29 / cmm		PHSC_101-H_111219A	10	R76850
Solids, Total Suspended TSS @ 105 C	56	mg/L		10		A2540 D	12/16/11 09:35 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	7	15143
Solids, Total Dissolved TDS @ 180 C	172	mg/L		10		A2540 C	12/16/11 09:45 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	8	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:45 / zeg		IC102-H_111216A	39	R76837
Sulfate	26	mg/L		1		E300.0	12/16/11 17:45 / zeg		IC102-H_111216A	39	R76837
Hardness as CaCO3	135	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	4	R77010
METALS, DISSOLVED											
Aluminum	0.83	mg/L		0.03		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Cadmium	0.00031	mg/L		0.00008		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Calcium	25	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Copper	0.042	mg/L		0.001		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Iron	1.15	mg/L		0.05		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Lead	0.0097	mg/L		0.0005		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Magnesium	17	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Manganese	0.253	mg/L		0.005		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Sodium	11	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Zinc	0.02	mg/L		0.01		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896

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: H11120229-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 11:20
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.10		A4500-H B	12/19/11 13:31 / cmm		PHSC_101-H_111219A	41	R76850
Conductivity @ 25 C	320	umhos/cm		1.0		A2510 B	12/19/11 13:31 / cmm		PHSC_101-H_111219A	11	R76850
Solids, Total Suspended TSS @ 105 C	56	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	8	15143
Solids, Total Dissolved TDS @ 180 C	184	mg/L		10		A2540 C	12/16/11 09:45 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	9	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 18:26 / zeg		IC102-H_111216A	42	R76837
Sulfate	26	mg/L		1		E300.0	12/16/11 18:26 / zeg		IC102-H_111216A	42	R76837
Hardness as CaCO3	135	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	5	R77010
METALS, DISSOLVED											
Aluminum	0.83	mg/L		0.03		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Cadmium	0.00029	mg/L		0.00008		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Calcium	25	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Copper	0.042	mg/L		0.001		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Iron	1.25	mg/L		0.05		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Lead	0.0097	mg/L		0.0005		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Magnesium	17	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Manganese	0.270	mg/L		0.005		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Sodium	11	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Zinc	0.02	mg/L		0.01		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896

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: H11120229-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 13:10
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.10		A4500-H B	12/19/11 13:33 / cmm		PHSC_101-H_111219A	42	R76850
Conductivity @ 25 C	420	umhos/cm		1.0		A2510 B	12/19/11 13:33 / cmm		PHSC_101-H_111219A	12	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	9	15143
Solids, Total Dissolved TDS @ 180 C	256	mg/L		10		A2540 C	12/16/11 09:45 / cmm	12/16/11 09:20	-124 (14410200)_111216A	10	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 18:40 / zeg		IC102-H_111216A	43	R76837
Sulfate	140	mg/L		1		E300.0	12/16/11 18:40 / zeg		IC102-H_111216A	43	R76837
Hardness as CaCO3	196	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	6	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Calcium	47	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Magnesium	19	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Sodium	2	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896

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: H11120229-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 13:45
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.9	s.u.		0.10		A4500-H B	12/19/11 13:36 / cmm		PHSC_101-H_111219A	43	R76850
Conductivity @ 25 C	640	umhos/cm		1.0		A2510 B	12/19/11 13:36 / cmm		PHSC_101-H_111219A	13	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	-124 (14410200)_111216B	10	15143
Solids, Total Dissolved TDS @ 180 C	428	mg/L		10		A2540 C	12/16/11 09:46 / cmm	12/16/11 09:20	-124 (14410200)_111216A	11	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 18:53 / zeg		IC102-H_111216A	44	R76837
Sulfate	240	mg/L		1		E300.0	12/16/11 18:53 / zeg		IC102-H_111216A	44	R76837
Hardness as CaCO3	320	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	7	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Cadmium	0.00026	mg/L		0.00008		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Calcium	61	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Magnesium	41	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Potassium	1	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Sodium	2	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Zinc	0.21	mg/L		0.01		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896

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: H11120229-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 14:20
DateReceived: 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.10		A4500-H B	12/19/11 13:38 / cmm		PHSC_101-H_111219A	44	R76850
Conductivity @ 25 C	260	umhos/cm		1.0		A2510 B	12/19/11 13:38 / cmm		PHSC_101-H_111219A	14	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	-124 (14410200)_111216B	11	15143
Solids, Total Dissolved TDS @ 180 C	154	mg/L		10		A2540 C	12/16/11 09:46 / cmm	12/16/11 09:20	-124 (14410200)_111216A	12	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 19:07 / zeg		IC102-H_111216A	45	R76837
Sulfate	29	mg/L		1		E300.0	12/16/11 19:07 / zeg		IC102-H_111216A	45	R76837
Hardness as CaCO3	128	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	8	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Calcium	27	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Magnesium	15	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Sodium	1	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896

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: H11120229-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 14:35
DateReceived: 12/15/11
Report Date: 01/06/12

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	12/20/11 10:51 / cmm		PH2_111220A	5	111220A-PH-W
Conductivity	1060	umhos/cm		1		A2510 B	12/16/11 09:13 / cmm		COND_111216A	1	111216A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	124 (14410200)_111216B	12	15143
Solids, Total Dissolved TDS @ 180 C	1080	mg/L		10		A2540 C	12/16/11 09:46 / cmm	12/16/11 09:20	124 (14410200)_111216A	13	15142
INORGANICS											
Chloride	1	mg/L		1		E300.0	12/16/11 19:20 / zeg		IC102-H_111216A	46	R76837
Sulfate	1400	mg/L	D	2		E300.0	12/16/11 19:20 / zeg		IC102-H_111216A	46	R76837
Hardness as CaCO3	681	mg/L		1		A2340 B	01/04/12 09:52 / sld		WATERCALC_120104A	1	R77139
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Cadmium	0.00943	mg/L		0.00008		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Calcium	119	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Copper	0.001	mg/L		0.001		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Magnesium	93	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Manganese	16.0	mg/L		0.005		E200.8	12/31/11 02:42 / dck		ICPMS204-B_111231B	100	R77101
Potassium	1	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Sodium	2	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A	451	R76896
Zinc	7.42	mg/L		0.01		E200.8	12/31/11 02:42 / dck		ICPMS204-B_111231B	100	R77101

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: 111216A-COND-PROBE

Run ID :Run Order: **COND_111216A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_111216A** Method: **A2510 B**

Analysis Date: **12/16/11 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	1000	1.0	1000		100	90	110				

Associated samples: **H11120229-009A**

Run ID :Run Order: **COND_111216A: 9** SampType: **Sample Duplicate** Sample ID: **H11120229-001ADUP** Method: **A2510 B**

Analysis Date: **12/16/11 09:08** 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	1.29	1.0						1.235	4.4	10	

Associated samples: **H11120229-009A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: 111220A-PH-W

Run ID :Run Order: **PH2_111220A: 1** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_111220A** Method: **A4500-H B**
Analysis Date: **12/20/11 10:19** 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	3.99	0.10	4		100	97	103				

Associated samples: **H11120229-009A**

Run ID :Run Order: **PH2_111220A: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_111220A** Method: **A4500-H B**
Analysis Date: **12/20/11 10:21** 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	7.01	0.10	7		100	98	102				

Associated samples: **H11120229-009A**

Run ID :Run Order: **PH2_111220A: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3_111220A** Method: **A4500-H B**
Analysis Date: **12/20/11 10:17** 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	10.1	0.10	10		101	99	101				

Associated samples: **H11120229-009A**

Run ID :Run Order: **PH2_111220A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_111220A** Method: **A4500-H B**
Analysis Date: **12/20/11 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	7.01	0.10	7		100	98	102				

Associated samples: **H11120229-009A**

Run ID :Run Order: **PH2_111220A: 6** SampType: **Sample Duplicate** Sample ID: **H11120229-009ADUP** Method: **A4500-H B**
Analysis Date: **12/20/11 10:52** 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	7.16	0.10						7.2	0.6	3	

Associated samples: **H11120229-009A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: 15142

Run ID :Run Order: **ACCU-124 (14410200)_111216A: 1** SampType: **Method Blank** Sample ID: **MB-15142** Method: **A2540 C**
Analysis Date: **12/16/11 09:42** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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	5	3									

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **ACCU-124 (14410200)_111216A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-15142** Method: **A2540 C**
Analysis Date: **12/16/11 09:43** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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	2040	10	2000	5	102	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **ACCU-124 (14410200)_111216A: 4** SampType: **Sample Duplicate** Sample ID: **H11120229-001ADUP** Method: **A2540 C**
Analysis Date: **12/16/11 09:43** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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	6.00	10						18		5	

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **ACCU-124 (14410200)_111216A: 6** SampType: **Sample Matrix Spike** Sample ID: **H11120229-002AMS** Method: **A2540 C**
Analysis Date: **12/16/11 09:44** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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	2250	10	2000	158	104	80	120				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **ACCU-124 (14410200)_111216A: 16** SampType: **Sample Duplicate** Sample ID: **H11120232-002ADUP** Method: **A2540 C**
Analysis Date: **12/16/11 09:47** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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	326	10						326	0.0	5	

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: 15143

Run ID :Run Order: **ACCU-124 (14410200)_111216B: 1** SampType: **Method Blank** Sample ID: **MB-15143** Method: **A2540 D**

Analysis Date: **12/16/11 09:34** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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	3									

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **ACCU-124 (14410200)_111216B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-15143** Method: **A2540 D**

Analysis Date: **12/16/11 09:34** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **ACCU-124 (14410200)_111216B: 4** SampType: **Sample Duplicate** Sample ID: **H11120229-001ADUP** Method: **A2540 D**

Analysis Date: **12/16/11 09:35** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **ACCU-124 (14410200)_111216B: 15** SampType: **Sample Duplicate** Sample ID: **H11120235-005ADUP** Method: **A2540 D**

Analysis Date: **12/16/11 09:58** Units: **mg/L** **Prep Info:** Prep Date: **12/16/2011** 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	6.00	10								5	

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76837

Run ID :Run Order: **IC102-H_111216A: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV121611-12** Method: **E300.0**
Analysis Date: **12/16/11 12:19** 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	410	1.0	400		102	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **IC102-H_111216A: 16** SampType: **Method Blank** Sample ID: **ICB121611-13** Method: **E300.0**
Analysis Date: **12/16/11 12:32** 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	ND	0.02									
Sulfate	ND	0.02									

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **IC102-H_111216A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB121611-14** Method: **E300.0**
Analysis Date: **12/16/11 12:46** 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	48	1.0	50		95	90	110				
Sulfate	190	1.1	200		96	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **IC102-H_111216A: 18** SampType: **Laboratory Fortified Blank** Sample ID: **LFBD121611-14** Method: **E300.0**
Analysis Date: **12/16/11 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
Chloride	47	1.0	50		94	90	110				
Sulfate	190	1.1	200		96	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **IC102-H_111216A: 34** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV121611-30** Method: **E300.0**
Analysis Date: **12/16/11 16:37** 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
Chloride	100	1.0	100		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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76837

Run ID :Run Order: **IC102-H_111216A: 34** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV121611-30** Method: **E300.0**

Analysis Date: **12/16/11 16:37** 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
Sulfate	400	1.0	400		101	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **IC102-H_111216A: 40** SampType: **Sample Matrix Spike** Sample ID: **H11120229-004AMS** Method: **E300.0**

Analysis Date: **12/16/11 17:59** 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	0.425	94	90	110				
Sulfate	230	1.1	200	25.53	100	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

Run ID :Run Order: **IC102-H_111216A: 41** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11120229-004AMSD** Method: **E300.0**

Analysis Date: **12/16/11 18:12** 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	0.425	94	90	110	47.2	0.5	20	
Sulfate	220	1.1	200	25.53	100	90	110	225.1	0.3	20	

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A; H11120229-009A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76850

Run ID :Run Order: **PHSC_101-H_111219A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **cond20000-2380** Method: **A2510 B**
Analysis Date: **12/19/11 11:46** 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		98	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

Run ID :Run Order: **PHSC_101-H_111219A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **cond 150-2378** Method: **A2510 B**
Analysis Date: **12/19/11 11:41** 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	160	1.0	150		104	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

Run ID :Run Order: **PHSC_101-H_111219A: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **cond 1413-2425** Method: **A2510 B**
Analysis Date: **12/19/11 11:49** 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	1400	1.0	1413		100	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

Run ID :Run Order: **PHSC_101-H_111219A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **cond 5000-2379** Method: **A2510 B**
Analysis Date: **12/19/11 11:44** 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	5100	1.0	5000		102	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

Run ID :Run Order: **PHSC_101-H_111219A: 7** SampType: **Sample Duplicate** Sample ID: **H11120229-001ADUP** Method: **A2510 B**
Analysis Date: **12/19/11 13:21** 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	1.0	1.0									

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76850

Run ID :Run Order: **PHSC_101-H_111219A: 32** SampType: **Initial Calibration Verification Standard** Sample ID: **icv 1000-2210** Method: **A2510 B**

Analysis Date: **12/19/11 11:51** 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	970	1.0	1000		97	90	110				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

Run ID :Run Order: **PHSC_101-H_111219A: 34** SampType: **Sample Duplicate** Sample ID: **H11120229-001ADUP** Method: **A2510 B**

Analysis Date: **12/19/11 13:21** 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	1.0	1.0									

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76850

Run ID :Run Order: **PHSC_101-H_111219A: 35** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV 7** Method: **A4500-H B**

Analysis Date: **12/19/11 13:41** 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	7.0	0.10	7		100	98	102				

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

Run ID :Run Order: **PHSC_101-H_111219A: 37** SampType: **Sample Duplicate** Sample ID: **H11120229-001ADUP** Method: **A4500-H B**

Analysis Date: **12/19/11 13:21** 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	5.5	0.10									

Associated samples: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

Run ID :Run Order: **PHSC_101-H_111219A: 65** SampType: **Initial Calibration Verification Standard** Sample ID: **ph ICV 7-2274** Method: **A4500-H B**

Analysis Date: **12/19/11 11:04** 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: **H11120229-001A; H11120229-002A; H11120229-003A; H11120229-004A; H11120229-005A; H11120229-006A; H11120229-007A; H11120229-008A**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/19/11 14:04** 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	0.254	0.10	0.25		102	90	110				
Arsenic	0.0508	0.0050	0.05		102	90	110				
Cadmium	0.0266	0.0010	0.025		106	90	110				
Calcium	2.56	0.50	2.5		103	90	110				
Copper	0.0511	0.010	0.05		102	90	110				
Iron	0.254	0.030	0.25		102	90	110				
Lead	0.0501	0.010	0.05		100	90	110				
Magnesium	2.50	0.50	2.5		100	90	110				
Manganese	0.255	0.010	0.25		102	90	110				
Potassium	2.48	0.50	2.5		99	90	110				
Sodium	2.48	0.50	2.5		99	90	110				
Zinc	0.0505	0.010	0.05		101	90	110				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/19/11 14:11** 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	42.2	0.10	40		105	70	130				
Arsenic	7.10E-05	0.0050									
Cadmium	0.000815	0.0010									
Calcium	121	0.50	120		101	70	130				
Copper	0.000389	0.010									
Iron	105	0.030	100		105	70	130				
Lead	0.000138	0.010									
Magnesium	42.3	0.50	40		106	70	130				
Manganese	0.000180	0.010									
Potassium	41.8	0.50	40		104	70	130				
Sodium	105	0.50	100		105	70	130				
Zinc	0.00116	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/19/11 14:17** 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	44.1	0.10	40		110	70	130				
Arsenic	0.0114	0.0050	0.01		114	70	130				
Cadmium	0.0111	0.0010	0.01		111	70	130				
Calcium	129	0.50	120		108	70	130				
Copper	0.0220	0.010	0.02		110	70	130				
Iron	109	0.030	100		109	70	130				
Lead	0.000146	0.010				0	0				
Magnesium	45.0	0.50	40		113	70	130				
Manganese	0.0216	0.010	0.02		108	70	130				
Potassium	44.3	0.50	40		111	70	130				
Sodium	111	0.50	100		111	70	130				
Zinc	0.0120	0.010	0.01		120	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 38** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/20/11 03:19** 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	0.261	0.10	0.25		104	90	110				
Arsenic	0.0508	0.0050	0.05		102	90	110				
Cadmium	0.0266	0.0010	0.025		106	90	110				
Calcium	2.55	0.50	2.5		102	90	110				
Copper	0.0515	0.010	0.05		103	90	110				
Iron	0.251	0.030	0.25		100	90	110				
Lead	0.0492	0.010	0.05		98	90	110				
Magnesium	2.52	0.50	2.5		101	90	110				
Manganese	0.263	0.010	0.25		105	90	110				
Potassium	2.53	0.50	2.5		101	90	110				
Sodium	2.54	0.50	2.5		102	90	110				
Zinc	0.0542	0.010	0.05		108	90	110				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 39** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/20/11 03:25** 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	41.8	0.10	40		104	70	130				
Arsenic	0.000101	0.0050									
Cadmium	0.000817	0.0010									
Calcium	124	0.50	120		103	70	130				
Copper	0.000230	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000136	0.010									
Magnesium	42.2	0.50	40		105	70	130				
Manganese	0.000132	0.010									
Potassium	43.0	0.50	40		107	70	130				
Sodium	104	0.50	100		104	70	130				
Zinc	0.00125	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 40** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/20/11 03:32** 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	44.3	0.10	40		111	70	130				
Arsenic	0.0112	0.0050	0.01		112	70	130				
Cadmium	0.0111	0.0010	0.01		111	70	130				
Calcium	129	0.50	120		107	70	130				
Copper	0.0222	0.010	0.02		111	70	130				
Iron	108	0.030	100		108	70	130				
Lead	0.000138	0.010				0	0				
Magnesium	44.7	0.50	40		112	70	130				
Manganese	0.0216	0.010	0.02		108	70	130				
Potassium	44.6	0.50	40		112	70	130				
Sodium	110	0.50	100		110	70	130				
Zinc	0.0125	0.010	0.01		125	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 51** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **12/20/11 11:30** 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	0.0006	0.0003									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Calcium	0.02	0.003									
Copper	ND	3E-05									
Iron	ND	0.0002									
Lead	3E-05	1.0E-05									
Magnesium	0.003	0.0007									
Manganese	0.0001	1E-05									
Potassium	ND	0.010									
Sodium	0.04	0.003									
Zinc	0.0007	0.0003									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 52** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **12/20/11 11:36** 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	0.0487	0.10	0.05	0.0005603	96	85	115				
Arsenic	0.0504	0.0050	0.05		101	85	115				
Cadmium	0.0491	0.0010	0.05		98	85	115				
Calcium	49.3	0.50	50	0.02409	99	85	115				
Copper	0.0497	0.010	0.05		99	85	115				
Iron	5.12	0.030	5		102	85	115				
Lead	0.0493	0.010	0.05	0.0000265	99	85	115				
Magnesium	49.9	0.50	50	0.002712	100	85	115				
Manganese	0.0490	0.010	0.05	0.0001017	98	85	115				
Potassium	50.0	0.50	50		100	85	115				
Sodium	50.3	0.50	50	0.03959	100	85	115				
Zinc	0.0513	0.010	0.05	0.0006772	101	85	115				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 54** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/20/11 12:44** 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	41.9	0.10	40		105	70	130				
Arsenic	5.10E-05	0.0050									
Cadmium	0.000814	0.0010									
Calcium	123	0.50	120		103	70	130				
Copper	0.000276	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000131	0.010									
Magnesium	42.8	0.50	40		107	70	130				
Manganese	0.000202	0.010									
Potassium	42.6	0.50	40		106	70	130				
Sodium	105	0.50	100		105	70	130				
Zinc	0.00133	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 55** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/20/11 12:50** 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	45.2	0.10	40		113	70	130				
Arsenic	0.0112	0.0050	0.01		112	70	130				
Cadmium	0.0111	0.0010	0.01		111	70	130				
Calcium	129	0.50	120		108	70	130				
Copper	0.0218	0.010	0.02		109	70	130				
Iron	107	0.030	100		107	70	130				
Lead	0.000130	0.010				0	0				
Magnesium	44.8	0.50	40		112	70	130				
Manganese	0.0214	0.010	0.02		107	70	130				
Potassium	44.9	0.50	40		112	70	130				
Sodium	111	0.50	100		111	70	130				
Zinc	0.0122	0.010	0.01		122	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 118** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/20/11 19:44** 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	0.258	0.10	0.25		103	90	110				
Arsenic	0.0503	0.0050	0.05		101	90	110				
Cadmium	0.0263	0.0010	0.025		105	90	110				
Calcium	2.58	0.50	2.5		103	90	110				
Copper	0.0517	0.010	0.05		103	90	110				
Iron	0.251	0.030	0.25		101	90	110				
Lead	0.0499	0.010	0.05		100	90	110				
Magnesium	2.49	0.50	2.5		100	90	110				
Manganese	0.274	0.010	0.25		109	90	110				
Potassium	2.47	0.50	2.5		99	90	110				
Sodium	2.55	0.50	2.5		102	90	110				
Zinc	0.0527	0.010	0.05		105	90	110				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 119** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/20/11 19:50** 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	41.9	0.10	40		105	70	130				
Arsenic	8.10E-05	0.0050									
Cadmium	0.000750	0.0010									
Calcium	123	0.50	120		102	70	130				
Copper	0.000207	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000137	0.010									
Magnesium	41.4	0.50	40		103	70	130				
Manganese	0.000168	0.010									
Potassium	41.4	0.50	40		103	70	130				
Sodium	101	0.50	100		101	70	130				
Zinc	0.00124	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 120** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/20/11 19:57** 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	43.6	0.10	40		109	70	130				
Arsenic	0.0111	0.0050	0.01		111	70	130				
Cadmium	0.0110	0.0010	0.01		109	70	130				
Calcium	132	0.50	120		110	70	130				
Copper	0.0220	0.010	0.02		110	70	130				
Iron	109	0.030	100		109	70	130				
Lead	0.000142	0.010				0	0				
Magnesium	43.5	0.50	40		109	70	130				
Manganese	0.0222	0.010	0.02		111	70	130				
Potassium	44.3	0.50	40		111	70	130				
Sodium	108	0.50	100		108	70	130				
Zinc	0.0119	0.010	0.01		119	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 224** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/21/11 07:14** 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	39.1	0.10	40		98	70	130				
Arsenic	6.70E-05	0.0050									
Cadmium	0.000789	0.0010									
Calcium	112	0.50	120		93	70	130				
Copper	0.000607	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000125	0.010									
Magnesium	38.8	0.50	40		97	70	130				
Manganese	7.00E-05	0.010									
Potassium	37.4	0.50	40		94	70	130				
Sodium	95.3	0.50	100		95	70	130				
Zinc	0.00112	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 225** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/21/11 07:20** 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	41.5	0.10	40		104	70	130				
Arsenic	0.0111	0.0050	0.01		111	70	130				
Cadmium	0.0107	0.0010	0.01		107	70	130				
Calcium	121	0.50	120		101	70	130				
Copper	0.0219	0.010	0.02		110	70	130				
Iron	106	0.030	100		105	70	130				
Lead	0.000123	0.010				0	0				
Magnesium	41.1	0.50	40		103	70	130				
Manganese	0.0207	0.010	0.02		103	70	130				
Potassium	40.3	0.50	40		101	70	130				
Sodium	101	0.50	100		101	70	130				
Zinc	0.0120	0.010	0.01		120	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 277** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/21/11 13:08** 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	0.270	0.10	0.25		108	90	110				
Arsenic	0.0508	0.0050	0.05		102	90	110				
Cadmium	0.0267	0.0010	0.025		107	90	110				
Calcium	2.63	0.50	2.5		105	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.251	0.030	0.25		101	90	110				
Lead	0.0500	0.010	0.05		100	90	110				
Magnesium	2.48	0.50	2.5		99	90	110				
Manganese	0.270	0.010	0.25		108	90	110				
Potassium	2.49	0.50	2.5		100	90	110				
Sodium	2.57	0.50	2.5		103	90	110				
Zinc	0.0532	0.010	0.05		106	90	110				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 278** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/21/11 13:15** 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	42.2	0.10	40		106	70	130				
Arsenic	0.000104	0.0050									
Cadmium	0.000858	0.0010									
Calcium	127	0.50	120		106	70	130				
Copper	0.000207	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000132	0.010									
Magnesium	41.5	0.50	40		104	70	130				
Manganese	9.50E-05	0.010									
Potassium	42.2	0.50	40		106	70	130				
Sodium	102	0.50	100		102	70	130				
Zinc	0.00129	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 279** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/21/11 13:21** 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	44.9	0.10	40		112	70	130				
Arsenic	0.0115	0.0050	0.01		115	70	130				
Cadmium	0.0110	0.0010	0.01		109	70	130				
Calcium	132	0.50	120		110	70	130				
Copper	0.0224	0.010	0.02		112	70	130				
Iron	107	0.030	100		107	70	130				
Lead	0.000139	0.010				0	0				
Magnesium	44.2	0.50	40		110	70	130				
Manganese	0.0214	0.010	0.02		107	70	130				
Potassium	44.5	0.50	40		111	70	130				
Sodium	109	0.50	100		109	70	130				
Zinc	0.0116	0.010	0.01		116	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 314** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/22/11 02:35** 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	0.268	0.10	0.25		107	90	110				
Arsenic	0.0512	0.0050	0.05		102	90	110				
Cadmium	0.0265	0.0010	0.025		106	90	110				
Calcium	2.64	0.50	2.5		105	90	110				
Copper	0.0521	0.010	0.05		104	90	110				
Iron	0.248	0.030	0.25		99	90	110				
Lead	0.0511	0.010	0.05		102	90	110				
Magnesium	2.46	0.50	2.5		98	90	110				
Manganese	0.268	0.010	0.25		107	90	110				
Potassium	2.47	0.50	2.5		99	90	110				
Sodium	2.60	0.50	2.5		104	90	110				
Zinc	0.0539	0.010	0.05		108	90	110				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 315** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/22/11 02:42** 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	43.3	0.10	40		108	70	130				
Arsenic	2.60E-05	0.0050									
Cadmium	0.000739	0.0010									
Calcium	128	0.50	120		106	70	130				
Copper	0.000339	0.010									
Iron	102	0.030	100		102	70	130				
Lead	0.000146	0.010									
Magnesium	41.6	0.50	40		104	70	130				
Manganese	0.000266	0.010									
Potassium	42.6	0.50	40		106	70	130				
Sodium	102	0.50	100		102	70	130				
Zinc	0.00121	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 316** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/22/11 02:48** 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	46.4	0.10	40		116	70	130				
Arsenic	0.0111	0.0050	0.01		111	70	130				
Cadmium	0.0108	0.0010	0.01		108	70	130				
Calcium	133	0.50	120		111	70	130				
Copper	0.0220	0.010	0.02		110	70	130				
Iron	108	0.030	100		108	70	130				
Lead	0.000151	0.010				0	0				
Magnesium	43.7	0.50	40		109	70	130				
Manganese	0.0217	0.010	0.02		108	70	130				
Potassium	45.1	0.50	40		113	70	130				
Sodium	110	0.50	100		110	70	130				
Zinc	0.0123	0.010	0.01		123	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 397** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/22/11 11:43** 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	0.268	0.10	0.25		107	90	110				
Arsenic	0.0509	0.0050	0.05		102	90	110				
Cadmium	0.0270	0.0010	0.025		108	90	110				
Calcium	2.64	0.50	2.5		106	90	110				
Copper	0.0518	0.010	0.05		104	90	110				
Iron	0.252	0.030	0.25		101	90	110				
Lead	0.0508	0.010	0.05		102	90	110				
Magnesium	2.46	0.50	2.5		98	90	110				
Manganese	0.275	0.010	0.25		110	90	110				
Potassium	2.44	0.50	2.5		98	90	110				
Sodium	2.61	0.50	2.5		105	90	110				
Zinc	0.0533	0.010	0.05		107	90	110				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 398** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/22/11 11:49** 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	42.4	0.10	40		106	70	130				
Arsenic	4.40E-05	0.0050									
Cadmium	0.000770	0.0010									
Calcium	128	0.50	120		106	70	130				
Copper	0.000267	0.010									
Iron	101	0.030	100		101	70	130				
Lead	0.000132	0.010									
Magnesium	41.5	0.50	40		104	70	130				
Manganese	0.000111	0.010									
Potassium	42.3	0.50	40		106	70	130				
Sodium	103	0.50	100		103	70	130				
Zinc	0.00124	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 399** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/22/11 11:56** 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	45.2	0.10	40		113	70	130				
Arsenic	0.0116	0.0050	0.01		116	70	130				
Cadmium	0.0113	0.0010	0.01		113	70	130				
Calcium	137	0.50	120		114	70	130				
Copper	0.0226	0.010	0.02		113	70	130				
Iron	107	0.030	100		107	70	130				
Lead	0.000155	0.010				0	0				
Magnesium	43.7	0.50	40		109	70	130				
Manganese	0.0222	0.010	0.02		111	70	130				
Potassium	45.1	0.50	40		113	70	130				
Sodium	109	0.50	100		109	70	130				
Zinc	0.0123	0.010	0.01		123	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 434** SampType: **Sample Matrix Spike** Sample ID: **H11120229-001BMS** Method: **E200.8**

Analysis Date: **12/22/11 15:57** 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	0.0487	0.10	0.05	0.001326	95	70	130				
Arsenic	0.0486	0.0050	0.05		97	70	130				
Cadmium	0.0467	0.0010	0.05		93	70	130				
Calcium	48.0	1.0	50	0.01776	96	70	130				
Copper	0.0472	0.010	0.05	0.0001547	94	70	130				
Iron	4.66	0.030	5	0.002837	93	70	130				
Lead	0.0486	0.010	0.05	0.0000136	97	70	130				
Magnesium	46.2	1.0	50		92	70	130				
Manganese	0.0480	0.010	0.05	0.0001138	96	70	130				
Potassium	48.3	1.0	50		97	70	130				
Sodium	46.6	1.0	50		93	70	130				
Zinc	0.0492	0.010	0.05	0.001391	96	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 435** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11120229-001BMSD** Method: **E200.8**

Analysis Date: **12/22/11 16:03** 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	0.0477	0.10	0.05	0.001326	93	70	130	0.04872		20	
Arsenic	0.0482	0.0050	0.05		97	70	130	0.04863	0.8	20	
Cadmium	0.0466	0.0010	0.05		93	70	130	0.04671	0.3	20	
Calcium	48.4	1.0	50	0.01776	97	70	130	47.97	0.9	20	
Copper	0.0478	0.010	0.05	0.0001547	95	70	130	0.04722	1.1	20	
Iron	4.61	0.030	5	0.002837	92	70	130	4.663	1.2	20	
Lead	0.0478	0.010	0.05	0.0000136	96	70	130	0.04857	1.6	20	
Magnesium	46.2	1.0	50		92	70	130	46.17	0.1	20	
Manganese	0.0477	0.010	0.05	0.0001138	95	70	130	0.04805	0.7	20	
Potassium	48.9	1.0	50		98	70	130	48.26	1.3	20	
Sodium	46.4	1.0	50		93	70	130	46.59	0.3	20	
Zinc	0.0484	0.010	0.05	0.001391	94	70	130	0.04917	1.7	20	

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 454** SampType: **Sample Matrix Spike** Sample ID: **H11120235-002BMS** Method: **E200.8**

Analysis Date: **12/22/11 18:07** 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	0.0467	0.10	0.05		93	70	130				
Arsenic	0.0480	0.0050	0.05		96	70	130				
Cadmium	0.0461	0.0010	0.05		92	70	130				
Calcium	46.8	1.0	50		94	70	130				
Copper	0.0474	0.010	0.05	0.0002868	94	70	130				
Iron	4.60	0.030	5		92	70	130				
Lead	0.0474	0.010	0.05	0.0001559	95	70	130				
Magnesium	46.2	1.0	50	0.001146	92	70	130				
Manganese	0.0481	0.010	0.05	0.0001677	96	70	130				
Potassium	47.5	1.0	50		95	70	130				
Sodium	47.1	1.0	50	0.6337	93	70	130				
Zinc	0.0480	0.010	0.05	0.001035	94	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 455** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11120235-002BMSD** Method: **E200.8**

Analysis Date: **12/22/11 18:14** 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	0.0471	0.10	0.05		94	70	130	0.04666		20	
Arsenic	0.0484	0.0050	0.05		97	70	130	0.04803	0.8	20	
Cadmium	0.0470	0.0010	0.05		94	70	130	0.04606	2.0	20	
Calcium	47.6	1.0	50		95	70	130	46.85	1.7	20	
Copper	0.0472	0.010	0.05	0.0002868	94	70	130	0.04739	0.4	20	
Iron	4.67	0.030	5		93	70	130	4.601	1.5	20	
Lead	0.0482	0.010	0.05	0.0001559	96	70	130	0.04745	1.6	20	
Magnesium	46.4	1.0	50	0.001146	93	70	130	46.22	0.3	20	
Manganese	0.0475	0.010	0.05	0.0001677	95	70	130	0.04809	1.2	20	
Potassium	48.2	1.0	50		96	70	130	47.52	1.4	20	
Sodium	47.0	1.0	50	0.6337	93	70	130	47.06	0.2	20	
Zinc	0.0475	0.010	0.05	0.001035	93	70	130	0.04795	1.0	20	

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 552** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/23/11 04:46** 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	0.267	0.10	0.25		107	90	110				
Arsenic	0.0501	0.0050	0.05		100	90	110				
Cadmium	0.0261	0.0010	0.025		105	90	110				
Calcium	2.61	0.50	2.5		104	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.235	0.030	0.25		94	90	110				
Lead	0.0494	0.010	0.05		99	90	110				
Magnesium	2.38	0.50	2.5		95	90	110				
Manganese	0.273	0.010	0.25		109	90	110				
Potassium	2.36	0.50	2.5		94	90	110				
Sodium	2.48	0.50	2.5		99	90	110				
Zinc	0.0533	0.010	0.05		107	90	110				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111220A: 553** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/23/11 04:53** 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	43.3	0.10	40		108	70	130				
Arsenic	7.00E-05	0.0050									
Cadmium	0.000785	0.0010									
Calcium	126	0.50	120		105	70	130				
Copper	0.000331	0.010									
Iron	102	0.030	100		102	70	130				
Lead	0.000128	0.010									
Magnesium	41.3	0.50	40		103	70	130				
Manganese	0.000103	0.010									
Potassium	41.4	0.50	40		104	70	130				
Sodium	103	0.50	100		103	70	130				
Zinc	0.00110	0.010									

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R76896

Run ID :Run Order: **ICPMS204-B_111220A: 554** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/23/11 04:59** 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	45.0	0.10	40		113	70	130				
Arsenic	0.0112	0.0050	0.01		112	70	130				
Cadmium	0.0107	0.0010	0.01		107	70	130				
Calcium	134	0.50	120		112	70	130				
Copper	0.0216	0.010	0.02		108	70	130				
Iron	107	0.030	100		107	70	130				
Lead	0.000127	0.010				0	0				
Magnesium	43.4	0.50	40		109	70	130				
Manganese	0.0214	0.010	0.02		107	70	130				
Potassium	43.5	0.50	40		109	70	130				
Sodium	109	0.50	100		109	70	130				
Zinc	0.0125	0.010	0.01		125	70	130				

Associated samples: **H11120229-001B; H11120229-002B; H11120229-003B; H11120229-004B; H11120229-005B; H11120229-006B; H11120229-007B; H11120229-008B; H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R77101

Run ID :Run Order: **ICPMS204-B_111231B: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **12/30/11 16:36** 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	0.270	0.010	0.25		108	90	110				
Zinc	0.0521	0.010	0.05		104	90	110				

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **12/30/11 16:42** 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
Manganese	0.000239	0.010									
Zinc	0.00154	0.010									

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/30/11 16:49** 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
Manganese	0.0200	0.010	0.02		100	70	130				
Zinc	0.0109	0.010	0.01		109	70	130				

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 16** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **12/30/11 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
Manganese	ND	1E-05									
Zinc	0.0003	0.0003									

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **12/30/11 17:34** 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		98	85	115				
Zinc	0.0505	0.010	0.05	0.0002916	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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jan-12*

BatchID: R77101

Run ID :Run Order: **ICPMS204-B_111231B: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **12/30/11 17:34** 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: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 42** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **12/30/11 20:24** 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
Manganese	0.269	0.010	0.25		108	90	110				
Zinc	0.0527	0.010	0.05		105	90	110				

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 75** SampType: **Sample Matrix Spike** Sample ID: **H11120235-004BMS** Method: **E200.8**
Analysis Date: **12/30/11 23:59** 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	0.0824	0.010	0.05	0.03634	92	70	130				
Zinc	0.0483	0.010	0.05	0.001388	94	70	130				

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 76** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H11120235-004BMSD** Method: **E200.8**
Analysis Date: **12/31/11 00:06** 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	0.0825	0.010	0.05	0.03634	92	70	130	0.08239	0.1	20	
Zinc	0.0477	0.010	0.05	0.001388	93	70	130	0.04834	1.3	20	

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 152** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **12/31/11 08:20** 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
Manganese	0.272	0.010	0.25		109	90	110				
Zinc	0.0544	0.010	0.05		109	90	110				

Associated samples: **H11120229-009B**

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: H11120229
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R77101

Date: *06-Jan-12*

Run ID :Run Order: **ICPMS204-B_111231B: 153** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **12/31/11 08:26** 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	0.000240	0.010									
Zinc	0.00146	0.010									

Associated samples: **H11120229-009B**

Run ID :Run Order: **ICPMS204-B_111231B: 154** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/31/11 08:33** 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
Manganese	0.0200	0.010	0.02		100	70	130				
Zinc	0.0114	0.010	0.01		114	70	130				

Associated samples: **H11120229-009B**

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

Workorder Receipt Checklist

H11120229

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 12/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 12/20/2011
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:	4.2°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:

None

ENERGY

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)
Quote H-645	Shellie Haaland	841-5033	shaaland@mt.gov	Alan Dreesbach Jackie Janosko

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

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): 1
Receipt Temp 4.2 °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	UBMC Groundwater	SEE ATTACHED	LABORATORY USE ONLY
1	UBMCTDMW07	12/14/2011	0940	W	X	X	H11120229
2	UBMCTDMW05	↓	0955	↓	↓	↓	
3	UBMCTDMW08	↓	1020	↓	↓	↓	
4	UBMCTDMW4D	↓	1115	↓	↓	↓	
5	UBMCTDMW06	↓	1120	↓	↓	↓	
6	UBMCTDMW3D	↓	1310	↓	↓	↓	
7	UBMCTDMW01	↓	1345	↓	↓	↓	
8	UBMCTDMW2D	↓	1420	↓	↓	↓	
9	UBMCTDMW2S	12/14/2011	1435	W	X	X	
10							

MY 12/14/2011

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	12/15/11 @ 1148	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Esther Merritt	Date/Time: 12/15/11 11:48	Signature: Elm

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
www.energylab.com
Analytical Excellence Since 1952
Helena, MT 877-472-0711 • Billings, MT 800-735-4489 • Casper, WY 888-235-0515
Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

Quotation for Analytical Services # H645

Company: MT DEQ-Site Response
Contact: Shellie Haaland
Address: PO Box 200901
Helena, MT 59620-0901
Phone (406) 841-5033 Fax:

Submitted By:
Project: UBMC
TAT: 10 Working days
QC Level: STD
Quote Date: 30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	**UBMC Surface Water**						
	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$145.00	1	$145.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$320.00**		
			Schedule Total:				**$320.00**
Schedule:	**UBMC Ground Water**						
Aqueous	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$270.00**		
			Schedule Total:				**$270.00**
	No Alkalinity or Acidity						
Schedule:	**UBMC Surface Water Section 35 Baseline**						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Ground Water			
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Calcium	1	mg/L
	Copper	0.001	mg/L
	Iron	0.05	mg/L
	Lead	0.0005	mg/L
	Magnesium	1	mg/L
	Manganese	0.005	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

Appendix B

Data Validation Reports

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UBMC Surface Water

SDG#:	**H11050018**
Number of Samples:	**8**
Sample Matrix:	**Water**
Applicable Analytes:	**(8) pH, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Anions (Chloride and Sulfate), Hardness, Metals Dissolved: (Al, Ca, Mg, K, and Na), Total Recoverable Metals (As, Cd, Cu, Fe, Pb, Mn, and Zn), (1) Acidity, (7) Alkalinity (Total Alkalinity, Bicarbonate, and Carbonate)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**

Validator: Amber Brinly **Date Completed:** 06/03/11

Portage Review: _____ **Date Completed:** 06/03/11

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 water sample results were received by Portage, Inc. in May 2011. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, TSS, TDS, acidity, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals (Al, Ca, Mg, K, and Na), and total recoverable metals (As, Cd, Cu, Fe, Pb, Mn, and Zn) results. The samples were analyzed in accordance with Standard Methods 4500 H-B, 2510B, 2540D, 2540C, 2310B, 2320B, 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.

It was noted per the laboratory that the field samples were to be analyzed for acidity if the pH < 4.5 and analyzed for alkalinity if the pH > 4.5. The pH of field sample UBMC-BRSW 3B (pH 4.3) was less than 4.5; therefore, the field sample was analyzed for acidity instead of alkalinity. The remaining field samples were analyzed for alkalinity.

The laboratory Form 1 was a summary of all samples analyzed and analyses performed, non-detect results were reported as less than the reporting limit.

Cross-Reference for UBMC Surface Water Water Samples

Field Id#:	Lab Id#:	Matrix:	Analysis Request:	Date of Collection:	Date of Laboratory Receipt:
UBMC-BRSW 22	H11050018-001	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11
UBMC-BRSW 22A	H11050018-002	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11

Cross-Reference for Cross-Reference for UBMC Surface Water Water Samples Cont...					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMC-BRSW 22B	H11050018-003	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11
UBMC-BRSW 48	H11050018-004	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11
UBMC-BRSW 23	H11050018-005	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11
UBMC-BRSW 3A	H11050018-006	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11
UBMC-BRSW 3B	H11050018-007	Water	pH, Conductivity, TSS, TDS, acidity, chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11
UBMC-BRSW 38	H11050018-008	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/30/11	05/02/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 04/30/11. The conductivity, TSS, TDS, hardness, and alkalinity results were analyzed on 05/03/11 and within the within the 28-day holding time for conductivity, the-7 day holding time for TSS and TDS, the 14-day holding time for alkalinity. The acidity results were analyzed on 05/12/11 within the 14-day holding time. The chloride and sulfate results were analyzed on 05/03/11 and 05/04/11 within the 28-day holding time. The hardness, dissolved metal, and total recoverable metal results were analyzed on 05/04/11, 05/05/11, and 05/09/11 within the 180-day holding time.

The pH samples were collected on 04/30/11, received on 05/02/11, and analyzed on 05/03/11 approximately 48-hrs 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 and as the samples were properly preserved and the laboratory made every effort to analyze the samples in a timely fashion as they were received outside of 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):

The PB for total alkalinity exhibited a positive detection between the MDL and RL. No qualification is warranted as the reported results were either non-detect, or greater than the RL and greater than five times the PB concentration.

The PB associated with total recoverable metals for field sample UBMC-BRSW 23 exhibited positive detections between the MDL and RL for arsenic, copper, iron, lead, manganese, and zinc. No qualification is warranted for arsenic, copper, iron , lead, manganese, and zinc in UBMC-BRSW 23 as the reported results were non-detect, or greater than the RL and greater than five times the PB concentration.

The remaining PBs associated with total recoverable metals for all field samples except UBMC-BRSW 23 and all dissolved metals exhibited positive detections between the MDL and RL for aluminum, iron, lead, sodium, and zinc. All aluminum, iron, lead, and zinc results warrant no qualification as the reported results were either non-detect, or greater than the RL and greater than five times the PB concentration. The sodium results in field samples UBMC-BRSW 48, UBMC-BRSW 23, UBMC-BRSW 3B, and UBMC-BRSW 38 have been qualified with a "U" validation flag as the PB result was between the MDL and RL and the reported sample result was less than or equal to the RL. The remaining sodium results warrant no qualification as the reported results were non-detect or greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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 (123%) and MSD (130%) for sulfate associated with sample UBMC-BRSW 3B was outside of the 90-110% acceptance criteria per USEPA Method 300.0. Sulfate in UBMC-BRSW 3B has been qualified with a "J+" validation flag due to sample results greater than the MDL and high MS/MSD recoveries.

The remaining MS/MSD recovery and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were eight (8) water field samples included in SDG# H11050018. Eight (8) field samples were analyzed for pH, conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals, and total recoverable metals, one (1) field sample was analyzed or acidity, and seven (7) field samples were analyzed for alkalinity (total alkalinity, bicarbonate, and carbonate) 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.

Sulfate in field sample UBMC-BRSW 3B has been qualified with a "J+" validation flag to denote the reported result is an estimate with a high bias due to high MS/MSD recoveries.

Sodium in field samples UBMC-BRSW 48, UBMC-BRSW 23, UBMC-BRSW 3B, AND UBMC-BRSW 38 have been qualified with a 'U' validation flag to denote the reported concentrations are non-detect due to positive detection in the method blank.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Project: UBMC Surface Water
Workorder: H11050018

Report Date: 05/18/11
Date Received: 05/02/11

		Analysis		pH	EC	Solids, Total	Solids, Total	Acidity, Total as	Alkalinity, Total as	Bicarbonate as HCO3	Carbonate as CO3	Cl	SO4	Hardness as CaCO3
		Units		s_u_	umhos/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample ID	Client Sample ID	Up	Low	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
H11050018-001	UBMC-BRSW 22	0	0	7.8 J-	545	< 10	400		62	76	< 4	< 1	240	287
H11050018-002	UBMC-BRSW 22A	0	0	7.8	544	< 10	364		63	77	< 4	< 1	230	281
H11050018-003	UBMC-BRSW 22B	0	0	4.8	10	< 10	< 10		< 4	< 4	< 4	< 1	< 1	< 1
H11050018-004	UBMC-BRSW 48	0	0	7.6	339	16	227		45	55	< 4	< 1	120	158
H11050018-005	UBMC-BRSW 23	0	0	8.0	223	19	133		60	73	< 4	< 1	50	128
H11050018-006	UBMC-BRSW 3A	0	0	7.5	411	< 10	278		44	54	< 4	< 1	170	188
H11050018-007	UBMC-BRSW 3B	0	0	4.3	1430	22	1490	340				< 1	1000 J+	545
H11050018-008	UBMC-BRSW 38	0	0	7.7	343	< 10	238		43	52	< 4	< 1	130	165

JB
6/3/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Project: UBMC Surface Water
Workorder: H11050018

Report Date: 05/18/11
Date Received: 05/02/11

		Analysis		Al-D	Ca-D	Mg-D	K-D	Na-D	As-TR	Cd-TR	Cu-TR	Fe-TR	Pb-TR	Mn-TR
		Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample ID	Client Sample ID	Up	Low	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
H11050018-001	UBMC-BRSW 22	0	0	< 0.03	72	26	1	2	< 0.003	0.0308	0.031	< 0.03	0.0119	0.439
H11050018-002	UBMC-BRSW 22A	0	0	< 0.03	71	25	1	2	< 0.003	0.0314	0.033	< 0.03	0.0116	0.448
H11050018-003	UBMC-BRSW 22B	0	0	< 0.03	< 1	< 1	< 1	< 1	< 0.003	< 0.00008	< 0.001	< 0.03	< 0.0005	< 0.005
H11050018-004	UBMC-BRSW 48	0	0	< 0.03	32	19	< 1	1 U	< 0.003	0.0163	0.122	3.11	0.0317	3.04
H11050018-005	UBMC-BRSW 23	0	0	0.15	26	16	< 1	1 U	< 0.003	0.00739	0.049	1.18	0.0291	1.06
H11050018-006	UBMC-BRSW 3A	0	0	< 0.03	38	23	< 1	2	< 0.003	0.0292	0.314	0.52	0.0028	8.76
H11050018-007	UBMC-BRSW 3B	0	0	50.2	110	66	3	1 U	0.003	0.291	4.75	4.46	0.0177	116
H11050018-008	UBMC-BRSW 38	0	0	0.12	33	20	< 1	1 U	< 0.003	0.0174	0.094	2.38	0.0376	2.67

KB 5/13/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Project: UBMC Surface Water
Workorder: H11050018

Report Date: 05/18/11
Date Received: 05/02/11

		Analysis		Zn-TR
		Units		mg/L
Sample ID	Client Sample ID	Up	Low	Results
H11050018-001	UBMC-BRSW 22	0	0	6.84
H11050018-002	UBMC-BRSW 22A	0	0	6.85
H11050018-003	UBMC-BRSW 22B	0	0	< 0.01
H11050018-004	UBMC-BRSW 48	0	0	3.51
H11050018-005	UBMC-BRSW 23	0	0	1.71
H11050018-006	UBMC-BRSW 3A	0	0	6.45
H11050018-007	UBMC-BRSW 3B	0	0	46.7
H11050018-008	UBMC-BRSW 38	0	0	3.86

AB 5/13/11

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

May 18, 2011

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

Workorder No.: H11050018 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 5/2/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050018-001	UBMC-BRSW 22	04/30/11 9:15	05/02/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11050018-002	UBMC-BRSW 22A	04/30/11 9:30	05/02/11	Surface Water	Same As Above
H11050018-003	UBMC-BRSW 22B	04/30/11 9:45	05/02/11	Surface Water	Same As Above
H11050018-004	UBMC-BRSW 48	04/30/11 10:45	05/02/11	Surface Water	Same As Above
H11050018-005	UBMC-BRSW 23	04/30/11 11:35	05/02/11	Surface Water	Same As Above
H11050018-006	UBMC-BRSW 3A	04/30/11 12:15	05/02/11	Surface Water	Same As Above
H11050018-007	UBMC-BRSW 3B	04/30/11 12:45	05/02/11	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Acidity, Total as CaCO3 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
H11050018-008	UBMC-BRSW 38	04/30/11 14:15	05/02/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended

ANALYTICAL SUMMARY REPORT

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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:

Amber Brinly

From: Jennifer Norman
Sent: Friday, June 10, 2011 9:51 AM
To: Amber Brinly
Subject: FW: Work order H11050018

Jennifer Norman
Staff Chemist
Portage, Inc
(406)-782-2822

"*It's very simple. Scissors cuts paper. Paper covers rock. Rock crushes lizard. Lizard poisons Spock. Spock smashes scissors. Scissors decapitates lizard. Lizard eats paper. Paper disproves Spock. Spock vaporizes rock. And as it always has, rock crushes scissors*"

From: Alan Dreesbach
Sent: Friday, June 10, 2011 9:31 AM
To: Jennifer Norman
Subject: FW: Work order H11050018

FYI – they only analyze for acidity if pH is <4.5. You guys will need to revise the surface water summaries accordingly.

From: Wanda Johnson [mailto:wjohnson@energylab.com]
Sent: Friday, June 10, 2011 7:26 AM
To: Alan Dreesbach
Subject: RE: Work order H11050018

Sample UBMC-BRSW 3B was not analyzed for alkalinity due to the fact the pH was less than 4.5 (pH was 4.3). Therefore the sample was analyzed for Acidity per Quote. I hope this answers your question. Let me know if you need anything else.

> -----Original Message-----
> **From:** Alan Dreesbach [mailto:adreesbach@portageinc.com]
> **Sent:** Thursday, June 09, 2011 4:14 PM
> **To:** wjohnson@energylab.com
> **Subject:** Work order H11050018
>
> Wanda,
>
> I think something may have gotten messed up with H11050018 (UBMC surface water). The quote calls for each of these to be analyzed for alkalinity and hardness, but it appears that only BRSW3B was analyzed for hardness and the same sample was not analyzed for alkalinity. Please look into this and let me know what's up.
>
> Thanks,
>
> Alan Dreesbach
> Portage, Inc.
> 1065 N Ewing
> Helena, MT 59601

Office: (406) 457-0056
Cell: (406) 490-5135

NON-DISCLOSURE NOTICE--This e-mail message and any attachments may contain confidential and privileged information intended for the sole use of the named recipient. If you receive this email in error, or if you are not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. Delivery of this message to any person other than the intended recipient is not intended to waive any right or privilege. If you have received this message in error, please delete it from your computer and contact the sender immediately.

Attachment C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11050018

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/2/2011
Reviewed by: BL2000\kwiegand
Received by: jdh
Reviewed Date: 5/5/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.6°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:

None

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.: VBMC	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote: 14-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Brasbach Meg Babitz
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 to: adrasbache portageinc.com

Shipped by: Hand Del

Cooler ID(s): C-3684

Receipt Temp: 5.4 °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
1	VBMC-BRSW22	4/30/11	0915	W	X
2	VBMC-BRSW22A	4/30/11	0930	W	
3	VBMC-BRSW22B	4/30/11	0945		
4	VBMC-BRSW48	4/30/11	1045		
5	VBMC-BRSW23	4/30/11	1135		
6	VBMC-BRSW3A	4/30/11	1215		
7	VBMC-BRSW3B	4/30/11	1245		
8	VBMC-BRSW3P	4/30/11	1415		
9					
10				BD 4/3-11	

VBMC Surface Water

LABORATORY USE ONLY H11050018

Custody Record MUST be Signed

Relinquished by (print): Alan Brasbach	Date/Time: 5/2/11 15:45	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: X		Received by Laboratory: Jonathan Hayes Date/Time: 5/2/11 15:45 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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

UBMC Surface Water

SDG#:	**H11050029**
Number of Samples:	**2**
Sample Matrix:	**Water**
Applicable Analytes:	**pH, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Alkalinity (Total Alkalinity, Bicarbonate, and Carbonate), Anions (Chloride and Sulfate), Hardness, Metals Dissolved: (Al, Ca, Mg, K, and Na), 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**

Validator: Amber Brinly **Date Completed:** 06/03/11

Portage Review: _____ **Date Completed:** 06/03/11

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 water sample results were received by Portage, Inc. in May 2011. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, TSS, TDS, acidity, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals (Al, Ca, Mg, K, and Na), and total recoverable metals (As, Cd, Cu, Fe, Pb, Mn, and Zn) results. The samples were analyzed in accordance with Standard Methods 4500 H-B, 2510B, 2540D, 2540C, 2320B, and 2340B, 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 Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMC-BRSW01	H11050029-001	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/29/11	05/02/11
UBMC-BRSW02	H11050029-002	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	04/29/11	05/02/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 04/29/11. The conductivity, TSS, TDS, and alkalinity results were analyzed on 05/03/11, the chloride and sulfate results were analyzed on 05/04/11, and the hardness, dissolved metals, and total recoverable metals were analyzed on 05/05/11. The results were analyzed within the 28-day holding time for conductivity, chloride, and sulfate, within the 7-day holding time for TSS and TDS, within the 14-day holding time for alkalinity, and within the 180-day holding time for hardness, dissolved metals, and total recoverable metals.

The pH samples were collected on 04/29/11, received on 05/02/11, and analyzed on 05/03/11 approximately 3-days 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 and as the samples were properly preserved and the laboratory made every effort to analyze the samples in a timely fashion as they were received outside of 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):

The PB for total alkalinity exhibited a positive detection between the MDL and RL. No qualification is warranted as the reported results were either non-detect, or greater than the RL and greater than five times the PB concentration.

The PB (run ID ICPMS204B_110504A) for total recoverable metals associated with all samples and all target analytes, except manganese in UBMC-BRSW02, exhibited positive detections between the MDL and RL for arsenic and zinc. No qualification is warranted as the reported results were either non-detect, or greater than the RL and greater than five times the PB concentration. The PB (run ID ICPMS204B)_110505A) for total recoverable metals associated with manganese in UBMC-BRSW02 exhibited positive detections between the MDL and RL for arsenic, iron, and zinc. Manganese in UBMC-BRSW02 warrants no qualification as it was non-detect in the PB. Arsenic, iron, and zinc were all either non-detect or greater than the RL and warrant no qualification due to detection in PB (run ID ICPMS204B_110505A).

The PB for dissolved metals exhibited a positive detection for sodium between the MDL and RL. Sodium in UBMC-BRSW01 has been qualified with a "U" validation flag as the PB result was between the MDL and RL and the reported sample result was less than or equal to the RL. The remaining sodium result was non-detect and warrants no qualification.

The remaining PB results were non-detect and no qualification is warranted.

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 (125%) and MSD (131%) for sulfate were outside of the 90-110% acceptance criteria per USEPA Method 300.0. All sulfate results have been qualified with a "J+" validation flag due to sample results greater than the MDL and high MS/MSD recoveries.

The remaining MS/MSD recovery and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were two (2) water field samples included in SDG# H11050029. Two (2) field samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total recoverable 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 sulfate results have been qualified with a "J+" validation flag to denote the reported result is an estimate with a high bias due to high MS/MSD recoveries.

Sodium in field samples UBMC-BRSW01 has been qualified with a 'U' validation flag to denote the reported concentrations are non-detect due to positive detection in the method blank.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW01
Lab ID: H11050029-001
Matrix: Surface Water

Project: UBMC
Collection Date: 04/29/11 15:07
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.	J-	0.1		A4500-H B	05/03/11 19:45 / zeg		MAN-TECH_110503A : 72		R70695
Conductivity	118	umhos/cm		1		A2510 B	05/03/11 11:49 / cmm		COND_110503A : 3210503A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/03/11 13:45 / cmm	05/03/11 13:16	-124 (14410200)_110503A : 33		12064
Solids, Total Dissolved TDS @ 180 C	70	mg/L		10		A2540 C	05/03/11 14:07 / cmm	05/03/11 13:23	-124 (14410200)_110503B : 32		12066
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	05/03/11 19:45 / zeg		MAN-TECH_110503A : 71		R70695
Bicarbonate as HCO3	74	mg/L		4		A2320 B	05/03/11 19:45 / zeg		MAN-TECH_110503A : 71		R70695
Carbonate as CO3	ND	mg/L		4		A2320 B	05/03/11 19:45 / zeg		MAN-TECH_110503A : 71		R70695
Chloride	ND	mg/L		1		E300.0	05/04/11 03:09 / zeg		IC101-H_110503B : 48		R70698
Sulfate	3	mg/L	J+	1		E300.0	05/04/11 03:09 / zeg		IC101-H_110503B : 48		R70698
Hardness as CaCO3	62	mg/L		1		A2340 B	05/05/11 13:10 / sld		WATERCALC_110505A : 18		R70750
METALS, DISSOLVED											
Aluminum	0.16	mg/L		0.03		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A : 148		R70718
Calcium	12	mg/L		1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A : 148		R70718
Magnesium	8	mg/L		1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A : 148		R70718
Potassium	ND	mg/L		1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A : 148		R70718
Sodium	1	mg/L	UL	1		E200.8	05/05/11 00:12 / dck		ICPMS204-B_110504A : 148		R70718
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A : 156		12052
Cadmium	ND	mg/L		0.00008		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A : 156		12052
Copper	0.001	mg/L		0.001		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A : 156		12052
Iron	0.13	mg/L		0.03		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A : 156		12052
Lead	ND	mg/L		0.0005		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A : 156		12052
Manganese	ND	mg/L		0.005		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A : 156		12052
Zinc	ND	mg/L		0.01		E200.8	05/05/11 00:48 / dck	05/03/11 11:35	ICPMS204-B_110504A : 156		12052

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

JMB 6/13/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW02
Lab ID: H11050029-002
Matrix: Surface Water

Project: UBMC
Collection Date: 04/29/11 16:15
Report Date: 05/16/11
DateReceived: 05/02/11

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	05/03/11 19:51 / zeg		MAN-TECH_110503A : 74		R70695
Conductivity	836	umhos/cm		1		A2510 B	05/03/11 11:49 / cmm		COND_110503A : 3310503A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/03/11 13:45 / cmm	05/03/11 13:16	-124 (14410200)_110503A : 34		12064
Solids, Total Dissolved TDS @ 180 C	657	mg/L		10		A2540 C	05/03/11 14:07 / cmm	05/03/11 13:23	-124 (14410200)_110503B : 33		12066
INORGANICS											
Alkalinity, Total as CaCO3	13	mg/L		4		A2320 B	05/03/11 19:51 / zeg		MAN-TECH_110503A : 73		R70695
Bicarbonate as HCO3	16	mg/L		4		A2320 B	05/03/11 19:51 / zeg		MAN-TECH_110503A : 73		R70695
Carbonate as CO3	ND	mg/L		4		A2320 B	05/03/11 19:51 / zeg		MAN-TECH_110503A : 73		R70695
Chloride	ND	mg/L	J+	1		E300.0	05/04/11 03:24 / zeg		IC101-H_110503B : 49		R70698
Sulfate	460	mg/L		1		E300.0	05/04/11 03:24 / zeg		IC101-H_110503B : 49		R70698
Hardness as CaCO3	453	mg/L		1		A2340 B	05/05/11 13:10 / sld		WATERCALC_110505A : 19		R70750
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A : 157		R70718
Calcium	104	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A : 157		R70718
Magnesium	47	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A : 157		R70718
Potassium	1	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A : 157		R70718
Sodium	ND	mg/L		1		E200.8	05/05/11 00:52 / dck		ICPMS204-B_110504A : 157		R70718
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A : 158		12052
Cadmium	0.0188	mg/L		0.00008		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A : 158		12052
Copper	0.022	mg/L		0.001		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A : 158		12052
Iron	0.14	mg/L		0.03		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A : 158		12052
Lead	0.0160	mg/L		0.0005		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A : 158		12052
Manganese	6.14	mg/L		0.005		E200.8	05/05/11 18:14 / dck	05/03/11 11:35	ICPMS204-B_110505A : 70		12052
Zinc	3.16	mg/L		0.01		E200.8	05/05/11 00:56 / dck	05/03/11 11:35	ICPMS204-B_110504A : 158		12052

AB 6/3/11

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

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

May 09, 2011

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

Workorder No.: H11050029 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 2 samples for MT DEQ-Site Response on 5/2/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050029-001	UBMC-BRSW01	04/29/11 15:07	05/02/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11050029-002	UBMC-BRSW02	04/29/11 16:15	05/02/11	Surface Water	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11050029

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/2/2011
Reviewed by: BL2000\kwiegand
Received by: jdh
Reviewed Date: 5/4/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.6°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:

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	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	

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: adrausbach@portageinc.com

Shipped by: Hand Del
Cooler ID(s):
Receipt Temp 5.6 °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	VBMC-BRSW01	4/29/11	1507	W	VBMC Surface	X
2	VBMC-BRSW02	4/29/11	1615	W	Water	
3						
4						
5						
6						
7						
8						
9						
10						

4/29/11 AM

LABORATORY USE ONLY H11050029

Custody Record MUST be Signed

Relinquished by (print): Alan Drausbach	Date/Time: 5/2/11 1545	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: Jonathan Hayes	Date/Time: 5/2/11 15:45	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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

UBMC Sediment

SDG#:	**H11050051**
Number of Samples:	**8**
Sample Matrix:	**Soil/Solid**
Applicable Analytes:	**Total 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**

Validator: Amber Brierly **Date Completed:** 06/03/11

Portage Review: _____ **Date Completed:** 06/03/11

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: 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 Sediment soil/solid sample results were received by Portage, Inc. in May 2011. The laboratory analytical request provided for a summary data package attached for the total metals (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn) results. The samples were analyzed in accordance with USEPA Method 200.7 and USEPA SW-846 Method 6010B as referenced by the Form 1s and laboratory QA/QC. 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 Soil/Solid Samples

Field Id#:	Lab Id#:	Matrix:	Analysis Request:	Date of Collection:	Date of Laboratory Receipt:
UBMC-BRSD22	H11050051-001	Soil/Solid	Total Metals	04/30/11	05/02/11
UBMC-BRSD22A	H11050051-002	Soil/Solid	Total Metals	04/30/11	05/02/11
UBMC-BRSD48	H11050051-003	Soil/Solid	Total Metals	04/30/11	05/02/11
UBMC-BRSD23	H11050051-004	Soil/Solid	Total Metals	04/30/11	05/02/11
UBMC-BRSD3A	H11050051-005	Soil/Solid	Total Metals	04/30/11	05/02/11
UBMC-BRSD3B	H11050051-006	Soil/Solid	Total Metals	04/30/11	05/02/11
UBMC-BRSD38	H11050051-007	Soil/Solid	Total Metals	04/30/11	05/02/11
UBMC-BRSD01	H11050051-008	Soil/Solid	Total Metals	04/29/11	05/02/11

ANALYTICAL HOLDING TIMES:

The soil/solid samples associated with this SDG were collected on 04/29/11 and 04/30/11. The total metal results were analyzed on 05/05/11 within the 180-day 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):

The PB exhibited positive detections for arsenic and manganese between the MDL and RL. Arsenic and manganese warrant no qualification as the reported results were greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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 result for lead (190%) and the MSD result for zinc (153%) were outside of the 75-125% acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods. All lead and zinc results have been qualified with a "J+" validation flag as the sample results were greater than the MDL and high MS/MSD recoveries.

The remaining MS/MSD recovery and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE DUPLICATE (MSD) RPD:

The MSD RPD for lead 41% was outside of the 35% acceptance criteria for soil samples prescribed by the USEPA Functional Guidelines and the analytical methods. All lead results have been qualified with a "J+" validation flag due to high MS recovery. The poor MSD RPD result adds further merit to this qualification.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were eight (8) soil/solid field samples included in SDG# H11050051. Eight (8) field samples were analyzed for total metals as outlined in the project QAPP.

All lead 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 and high MSD RPD.

All zinc 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.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSD22
Lab ID: H11050051-001
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 09:15
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4280	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Arsenic	25	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Cadmium	10	mg/kg		1		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Copper	818	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Iron	10800	mg/kg	D	8		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Lead	954	mg/kg J+		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Manganese	1540	mg/kg		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075
Zinc	3790	mg/kg J+		5		SW6010B	05/05/11 16:54 / sld	05/04/11 08:59	ICP1-HE_110505B : 97		12075

AM 6/18/11

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 UBMC-BRSD22A
Lab ID: H11050051-002
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 09:15
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4050	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Arsenic	24	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Cadmium	12	mg/kg		1		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Copper	909	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Iron	10400	mg/kg	D	8		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Lead	1040	mg/kg	J+	5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Manganese	2020	mg/kg		5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075
Zinc	4050	mg/kg	J+	5		SW6010B	05/05/11 16:57 / sld	05/04/11 08:59	ICP1-HE_110505B : 98		12075

AB 6/13/11

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 UBMC-BRSD48
Lab ID: H11050051-003
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 10:45
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3480	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Arsenic	62	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Cadmium	34	mg/kg		1		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Copper	536	mg/kg		5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Iron	29800	mg/kg	D	30		SW6010B	05/08/11 15:41 / sld	05/04/11 08:59	ICP1-HE_110508C : 13		12075
Lead	1640	mg/kg	J+	5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075
Manganese	13000	mg/kg		5		SW6010B	05/08/11 15:41 / sld	05/04/11 08:59	ICP1-HE_110508C : 13		12075
Zinc	4860	mg/kg	J+	5		SW6010B	05/05/11 17:06 / sld	05/04/11 08:59	ICP1-HE_110505B : 101		12075

KB 6/3/11

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 UBMC-BRSD23
Lab ID: H11050051-004
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 11:35
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2260	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B	102	12075
Arsenic	37	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B	102	12075
Cadmium	8	mg/kg		1		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B	102	12075
Copper	221	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B	102	12075
Iron	12000	mg/kg	D	20		SW6010B	05/08/11 15:44 / sld	05/04/11 08:59	ICP1-HE_110508C	14	12075
Lead	561	mg/kg	J+	5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B	102	12075
Manganese	1140	mg/kg		5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B	102	12075
Zinc	1890	mg/kg	J+	5		SW6010B	05/05/11 17:09 / sld	05/04/11 08:59	ICP1-HE_110505B	102	12075

AB 6/13/11

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 UBMC-BRSD3A
Lab ID: H11050051-005
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 12:15
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2020	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Arsenic	18	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Cadmium	20	mg/kg		1		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Copper	296	mg/kg		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Iron	13400	mg/kg	D	20		SW6010B	05/08/11 15:47 / sld	05/04/11 08:59	ICP1-HE_110508C : 15		12075
Lead	251	mg/kg J+		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075
Manganese	6210	mg/kg		5		SW6010B	05/08/11 15:47 / sld	05/04/11 08:59	ICP1-HE_110508C : 15		12075
Zinc	2960	mg/kg J+		5		SW6010B	05/05/11 17:13 / sld	05/04/11 08:59	ICP1-HE_110505B : 103		12075

AB 6/13/11

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 UBMC-BRSD3B
Lab ID: H11050051-006
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 12:45
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6580	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Arsenic	28	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Cadmium	12	mg/kg		1		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Copper	522	mg/kg		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Iron	16300	mg/kg	D	20		SW6010B	05/08/11 15:50 / sld	05/04/11 08:59	ICP1-HE_110508C : 16		12075
Lead	168	mg/kg J+		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075
Manganese	13200	mg/kg		5		SW6010B	05/08/11 15:50 / sld	05/04/11 08:59	ICP1-HE_110508C : 16		12075
Zinc	1940	mg/kg J+		5		SW6010B	05/05/11 17:16 / sld	05/04/11 08:59	ICP1-HE_110505B : 104		12075

AB 6/3/11

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 UBMC-BRSD38
Lab ID: H11050051-007
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/30/11 14:15
Report Date: 05/16/11
DateReceived: 05/02/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5560	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B : 105		12075
Arsenic	73	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B : 105		12075
Cadmium	17	mg/kg		1		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B : 105		12075
Copper	372	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B : 105		12075
Iron	34800	mg/kg	D	30		SW6010B	05/08/11 15:53 / sld	05/04/11 08:59	ICP1-HE_110508C : 17		12075
Lead	1210	mg/kg	J+	5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B : 105		12075
Manganese	4390	mg/kg		5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B : 105		12075
Zinc	2930	mg/kg	J+	5		SW6010B	05/05/11 17:19 / sld	05/04/11 08:59	ICP1-HE_110505B : 105		12075

AB 6/13/11

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 UBMC-BRSD01
Lab ID: H11050051-008
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 04/29/11 15:07
DateReceived: 05/02/11
Report Date: 05/16/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4460	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Arsenic	11	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Cadmium	ND	mg/kg		1		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Copper	12	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Iron	8210	mg/kg	D	8		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Lead	16	mg/kg J+		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Manganese	269	mg/kg		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075
Zinc	92	mg/kg J+		5		SW6010B	05/05/11 17:22 / sld	05/04/11 08:59	ICP1-HE_110505B : 106		12075

AB 6/13/11

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: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

May 16, 2011

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

Workorder No.: H11050051 Quote ID: H645 - UBMC

Project Name: UBMC Sediment

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 5/2/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050051-001	UBMC-BRSD22	04/30/11 9:15	05/02/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11050051-002	UBMC-BRSD22A	04/30/11 9:15	05/02/11	Sediment	Same As Above
H11050051-003	UBMC-BRSD48	04/30/11 10:45	05/02/11	Sediment	Same As Above
H11050051-004	UBMC-BRSD23	04/30/11 11:35	05/02/11	Sediment	Same As Above
H11050051-005	UBMC-BRSD3A	04/30/11 12:15	05/02/11	Sediment	Same As Above
H11050051-006	UBMC-BRSD3B	04/30/11 12:45	05/02/11	Sediment	Same As Above
H11050051-007	UBMC-BRSD38	04/30/11 14:15	05/02/11	Sediment	Same As Above
H11050051-008	UBMC-BRSD01	04/29/11 15:07	05/02/11	Sediment	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11050051

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/2/2011
Reviewed by: BL2000\sdull
Received by: jdh
Reviewed Date: 5/9/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.6°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:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: VBMC	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote # H-645	Contact Name: Shellie Haasland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Brosshack Meg Babits
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) ☐ R U S H

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

Comments: please copy to: abrosshack@portagine.com

Shipped by: Hand Del
Cooler ID(s):
Receipt Temp: 5.6 °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	VBMC-BRSD22	4/30/11	0915	S	VBMC Sediment X
2	VBMC-BRSD22A		0915		
3	VBMC-BRSD48		1045		
4	VBMC-BRSD23		1135		
5	VBMC-BRSD3A		1215		
6	VBMC-BRSD3B		1245		
7	VDMC-BRSD38		1415		
8	VBMC-BRSD01	4/29/11	1507		
9					
10			5/2/11 MB		

LABORATORY USE ONLY H11050051

Custody Record MUST be Signed

Relinquished by (print): Alan Brosshack Date/Time: 5/2/11 @ 1545 Signature:
Relinquished by (print): Date/Time: Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: X

Received by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Received by Laboratory: Jennifer Hagar Date/Time: 5/2/11 15:45 Signature: Jennifer Hagar

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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
Sediment			
Metals by ICP/ICPMS, Total	Aluminum	5	mg/kg
	Arsenic	5	mg/kg
	Cadmium	1	mg/kg
	Copper	5	mg/kg
	Iron	5	mg/kg
	Lead	5	mg/kg
	Manganese	5	mg/kg
	Zinc	5	mg/kg

UBMC Groundwater

SDG#:	**H11050107**
Number of Samples:	**9**
Sample Matrix:	**Water**
Applicable Analytes:	**pH, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Anions (Chloride and Sulfate), Hardness, Metals Dissolved: (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**

Validator: Amber Brinly **Date Completed:** 06/03/11

Portage Review: _____ **Date Completed:** 06/03/11

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 Groundwater water sample results were received by Portage, Inc. in May 2011. 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), and total recoverable metals (Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, and Zn) results. The samples were analyzed in accordance with Standard Methods 4500 H-B, 2510B, 2540D, 2540C, 2320B, and 2340B, and USEPA Methods 300.0, 245.1, 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:
UBMC TDMW4D	H11050107-001	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/04/11	05/06/11
UBMC TDMW-6	H11050107-002	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/04/11	05/06/11
UBMC TDMW08	H11050107-003	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/04/11	05/06/11
UBMC TDMW07	H11050107-004	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/05/11	05/06/11
UBMC TDMW5	H11050107-005	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/05/11	05/06/11
UBMC TDMW03	H11050107-006	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/05/11	05/06/11

Cross-Reference for Cross-Reference for UBMC Groundwater Water Samples Cont...					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMC TDMW01	H11050107-007	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/05/11	05/06/11
UBMC TDMW2D	H11050107-008	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/05/11	05/06/11
UBMC TDMW2S	H11050107-009	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals	05/05/11	05/06/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 05/04/11 and 05/05/11. The conductivity results were analyzed on 05/06/11, the TSS, TDS, chloride, and sulfate results were analyzed on 05/09/11, the hardness results were analyzed on 05/12/11, and the dissolved metals results were analyzed on 05/09/11 and 05/11/11. The analyses occurred within the 28-day holding time for conductivity, sulfate, and chloride, within the 7-day holding time for TSS and TDS, and within the 180-day holding time for hardness and dissolved metals.

The pH samples were collected on 05/04/11 and 05/05/11, received 05/06/11, and analyzed on 05/06/11 outside of the 24-hour holding time by approximately 2-26 hours. 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 properly preserved and the laboratory made every effort to analyze the samples in a timely fashion.

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 (run ID ICPMS204-B_110509A) associated with field samples UBMC TDMW4D, UBMC TDMW06, and UBMC TDMW08 affecting all target analytes except copper exhibited positive detections between the MDL and RL for aluminum, iron, lead, magnesium, manganese, potassium, sodium, and zinc. Aluminum in UBMC TDMW06 has been qualified with a "U" validation flag as the reported result was equal to the RL and as the PB concentration was between the MDL and RL as prescribed by the USEPA Functional Guidelines and analytical methods. The remaining aluminum and all iron, lead, magnesium, manganese, potassium, sodium, and zinc results warrant no qualification as the reported results were either non-detect or greater than the RL and five times the PB concentration as prescribed by the USEPA Functional Guidelines and analytical methods.

The PB (run ID ICPMS204-B_110511A) affecting copper in field samples UBMC TDMW4D, UBMC TDMW06, and UBMC TDMW08 and all remaining samples and target analytes exhibited positive detections between the MDL and RL for calcium, copper, iron, potassium, sodium, and zinc. Copper in UBMC TDMW4D and UBMC TDMW06, zinc in UBMC TDMW5, and sodium in UBMC TDMW2D and UBMC TDMW2S have been qualified with a "U" validation flag as the reported result was equal to the RL and as the PB concentration was between the MDL and RL as prescribed by the USEPA Functional Guidelines and analytical methods. The remaining copper, zinc, and sodium results and all calcium, iron, and potassium results were either non-detect or greater than the RL and greater than five times the PB concentration as prescribed by the USEPA Functional Guidelines and analytical methods.

The remaining PB results were non-detect and no qualification is warranted.

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 (113%) and MSD (127%) for sulfate was outside of the 90-110% acceptance criteria per USEPA Method 300.0. All sulfate results, except UBMC TDMW08 and UBMC TDMW07, have been qualified with a "J+" validation flag due to sample results greater than the MDL and high MS/MSD recoveries as prescribed by the USEPA Functional Guidelines and the analytical methods. The remaining sulfate results were non-detect and warrant no qualification due to high MS/MSD recoveries as prescribed by the USEPA Functional Guidelines and the analytical methods.

The MS/MSD results associated with field samples UBMC TDMW4D, UBMC TDMW06, and UBMC TDMW08for aluminum (53% and 56%) and for calcium (66% and 70%) were outside of the 75-125% acceptance criteria as prescribed by the USEPA Functional Guidelines and the analytical methods. Aluminum and copper in UBMC TDMW4D and UBMC TDMW06 have been qualified with a "J-" validation flag due to low MS/MSD recoveries as prescribed by the USEPA Functional Guidelines and the analytical methods. Aluminum in UBMC TDMW06 has also been qualified with a "U" validation flag due to detection in the method blank resulting in a "UJ-" qualification. Aluminum and copper in UBMC TDMW08 were non-detect and have been qualified with a "UJ" validation flag due to low MS/MSD recovery as prescribed by the USEPA Functional Guidelines and the analytical methods.

The remaining MS/MSD recovery and all MSD RPD results were within the acceptance criteria as prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were nine (9) water field samples included in SDG# H11050107. Nine (9) field samples were analyzed for pH, conductivity, 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.

All sulfate results, except UBMC TDMW08 and UBMC TDMW07, have been qualified with a "J+" validation flag to denote the reported result is an estimate with a high bias due to high MS/MSD recoveries.

Aluminum in UBMC TDMW4D has been qualified with a "J-" validation flag to denote the reported result is an estimate with a low bias due to low MS/MSD recovery. Aluminum in UBMC TDMW06 has been qualified with a "UJ-" validation flag to denote the reported result is non-detect at the reported value, and the reported value is an estimate with a low bias due to positive detection in the PB and low MS/MSD recovery. Aluminum in UBMC TDMW08 has been qualified with a "UJ" validation flag to denote the reported concentration is non-detect, and the reported concentration is an estimate due to low MS/MSD recoveries.

Calcium in UBMC TDMW4D and UBMC TDMW06 has been qualified with a "J-" validation flag to denote the reported result is an estimate with a low bias due to low MS/MSD recovery. Calcium in UBMC TDMW08 has been qualified with a "UJ" validation flag to denote the reported concentration is non-detect, and the reported concentration is an estimate due to low MS/MSD recoveries.

Copper in UBMC TDMW4D and UBMC TDMW06, zinc in UBMC TDMW5, and sodium in UBMC TDMW2D and UBMC TDMW2S have been qualified with a "U" validation flag to denote the reported concentration is non-detect due to detection in the PB.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC TDMW4D
Lab ID: H11050107-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/04/11 14:05 **DateReceived:** 05/06/11
Report Date: 05/17/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.	J-	0.1		A4500-H B	05/06/11 15:51 / cmm		PH2_110506A : 5		110506A-PH-W
Conductivity	221	umhos/cm		1		A2510 B	05/06/11 15:49 / cmm		COND_110506A : 221		0506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	32	mg/L		10		A2540 D	05/09/11 10:27 / cmm	05/09/11 08:32	-124 (14410200)_110509A : 17		12125
Solids, Total Dissolved TDS @ 180 C	139	mg/L		10		A2540 C	05/09/11 10:54 / cmm	05/09/11 08:42	-124 (14410200)_110509B : 18		12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 16:10 / abb		IC101-H_110509A : 33		R70867
Sulfate	37	mg/L	J+	1		E300.0	05/09/11 16:10 / abb		IC101-H_110509A : 33		R70867
Hardness as CaCO3	101	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A : 1		R70971
METALS, DISSOLVED											
Aluminum	0.04	mg/L	J-	0.03		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Arsenic	ND	mg/L		0.003		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Cadmium	ND	mg/L		0.00008		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Calcium	21	mg/L	J-	1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Copper	0.001	mg/L	U	0.001		E200.8	05/11/11 21:20 / dck		ICPMS204-B_110511A : 153		R70942
Iron	ND	mg/L		0.05		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Lead	ND	mg/L		0.0005		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Magnesium	12	mg/L		1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Manganese	ND	mg/L		0.005		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Potassium	ND	mg/L		1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Sodium	2	mg/L		1		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858
Zinc	ND	mg/L		0.01		E200.8	05/09/11 23:13 / dck		ICPMS204-B_110509A : 123		R70858

AB 5/13/11

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 UBMC TDMW06
Lab ID: H11050107-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/04/11 14:05
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 16:01 / cmm		PH2_110506A : 7		110506A-PH-W
Conductivity	214	umhos/cm		1		A2510 B	05/06/11 15:51 / cmm		COND_110506A : 231		0506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	30	mg/L		10		A2540 D	05/09/11 10:27 / cmm	05/09/11 08:32	-124 (14410200)_110509A : 18		12125
Solids, Total Dissolved TDS @ 180 C	149	mg/L		10		A2540 C	05/09/11 10:54 / cmm	05/09/11 08:42	-124 (14410200)_110509B : 19		12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 16:25 / abb		IC101-H_110509A : 34		R70867
Sulfate	37	mg/L	J+	1		E300.0	05/09/11 16:25 / abb		IC101-H_110509A : 34		R70867
Hardness as CaCO3	102	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A : 2		R70971
METALS, DISSOLVED											
Aluminum	0.03	mg/L	UJ-	0.03		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Arsenic	ND	mg/L		0.003		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Cadmium	ND	mg/L		0.00008		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Calcium	21	mg/L	J-	1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Copper	0.001	mg/L	U	0.001		E200.8	05/11/11 21:25 / dck		ICPMS204-B_110511A : 154		R70942
Iron	ND	mg/L		0.05		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Lead	ND	mg/L		0.0005		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Magnesium	12	mg/L		1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Manganese	ND	mg/L		0.005		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Potassium	ND	mg/L		1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Sodium	2	mg/L		1		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858
Zinc	ND	mg/L		0.01		E200.8	05/09/11 23:30 / dck		ICPMS204-B_110509A : 127		R70858

KB 6/13/11

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 UBMC TDMW08
Lab ID: H11050107-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/04/11 14:25
DateReceived: 05/06/11
Report Date: 05/17/11

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	05/06/11 16:09 / cmm		PH2_110506A : 8		110506A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	05/06/11 15:54 / cmm		COND_110506A : 241		0506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:27 / cmm	05/09/11 08:32	-124 (14410200)_110509A : 19		12125
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	-124 (14410200)_110509B : 20		12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 16:40 / abb		IC101-H_110509A : 35		R70867
Sulfate	ND	mg/L		1		E300.0	05/09/11 16:40 / abb		IC101-H_110509A : 35		R70867
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A : 3		R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L	UJ	0.03		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Calcium	ND	mg/L	UJ	1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Iron	ND	mg/L		0.05		E200.8	05/09/11 23:34 / dck		ICPMS204-B_110509A : 128		R70858
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Magnesium	ND	mg/L		1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Sodium	ND	mg/L		1		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942
Zinc	ND	mg/L		0.01		E200.8	05/11/11 21:29 / dck		ICPMS204-B_110511A : 155		R70942

AB 6/13/11

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 UBMC TDMW07
Lab ID: H11050107-004
Matrix: Groundwater

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

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.	J-	0.1		A4500-H B	05/06/11 16:12 / cmm		PH2_110506A : 9		110506A-PH-W
Conductivity	3	umhos/cm		1		A2510 B	05/13/11 10:25 / cmm		COND_110513A : 710513A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:28 / cmm	05/09/11 08:32	-124 (14410200)_110509A : 20		12125
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	-124 (14410200)_110509B : 21		12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 17:27 / abb		IC101-H_110509A : 38		R70867
Sulfate	ND	mg/L		1		E300.0	05/09/11 17:27 / abb		IC101-H_110509A : 38		R70867
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A : 4		R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Calcium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Magnesium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Sodium	ND	mg/L		1		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942
Zinc	ND	mg/L		0.01		E200.8	05/11/11 21:34 / dck		ICPMS204-B_110511A : 156		R70942

AB 6/13/11

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 UBMC TDMW5
Lab ID: H11050107-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 09:30
DateReceived: 05/06/11
Report Date: 05/17/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.	J-	0.1		A4500-H B	05/06/11 16:17 / cmm		PH2_110506A : 10		110506A-PH-W
Conductivity	247	umhos/cm		1		A2510 B	05/06/11 15:57 / cmm		COND_110506A : 261		0506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	05/09/11 10:29 / cmm	05/09/11 08:32	-124 (14410200)_110509A : 21		12125
Solids, Total Dissolved TDS @ 180 C	163	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	-124 (14410200)_110509B : 22		12128
INORGANICS											
Chloride	ND	mg/L	J+	1		E300.0	05/09/11 17:42 / abb		IC101-H_110509A : 39		R70867
Sulfate	47	mg/L		1		E300.0	05/09/11 17:42 / abb		IC101-H_110509A : 39		R70867
Hardness as CaCO3	120	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A : 5		R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Calcium	26	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Magnesium	14	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Sodium	2	mg/L		1		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942
Zinc	0.01	mg/L	U	0.01		E200.8	05/11/11 21:38 / dck		ICPMS204-B_110511A : 157		R70942

AB 6/13/11

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 UBMC TDMW03
Lab ID: H11050107-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 10:40 **DateReceived:** 05/06/11
Report Date: 05/17/11

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	05/06/11 16:20 / cmm		PH2_110506A : 11		110506A-PH-W
Conductivity	540	umhos/cm		1		A2510 B	05/06/11 15:58 / cmm		COND_110506A : 271		0506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	05/09/11 10:29 / cmm	05/09/11 08:32	-124 (14410200)_110509A : 22		12125
Solids, Total Dissolved TDS @ 180 C	434	mg/L		10		A2540 C	05/09/11 10:55 / cmm	05/09/11 08:42	-124 (14410200)_110509B : 23		12128
INORGANICS											
Chloride	ND	mg/L		1		E300.0	05/09/11 17:58 / abb		IC101-H_110509A : 40		R70867
Sulfate	250	mg/L	J+	1		E300.0	05/09/11 17:58 / abb		IC101-H_110509A : 40		R70867
Hardness as CaCO3	275	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A : 6		R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Cadmium	0.00013	mg/L		0.00008		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Calcium	64	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Magnesium	28	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Manganese	0.005	mg/L		0.005		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Sodium	2	mg/L		1		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942
Zinc	0.03	mg/L		0.01		E200.8	05/11/11 21:42 / dck		ICPMS204-B_110511A : 158		R70942

MB 6/13/11

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 UBMC TDMW01
Lab ID: H11050107-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 12:55 **DateReceived:** 05/06/11
Report Date: 05/17/11

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	05/06/11 16:24 / cmm		PH2_110506A	12	110506A-PH-W
Conductivity	482	umhos/cm		1		A2510 B	05/06/11 15:58 / cmm		COND_110506A	28	10506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:30 / cmm	05/09/11 08:32	-124 (14410200)_110509A	23	12125
Solids, Total Dissolved TDS @ 180 C	350	mg/L		10		A2540 C	05/09/11 10:56 / cmm	05/09/11 08:42	-124 (14410200)_110509B	24	12128
INORGANICS											
Chloride	ND	mg/L	J+	1		E300.0	05/09/11 18:13 / abb		IC101-H_110509A	41	R70867
Sulfate	180	mg/L		1		E300.0	05/09/11 18:13 / abb		IC101-H_110509A	41	R70867
Hardness as CaCO3	247	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	7	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Cadmium	0.00036	mg/L		0.00008		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Calcium	45	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Magnesium	33	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Sodium	2	mg/L		1		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942
Zinc	0.26	mg/L		0.01		E200.8	05/11/11 21:47 / dck		ICPMS204-B_110511A	159	R70942

6/13/11

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

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Helena, MT 877-472-0711 • Billings, MT 800-735-4489 • Casper, WY 888-235-0515
Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC TDMW2D
Lab ID: H11050107-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 13:40 **DateReceived:** 05/06/11
Report Date: 05/17/11

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	05/06/11 16:28 / cmm		PH2_110506A	13	110506A-PH-W
Conductivity	224	umhos/cm		1		A2510 B	05/06/11 16:00 / cmm		COND_110506A	3010	506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/11 10:30 / cmm	05/09/11 08:32	-124 (14410200)_110509A	24	12125
Solids, Total Dissolved TDS @ 180 C	141	mg/L		10		A2540 C	05/09/11 10:56 / cmm	05/09/11 08:42	-124 (14410200)_110509B	25	12128
INORGANICS											
Chloride	ND	mg/L	J+	1		E300.0	05/09/11 18:28 / abb		IC101-H_110509A	42	R70867
Sulfate	33	mg/L		1		E300.0	05/09/11 18:28 / abb		IC101-H_110509A	42	R70867
Hardness as CaCO3	110	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A	8	R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Cadmium	ND	mg/L		0.00008		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Calcium	23	mg/L		1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Lead	ND	mg/L		0.0005		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Magnesium	13	mg/L		1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Manganese	ND	mg/L		0.005		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Sodium	1	mg/L	U	1		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942
Zinc	ND	mg/L		0.01		E200.8	05/11/11 21:51 / dck		ICPMS204-B_110511A	160	R70942

AB 6/3/11

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 UBMC TDMW2S
Lab ID: H11050107-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/05/11 14:00 **DateReceived:** 05/06/11
Report Date: 05/17/11

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	05/06/11 16:35 / cmm		PH2_110506A : 14		110506A-PH-W
Conductivity	258	umhos/cm		1		A2510 B	05/06/11 16:01 / cmm		COND_110506A : 321		0506A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	286	mg/L		10		A2540 D	05/09/11 10:31 / cmm	05/09/11 08:34	-124 (14410200)_110509A : 27		12126
Solids, Total Dissolved TDS @ 180 C	180	mg/L		10		A2540 C	05/09/11 10:57 / cmm	05/09/11 08:44	-124 (14410200)_110509B : 28		12129
INORGANICS											
Chloride	ND	mg/L	J+	1		E300.0	05/09/11 19:15 / abb		IC101-H_110509A : 45		R70867
Sulfate	55	mg/L		1		E300.0	05/09/11 19:15 / abb		IC101-H_110509A : 45		R70867
Hardness as CaCO3	132	mg/L		1		A2340 B	05/12/11 16:17 / wjj		WATERCALC_110512A : 9		R70971
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Arsenic	ND	mg/L		0.003		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Cadmium	0.00048	mg/L		0.00008		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Calcium	27	mg/L		1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Copper	ND	mg/L		0.001		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Iron	ND	mg/L		0.05		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Lead	0.0005	mg/L		0.0005		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Magnesium	16	mg/L		1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Manganese	1.42	mg/L		0.005		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Potassium	ND	mg/L		1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Sodium	1	mg/L	U	1		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942
Zinc	0.51	mg/L		0.01		E200.8	05/11/11 21:55 / dck		ICPMS204-B_110511A : 161		R70942

AB 6/13/11

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

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

May 17, 2011

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

Workorder No.: H11050107 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 5/6/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11050107-001	UBMC TDMW4D	05/04/11 14:05	05/06/11	Groundwater	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11050107-002	UBMC TDMW06	05/04/11 14:05	05/06/11	Groundwater	Same As Above
H11050107-003	UBMC TDMW08	05/04/11 14:25	05/06/11	Groundwater	Same As Above
H11050107-004	UBMC TDMW07	05/05/11 9:12	05/06/11	Groundwater	Same As Above
H11050107-005	UBMC TDMW5	05/05/11 9:30	05/06/11	Groundwater	Same As Above
H11050107-006	UBMC TDMW03	05/05/11 10:40	05/06/11	Groundwater	Same As Above
H11050107-007	UBMC TDMW01	05/05/11 12:55	05/06/11	Groundwater	Same As Above
H11050107-008	UBMC TDMW2D	05/05/11 13:40	05/06/11	Groundwater	Same As Above
H11050107-009	UBMC TDMW2S	05/05/11 14:00	05/06/11	Groundwater	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11050107

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/6/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 5/9/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	6.2°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:

Received a nitric preserved, unfiltered sample container. No unfiltered metals analysis is on the quote for the UBMC Groundwater set. L/M and emailed A. Dreesbach. TI 5/6/11. Per phone call from A. Dreesbach, we are to analyze only for what is in the quote. TI 5/9/11.

ENERGY LABORATORIES

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 - SRS	UMBC	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 Pat Seccomb

Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

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

ANALYSIS REQUESTED

SEE ATTACHED

Normal Turnaround (TAT)

RUSH

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

Comments: please copy results to adreesbach@portagcinc.com

Shipped by: HAND

Cooler ID(s): Y

Receipt Temp: 6.2 °C

On Ice: Yes No

Custody Seal Y N

Intact Y N

Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	UBMCTDMW4D	5/4/11	1405	W	UBMC Groundwater	X				H11050107
2	UBMCTDMW06	5/4/11	1405							
3	UBMCTDMW08	5/4/11	1425							
4	UBMCTDMW07	5/5/11	0912							
5	UBMCTDMW5	5/5/11	0930							
6	UBMCTDMW03	5/5/11	1040							
7	UBMCTDMW01	5/5/11	1255							
8	UBMCTDMW2D	5/5/11	1340							
9	UBMCTDMW2S	5/5/11	1400							
10				AD 5/6/11						

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	5/6/11 1330	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

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

Received by Laboratory: Esther Merritt Date/Time: 5-6-11 13:30 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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Ground Water			
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Calcium	1	mg/L
	Copper	0.001	mg/L
	Iron	0.05	mg/L
	Lead	0.0005	mg/L
	Magnesium	1	mg/L
	Manganese	0.005	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

UBMC Surface Water

SDG#:	**H11060292**
Number of Samples:	**10**
Sample Matrix:	**Water**
Applicable Analytes:	**pH, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Anions (Chloride and Sulfate), Alkalinity (Total Alkalinity, Bicarbonate, and Carbonate), 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**

Validator: Amber Brindy **Date Completed:** 07/26/11

Portage Review: [signature] **Date Completed:** 07/28/11

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 water sample results were received by Portage, Inc. in July 2011. 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, 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 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 Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMC-BRSW25	H11060292-001	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW34	H11060292-002	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW29	H11060292-003	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW38	H11060292-004	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11

Cross-Reference for UBMC Surface Water Water Samples

Field Id#:	Lab Id#:	Matrix:	Analysis Request:	Date of Collection:	Date of Laboratory Receipt:
UBMC-BRSW22	H11060292-005	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW24	H11060292-006	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW45	H11060292-007	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW1	H11060292-008	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW2	H11060292-009	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11
UBMC-BRSW48	H11060292-010	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate), chloride, sulfate, hardness, dissolved metals, & total recoverable metals	06/13/11	06/15/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 06/13/11. The conductivity, TSS, TDS, and alkalinity (total alkalinity, bicarbonate, and carbonate) results were analyzed on 06/16/11, chloride and sulfate results were analyzed on 06/17/11, hardness results were analyzed on 06/21/11, dissolved metals results were analyzed on 06/16/11 and 06/20/11, and total recoverable metals results were analyzed on 06/20/11. The analyses occurred within the 7-day holding time for TSS and TDS, the 14-day holding time alkalinity (total alkalinity, bicarbonate, and carbonate), the 28-day holding time for conductivity, sulfate, and chloride, and within the 180-day holding time for hardness, dissolved metals, and total recoverable metals.

The pH samples were collected on 06/13/11, received on 06/15/11, and analyzed on 06/16/11 approximately 45-52 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 and as the samples were properly preserved and as the laboratory made every effort to analyze the samples in a timely fashion.

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 total alkalinity exhibited a positive detection between the MDL and RL. No qualification is warranted as the reported results were either non-detect or greater than the RL and greater than five times the PB concentration per the USEPA Functional Guidelines and the analytical methods.

The PB (run ID ICPMS204B_110620B) analyzed on 06/20/11 at 20:07 for total recoverable metals affecting samples UBMC-BRSW34, UBMC-BRSW29, UBMC-BRSW24, UBMC-BRSW45, UBMC-BRSW1, UBMC-BRSW2 and UBMC-BRSW48 exhibited positive detections between the MDL and RL for arsenic, iron, lead, and zinc. All associated arsenic, iron, lead and zinc results warrant no qualification as the reported results were either non-detect or were greater than the RL and greater than five times the PB concentration as prescribed by the USEPA Functional Guidelines and the analytical methods.

The PB (run ID ICP2-HE_110616A) analyzed on 06/16/11 at 11:59 for dissolved metals for all samples exhibited a positive detection between the MDL and RL for magnesium. Magnesium warrants no qualification as the reported results were either non-detect or were greater than the RL and greater than five times the PB concentration as prescribed by the USEPA Functional Guidelines and the analytical methods.
The PB (run ID ICPMS204-B_110620B) analyzed on 06/20/11, at 17:12 for all dissolved metal results and for total recoverable metals in samples UBMC-BRSW25, UBMC-BRSW38, and UBMC-BRSW22 exhibited positive detections between the MDL and RL for aluminum,

calcium, iron, and zinc. All associated aluminum, calcium, iron, and zinc results warrant no qualification as the reported results were either non-detect or were greater than the RL and greater than five times the PB concentration as prescribed by the USEPA Functional Guidelines and the analytical methods.

The remaining PB results were non-detect and no qualification is warranted.

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):

All MS/MSD recovery RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were (10) water field samples included in SDG# H11060292. Ten (10) field samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total recoverable 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.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW25
Lab ID: H11060292-001
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 10:06
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.6	s.u.	J-	0.1		A4500-H B	06/16/11 14:09 / zeg		MAN-TECH_110617B : 13		R71916
Conductivity	1	umhos/cm		1		A2510 B	06/16/11 09:27 / cmm		COND_110616B : 810616A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:14 / cmm	06/16/11 09:50	J-124 (14410200)_110616A : 3		12578
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/16/11 10:05 / cmm	06/16/11 09:57	J-124 (14410200)_111116A : 3		12580
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	06/16/11 14:09 / zeg		MAN-TECH_110617B : 12		R71916
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	06/16/11 14:09 / zeg		MAN-TECH_110617B : 12		R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:09 / zeg		MAN-TECH_110617B : 12		R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 11:41 / zeg		IC102-H_110617A : 21		R71955
Sulfate	ND	mg/L		1		E300.0	06/17/11 11:41 / zeg		IC102-H_110617A : 21		R71955
Hardness as CaCO3	ND	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A : 3		R72025
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/20/11 21:05 / dck		ICPMS204-B_110620B : 57		R72000
Calcium	ND	mg/L		1		E200.8	06/20/11 21:05 / dck		ICPMS204-B_110620B : 57		R72000
Magnesium	ND	mg/L		1		E200.7	06/16/11 12:32 / sld		ICP2-HE_110616A : 22		R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:32 / sld		ICP2-HE_110616A : 22		R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:32 / sld		ICP2-HE_110616A : 22		R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B : 61		R72000
Cadmium	ND	mg/L		0.00008		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B : 61		R72000
Copper	ND	mg/L		0.001		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B : 61		R72000
Iron	ND	mg/L		0.03		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B : 61		R72000
Lead	ND	mg/L		0.0005		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B : 61		R72000
Manganese	ND	mg/L		0.005		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B : 61		R72000
Zinc	ND	mg/L		0.01		E200.8	06/20/11 21:23 / dck		ICPMS204-B_110620B : 61		R72000

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

7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW34
Lab ID: H11060292-002
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 10:45
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.1		A4500-H B	06/16/11 14:20 / zeg		MAN-TECH_110617B	17	R71916
Conductivity	165	umhos/cm		1		A2510 B	06/16/11 09:27 / cmm		COND_110616B	1	010616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:15 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	5	12578
Solids, Total Dissolved TDS @ 180 C	90	mg/L		10		A2540 C	06/16/11 10:06 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	5	12580
INORGANICS											
Alkalinity, Total as CaCO3	63	mg/L		4		A2320 B	06/16/11 14:20 / zeg		MAN-TECH_110617B	16	R71916
Bicarbonate as HCO3	77	mg/L		4		A2320 B	06/16/11 14:20 / zeg		MAN-TECH_110617B	16	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:20 / zeg		MAN-TECH_110617B	16	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 11:53 / zeg		IC102-H_110617A	22	R71955
Sulfate	17	mg/L		1		E300.0	06/17/11 11:53 / zeg		IC102-H_110617A	22	R71955
Hardness as CaCO3	78	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	4	R72025
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/20/11 21:42 / dck		ICPMS204-B_110620B	65	R72000
Calcium	17	mg/L		1		E200.8	06/20/11 21:42 / dck		ICPMS204-B_110620B	65	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 12:43 / sld		ICP2-HE_110616A	25	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:43 / sld		ICP2-HE_110616A	25	R71921
Sodium	2	mg/L		1		E200.7	06/16/11 12:43 / sld		ICP2-HE_110616A	25	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Cadmium	0.00302	mg/L		0.00008		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Copper	0.021	mg/L		0.001		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Iron	0.22	mg/L		0.03		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Lead	0.0174	mg/L		0.0005		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Manganese	0.336	mg/L		0.005		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577
Zinc	0.47	mg/L		0.01		E200.8	06/20/11 22:05 / dck	06/16/11 09:37	ICPMS204-B_110620B	70	12577

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

7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW29
Lab ID: H11060292-003
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 11:45
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.1		A4500-H B	06/16/11 14:26 / zeg		MAN-TECH_110617B	19	R71916
Conductivity	136	umhos/cm		1		A2510 B	06/16/11 09:28 / cmm		COND_110616B	1110616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:15 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	6	12578
Solids, Total Dissolved TDS @ 180 C	84	mg/L		10		A2540 C	06/16/11 10:07 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	7	12580
INORGANICS											
Alkalinity, Total as CaCO3	63	mg/L		4		A2320 B	06/16/11 14:26 / zeg		MAN-TECH_110617B	18	R71916
Bicarbonate as HCO3	77	mg/L		4		A2320 B	06/16/11 14:26 / zeg		MAN-TECH_110617B	18	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:26 / zeg		MAN-TECH_110617B	18	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 12:04 / zeg		IC102-H_110617A	23	R71955
Sulfate	8	mg/L		1		E300.0	06/17/11 12:04 / zeg		IC102-H_110617A	23	R71955
Hardness as CaCO3	69	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	5	R72025
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/20/11 22:09 / dck		ICPMS204-B_110620B	71	R72000
Calcium	16	mg/L		1		E200.8	06/20/11 22:09 / dck		ICPMS204-B_110620B	71	R72000
Magnesium	7	mg/L		1		E200.7	06/16/11 12:47 / sld		ICP2-HE_110616A	26	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:47 / sld		ICP2-HE_110616A	26	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:47 / sld		ICP2-HE_110616A	26	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Cadmium	0.00188	mg/L		0.00008		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Copper	0.013	mg/L		0.001		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Iron	0.13	mg/L		0.03		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Lead	0.0087	mg/L		0.0005		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Manganese	0.171	mg/L		0.005		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577
Zinc	0.32	mg/L		0.01		E200.8	06/20/11 22:14 / dck	06/16/11 09:37	ICPMS204-B_110620B	72	12577

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW38
Lab ID: H11060292-004
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 12:45
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.1		A4500-H B	06/16/11 14:33 / zeg		MAN-TECH_110617B	21	R71916
Conductivity	159	umhos/cm		1		A2510 B	06/16/11 09:28 / cmm		COND_110616B	1210616A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:16 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	7	12578
Solids, Total Dissolved TDS @ 180 C	88	mg/L		10		A2540 C	06/16/11 10:07 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	8	12580
INORGANICS											
Alkalinity, Total as CaCO3	65	mg/L		4		A2320 B	06/16/11 14:33 / zeg		MAN-TECH_110617B	20	R71916
Bicarbonate as HCO3	79	mg/L		4		A2320 B	06/16/11 14:33 / zeg		MAN-TECH_110617B	20	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:33 / zeg		MAN-TECH_110617B	20	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 12:39 / zeg		IC102-H_110617A	26	R71955
Sulfate	15	mg/L		1		E300.0	06/17/11 12:39 / zeg		IC102-H_110617A	26	R71955
Hardness as CaCO3	78	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	6	R72025
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/20/11 22:18 / dck		ICPMS204-B_110620B	73	R72000
Calcium	17	mg/L		1		E200.8	06/20/11 22:18 / dck		ICPMS204-B_110620B	73	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 12:50 / sld		ICP2-HE_110616A	27	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:50 / sld		ICP2-HE_110616A	27	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:50 / sld		ICP2-HE_110616A	27	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Cadmium	0.00434	mg/L		0.00008		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Copper	0.027	mg/L		0.001		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Iron	0.19	mg/L		0.03		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Lead	0.0212	mg/L		0.0005		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Manganese	0.352	mg/L		0.005		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000
Zinc	0.75	mg/L		0.01		E200.8	06/20/11 22:23 / dck		ICPMS204-B_110620B	74	R72000

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

7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW22
Lab ID: H11060292-005
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.1		A4500-H B	06/16/11 14:40 / zeg		MAN-TECH_110617B	23	R71916
Conductivity	214	umhos/cm		1		A2510 B	06/16/11 09:29 / cmm		COND_110616B	1310616A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:16 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	8	12578
Solids, Total Dissolved TDS @ 180 C	98	mg/L		10		A2540 C	06/16/11 10:07 / cmm	06/16/11 09:57	J-124 (14410200)_111116A	9	12580
INORGANICS											
Alkalinity, Total as CaCO3	69	mg/L		4		A2320 B	06/16/11 14:40 / zeg		MAN-TECH_110617B	22	R71916
Bicarbonate as HCO3	84	mg/L		4		A2320 B	06/16/11 14:40 / zeg		MAN-TECH_110617B	22	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:40 / zeg		MAN-TECH_110617B	22	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 12:51 / zeg		IC102-H_110617A	27	R71955
Sulfate	32	mg/L		1		E300.0	06/17/11 12:51 / zeg		IC102-H_110617A	27	R71955
Hardness as CaCO3	102	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	7	R72025
METALS, DISSOLVED											
Aluminum	0.08	mg/L		0.03		E200.8	06/20/11 22:27 / dck		ICPMS204-B_110620B	75	R72000
Calcium	25	mg/L		1		E200.8	06/20/11 22:27 / dck		ICPMS204-B_110620B	75	R72000
Magnesium	10	mg/L		1		E200.7	06/16/11 12:54 / sld		ICP2-HE_110616A	28	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:54 / sld		ICP2-HE_110616A	28	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:54 / sld		ICP2-HE_110616A	28	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Cadmium	0.00958	mg/L		0.00008		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Copper	0.195	mg/L		0.001		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Iron	0.12	mg/L		0.03		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Lead	0.0175	mg/L		0.0005		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Manganese	0.424	mg/L		0.005		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000
Zinc	1.57	mg/L		0.01		E200.8	06/20/11 22:32 / dck		ICPMS204-B_110620B	76	R72000

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW24
Lab ID: H11060292-006
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.1		A4500-H B	06/16/11 14:48 / zeg		MAN-TECH_110617B	25	R71916
Conductivity	206	umhos/cm		1		A2510 B	06/16/11 09:29 / cmm		COND_110616B	1410616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:16 / cmm	06/16/11 09:50	J-124 (14410200)_110616A	9	12578
Solids, Total Dissolved TDS @ 180 C	112	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	10	12580
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	06/16/11 14:48 / zeg		MAN-TECH_110617B	24	R71916
Bicarbonate as HCO3	85	mg/L		4		A2320 B	06/16/11 14:48 / zeg		MAN-TECH_110617B	24	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:48 / zeg		MAN-TECH_110617B	24	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 13:02 / zeg		IC102-H_110617A	28	R71955
Sulfate	32	mg/L		1		E300.0	06/17/11 13:02 / zeg		IC102-H_110617A	28	R71955
Hardness as CaCO3	101	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	8	R72025
METALS, DISSOLVED											
Aluminum	0.09	mg/L		0.03		E200.8	06/20/11 22:36 / dck		ICPMS204-B_110620B	77	R72000
Calcium	25	mg/L		1		E200.8	06/20/11 22:36 / dck		ICPMS204-B_110620B	77	R72000
Magnesium	10	mg/L		1		E200.7	06/16/11 12:57 / sld		ICP2-HE_110616A	29	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 12:57 / sld		ICP2-HE_110616A	29	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 12:57 / sld		ICP2-HE_110616A	29	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Cadmium	0.00975	mg/L		0.00008		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Copper	0.200	mg/L		0.001		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Iron	0.17	mg/L		0.03		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Lead	0.0202	mg/L		0.0005		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Manganese	0.425	mg/L		0.005		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577
Zinc	1.57	mg/L		0.01		E200.8	06/20/11 22:41 / dck	06/16/11 09:37	ICPMS204-B_110620B	78	12577

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

7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW45
Lab ID: H11060292-007
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 15:12
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.	J-	0.1		A4500-H B	06/16/11 14:55 / zeg		MAN-TECH_110617B	27	R71916
Conductivity	172	umhos/cm		1		A2510 B	06/16/11 09:30 / cmm		COND_110616B	1510616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:17 / cmm	06/16/11 09:50	-124 (14410200)_110616A	10	12578
Solids, Total Dissolved TDS @ 180 C	64	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	11	12580
INORGANICS											
Alkalinity, Total as CaCO3	72	mg/L		4		A2320 B	06/16/11 14:55 / zeg		MAN-TECH_110617B	26	R71916
Bicarbonate as HCO3	87	mg/L		4		A2320 B	06/16/11 14:55 / zeg		MAN-TECH_110617B	26	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 14:55 / zeg		MAN-TECH_110617B	26	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 13:37 / zeg		IC102-H_110617A	31	R71955
Sulfate	13	mg/L		1		E300.0	06/17/11 13:37 / zeg		IC102-H_110617A	31	R71955
Hardness as CaCO3	83	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	9	R72025
METALS, DISSOLVED											
Aluminum	0.12	mg/L		0.03		E200.8	06/20/11 23:04 / dck		ICPMS204-B_110620B	83	R72000
Calcium	19	mg/L		1		E200.8	06/20/11 23:04 / dck		ICPMS204-B_110620B	83	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 13:01 / sld		ICP2-HE_110616A	30	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:01 / sld		ICP2-HE_110616A	30	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:01 / sld		ICP2-HE_110616A	30	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Cadmium	0.00713	mg/L		0.00008		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Copper	0.205	mg/L		0.001		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Iron	0.10	mg/L		0.03		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Lead	0.0168	mg/L		0.0005		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Manganese	0.370	mg/L		0.005		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577
Zinc	0.98	mg/L		0.01		E200.8	06/20/11 23:08 / dck	06/16/11 09:37	ICPMS204-B_110620B	84	12577

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW1
Lab ID: H11060292-008
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 16:08
DateReceived: 06/15/11
Report Date: 07/05/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u. J-		0.1		A4500-H B	06/16/11 15:09 / zeg		MAN-TECH_110617B	31	R71916
Conductivity	148	umhos/cm		1		A2510 B	06/16/11 09:31 / cmm		COND_110616B	1610616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:17 / cmm	06/16/11 09:50	-124 (14410200)_110616A	11	12578
Solids, Total Dissolved TDS @ 180 C	54	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	12	12580
INORGANICS											
Alkalinity, Total as CaCO3	82	mg/L		4		A2320 B	06/16/11 15:09 / zeg		MAN-TECH_110617B	30	R71916
Bicarbonate as HCO3	100	mg/L		4		A2320 B	06/16/11 15:09 / zeg		MAN-TECH_110617B	30	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:09 / zeg		MAN-TECH_110617B	30	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 13:49 / zeg		IC102-H_110617A	32	R71955
Sulfate	2	mg/L		1		E300.0	06/17/11 13:49 / zeg		IC102-H_110617A	32	R71955
Hardness as CaCO3	78	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	10	R72025
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/20/11 23:13 / dck		ICPMS204-B_110620B	85	R72000
Calcium	16	mg/L		1		E200.8	06/20/11 23:13 / dck		ICPMS204-B_110620B	85	R72000
Magnesium	9	mg/L		1		E200.7	06/16/11 13:12 / sld		ICP2-HE_110616A	33	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:12 / sld		ICP2-HE_110616A	33	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:12 / sld		ICP2-HE_110616A	33	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Cadmium	ND	mg/L		0.00008		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Copper	0.001	mg/L		0.001		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Iron	0.10	mg/L		0.03		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Lead	ND	mg/L		0.0005		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Manganese	0.006	mg/L		0.005		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577
Zinc	ND	mg/L		0.01		E200.8	06/20/11 23:17 / dck	06/16/11 09:37	ICPMS204-B_110620B	86	12577

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

JB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW2
Lab ID: H11060292-009
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 17:15
DateReceived: 06/15/11
Report Date: 07/05/11

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	06/16/11 15:15 / zeg		MAN-TECH_110617B	33	R71916
Conductivity	1230	umhos/cm		1		A2510 B	06/16/11 09:31 / cmm		COND_110616B	1710616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:17 / cmm	06/16/11 09:50	-124 (14410200)_110616A	12	12578
Solids, Total Dissolved TDS @ 180 C	978	mg/L		10		A2540 C	06/16/11 10:08 / cmm	06/16/11 09:57	-124 (14410200)_111116A	13	12580
INORGANICS											
Alkalinity, Total as CaCO3	29	mg/L		4		A2320 B	06/16/11 15:15 / zeg		MAN-TECH_110617B	32	R71916
Bicarbonate as HCO3	36	mg/L		4		A2320 B	06/16/11 15:15 / zeg		MAN-TECH_110617B	32	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:15 / zeg		MAN-TECH_110617B	32	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 14:00 / zeg		IC102-H_110617A	33	R71955
Sulfate	720	mg/L	D	2		E300.0	06/17/11 14:00 / zeg		IC102-H_110617A	33	R71955
Hardness as CaCO3	711	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	11	R72025
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/20/11 23:22 / dck		ICPMS204-B_110620B	87	R72000
Calcium	139	mg/L		1		E200.8	06/20/11 23:22 / dck		ICPMS204-B_110620B	87	R72000
Magnesium	89	mg/L		1		E200.7	06/16/11 13:16 / sld		ICP2-HE_110616A	34	R71921
Potassium	2	mg/L		1		E200.7	06/16/11 13:16 / sld		ICP2-HE_110616A	34	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:16 / sld		ICP2-HE_110616A	34	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Cadmium	0.00700	mg/L		0.00008		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Copper	0.009	mg/L		0.001		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Iron	0.40	mg/L		0.03		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Lead	0.0442	mg/L		0.0005		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Manganese	2.36	mg/L		0.005		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577
Zinc	1.75	mg/L		0.01		E200.8	06/20/11 23:26 / dck	06/16/11 09:37	ICPMS204-B_110620B	88	12577

Report Definitions: RL - Analyte reporting limit.
D - RL increased due to sample matrix.

AB 7/26/11

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 UBMC-BRSW48
Lab ID: H11060292-010
Matrix: Aqueous

Project: UBMC
Collection Date: 06/13/11 17:40
Report Date: 07/05/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u. J-		0.1		A4500-H B	06/16/11 15:22 / zeg		MAN-TECH_110617B	35	R71916
Conductivity	178	umhos/cm		1		A2510 B	06/16/11 09:32 / cmm		COND_110616B	1	810616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:18 / cmm	06/16/11 09:50	-124 (14410200)_110616A	13	12578
Solids, Total Dissolved TDS @ 180 C	88	mg/L		10		A2540 C	06/16/11 10:09 / cmm	06/16/11 09:57	-124 (14410200)_111116A	14	12580
INORGANICS											
Alkalinity, Total as CaCO3	72	mg/L		4		A2320 B	06/16/11 15:22 / zeg		MAN-TECH_110617B	34	R71916
Bicarbonate as HCO3	88	mg/L		4		A2320 B	06/16/11 15:22 / zeg		MAN-TECH_110617B	34	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:22 / zeg		MAN-TECH_110617B	34	R71916
Chloride	ND	mg/L		1		E300.0	06/17/11 14:12 / zeg		IC102-H_110617A	34	R71955
Sulfate	13	mg/L		1		E300.0	06/17/11 14:12 / zeg		IC102-H_110617A	34	R71955
Hardness as CaCO3	83	mg/L		1		A2340 B	06/21/11 14:19 / sld		WATERCALC_110621A	12	R72025
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/20/11 23:31 / dck		ICPMS204-B_110620B	89	R72000
Calcium	18	mg/L		1		E200.8	06/20/11 23:31 / dck		ICPMS204-B_110620B	89	R72000
Magnesium	10	mg/L		1		E200.7	06/16/11 13:20 / sld		ICP2-HE_110616A	35	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:20 / sld		ICP2-HE_110616A	35	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:20 / sld		ICP2-HE_110616A	35	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Cadmium	0.00290	mg/L		0.00008		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Copper	0.040	mg/L		0.001		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Iron	0.20	mg/L		0.03		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Lead	0.0202	mg/L		0.0005		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Manganese	0.316	mg/L		0.005		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577
Zinc	0.51	mg/L		0.01		E200.8	06/20/11 23:35 / dck	06/16/11 09:37	ICPMS204-B_110620B	90	12577

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

AB 7/26/11

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

July 05, 2011

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

Workorder No.: H11060292 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 10 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060292-001	UBMC-BRSW25	06/13/11 10:06	06/15/11	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
H11060292-002	UBMC-BRSW34	06/13/11 10:45	06/15/11	Aqueous	Same As Above
H11060292-003	UBMC-BRSW29	06/13/11 11:45	06/15/11	Aqueous	Same As Above
H11060292-004	UBMC-BRSW38	06/13/11 12:45	06/15/11	Aqueous	Same As Above
H11060292-005	UBMC-BRSW22	06/13/11 14:10	06/15/11	Aqueous	Same As Above
H11060292-006	UBMC-BRSW24	06/13/11 14:10	06/15/11	Aqueous	Same As Above
H11060292-007	UBMC-BRSW45	06/13/11 15:12	06/15/11	Aqueous	Same As Above
H11060292-008	UBMC-BRSW1	06/13/11 16:08	06/15/11	Aqueous	Same As Above
H11060292-009	UBMC-BRSW2	06/13/11 17:15	06/15/11	Aqueous	Same As Above
H11060292-010	UBMC-BRSW48	06/13/11 17:40	06/15/11	Aqueous	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11060292

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 6/20/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 UBMC-BRSW45 has no collection date or time on unpreserved sample container - took from COC. TI 6/15/11.

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 - SRS	UBMC	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 Drossbach, Mark Stanisich
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

Standard Turnaround (TAT) — R U S H

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

Comments: Please copy to adrossbach@portagi.com 490-5135

Shipped by: HAND

Cooler ID(s): 4

Receipt Temp: 5.5 °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: H11060292

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	UBMC-BRSW25	6/13/11	1006	W	X
2	UBMC-BRSW34		1045		
3	UBMC-BRSW29		1145		
4	UBMC-BRSW38		1245		
5	UBMC-BRSW22		1410		
6	UBMC-BRSW24		1410		
7	UBMC-BRSW45		1512		
8	UBMC-BRSW1		1608		
9	UBMC-BRSW2		1715		
10	UBMC-BRSW48	6/13/11	1740	W	

UBMC Surface Water

Custody Record MUST be Signed

Relinquished by (print): Alan Drossbach	Date/Time: 6/15/11 @ 1215	Signature:	Received by (print):	Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time: / Signature:
			Received by Laboratory: Esther Mermit	Date/Time: 6-15-11 12:15 / 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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

UBMC Surface Water

SDG#:	**H11060298**
Number of Samples:	**8**
Sample Matrix:	**Water**
Applicable Analytes:	**(8) pH, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Anions (Chloride and Sulfate), Hardness, Metals Dissolved: (Al, Ca, Mg, K, and Na), Total Recoverable Metals (As, Cd, Cu, Fe, Pb, Mn, and Zn), (1) Acidity, (7) Alkalinity (Total Alkalinity, Bicarbonate, and Carbonate)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**

Validator: Amber Brierly **Date Completed:** 07/26/11

Portage Review: [signature] **Date Completed:** 07/28/11`

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 water sample results were received by Portage, Inc. in July 2011. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, TSS, TDS, acidity, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals (Al, Ca, Mg, K, and Na), and total recoverable metals (As, Cd, Cu, Fe, Pb, Mn, and Zn) results. The samples were analyzed in accordance with Standard Methods 4500 H-B, 2510B, 2540D, 2540C, 2310B, 2320B, 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.

It was noted per the laboratory that the field samples were to be analyzed for acidity if the pH<4.5 and analyzed for alkalinity if the pH>4.5. The pH of field sample UBMC-MHTDS-1 (pH 3.8) was less than 4.5; therefore, the field sample was analyzed for acidity instead of alkalinity. The remaining field samples were analyzed for alkalinity.

Cross-Reference for UBMC Surface Water Water Samples

Field Id#:	Lab Id#:	Matrix:	Analysis Request:	Date of Collection:	Date of Laboratory Receipt:
UBMC-BRSW23	H11060298-001	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11
UBMC-BRSW3A	H11060298-002	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11

Cross-Reference for Cross-Reference for UBMC Surface Water Water Samples Cont…

Field Id#:	Lab Id#:	Matrix:	Analysis Request:	Date of Collection:	Date of Laboratory Receipt:
UBMC-BRSW3B	H11060298-003	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11
UBMC-MHTDS-1	H11060298-004	Water	pH, Conductivity, TSS, TDS, acidity, chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11
UBMC-MHTDS-2	H11060298-005	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11
UBMC-MHTDS-3	H11060298-006	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11
UBMC-MHTDS-4	H11060298-007	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11
UBMC-MHTDS-5	H11060298-008	Water	pH, Conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, & carbonate) chloride, sulfate, hardness, dissolved metals, and total recoverable metals	06/14/11	06/15/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 06/14/11. The conductivity, alkalinity, and TSS, and TDS results were analyzed on 06/16/11 within the 28-day holding time for conductivity, the 14-day holding time for alkalinity, and within the 7-day holding time for TSS and TDS. The acidity results were analyzed on 06/24/11 and within the 14-day holding time. The hardness results were analyzed on 06/23/11 and 06/24/11 and were analyzed within the 180 day holding time. The chloride results were analyzed on 06/18/11 and the sulfate results were analyzed on 06/18/11 and 06/23/11 within the 28-day holding time. The dissolved metal results were analyzed on 06/16/11, 06/21/11, 06/22/11, and 06/23/11 and the total recoverable metal results were analyzed on 06/21/11, 06/22/11, and 06/23/11 within the 180-day holding time.

The pH samples were collected on 06/14/11, received on 06/15/11, and analyzed on 06/16/11 approximately 29-31-hrs 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 and as the samples were properly preserved and the laboratory made every effort to analyze the samples in a timely fashion as they were received outside of 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):

The PB for acidity exhibited a positive detection greater than the RL. No qualification is warranted due to positive detection in the PB as the reported result was greater than ten times the PB concentration.

The PB for total alkalinity exhibited a positive detection between the MDL and RL. No qualification is warranted due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The PB (run ID ICPMS204-B_110620B) analyzed on 06/20/11 at 17:25 associated with total recoverable metals As, Cd, Cu, Fe, Pb, Mn, and Zn in field sample UBMC-BRSW23 and total recoverable metals As, Cd, Cu, Fe, Pb in field sample UBMC-BRSW3B and total recoverable metals As, Cu, Fe, and Pb in field sample UBMC-MHTDS-3 exhibited positive detection for manganese between the MDL and RL. Associated manganese results warrant no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The PB (run ID ICPMS204-B_110622A) analyzed on 06/23/11 at 08:03 associated with total recoverable metals Mn and Zn in field sample UBMC-BRSW3B and total recoverable metals Cd, Mn, and Zn in field sample UBMC-MHTDS-3 exhibited positive detections for arsenic, iron lead, manganese, and zinc between the MDL and RL. Arsenic, iron, and lead for field samples

UBMC-BRSW23, UBMC-BRSW3B, and UBMC-MHTDS-3 were associated with PB (run ID ICPMS204-B_110620B) analyzed on 06/20/11 at 17:25 and warrant no qualification due to positive detection in this PB. All associated manganese and zinc results warrant no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The Pb (run ID ICP2-HE-110616A) analyzed on 06/16/11 at 11:59 associated with dissolved metals Mg, K, and Na in all field samples exhibited a positive detection for magnesium between the MDL and RL. Magnesium warrants no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The PB (run ID ICPMS204-B_110620B) analyzed on 06/20/11 at 17:12 was associated with dissolved metal aluminum in all field samples except, UBMC-MHTDS-1 and dissolved metal calcium in all field samples except, UBMC-MHTDS-3. Also associated are total recoverable metals arsenic, cadmium, copper, iron and lead in field sample UBMC-BRSW3A, total recoverable metals arsenic, copper, iron, and lead in field sample UBMC-MHTDS-1 and UBMC-MHTDS-3, all total recoverable metals in field sample UBMC-MHTDS-2, UBMC-MHTDS-4, and UBMC-MHTDS-5. Positive detections were noted in this PB for aluminum, calcium, iron, and zinc between the MDL and RL. All associated aluminum, calcium, iron and zinc results warrant no qualification due to positive detection in the PB as the reported results are greater than the RL and greater than five times the PB concentration.

The PB (run ID ICPMS204-B_110622A) analyzed on 06/23/11 at 06:28 was associated with dissolved metal aluminum in field sample UBMC-MHTDS-3 and total recoverable metals magnesium and zinc in field samples UBMC-BRSW3A and UBMC-MHTDS-3, and total recoverable metals cadmium, magnesium and zinc in field sample UBMC-MHTDS-1 exhibited a positive detection for zinc between the MDL and RL. The associated Zinc results warrant no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The PB (run ID ICPHE_110623A) analyzed on 06/23/11 at 11:46 associated with dissolved metal calcium in field sample UBMC-MHTDS-3 exhibited a positive detection for calcium between the MDL and RL. The associated calcium result warrants no qualification due to positive detection in the PB as the reported result was greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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 (71%) for copper associated with total recoverable metals for field samples UBMC-BRSW3A, UBMC-MHTDS-1, UBMC-MHTDS-2, UBMC-MHTDS-4, and UBMC-MHTDS-5 was outside of the 75-125% acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical method. All associated copper results have been qualified with a "J-" validation flag due to sample results greater than the MDL and low MS recovery.

The remaining MS/MSD recovery and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were eight (8) water field samples included in SDG# H11060298. Eight (8) field samples were analyzed for pH, conductivity, TSS, TDS, chloride, sulfate, hardness, dissolved metals, and total recoverable metals, one (1) field sample was analyzed or acidity, and seven (7) field samples were analyzed for alkalinity (total alkalinity, bicarbonate, and carbonate) 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.

Copper in field samples UBMC-BRSW3A, UBMC-MHTDS-1, UBMC-MHTDS-2, UBMC-MHTDS-4, and UBMC-MHTDS-5 has 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.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW23
Lab ID: H11060298-001
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 08:10
Report Date: 06/27/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.	J-	0.1		A4500-H B	06/16/11 15:29 / zeg		MAN-TECH_110617B	37	R71916
Conductivity	195	umhos/cm		1		A2510 B	06/16/11 10:36 / cmm		COND_110616B	1910616A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:20 / cmm	06/16/11 09:50	-124 (14410200)_110616A	19	12578
Solids, Total Dissolved TDS @ 180 C	80	mg/L		10		A2540 C	06/16/11 10:09 / cmm	06/16/11 09:57	-124 (14410200)_111116A	15	12580
INORGANICS											
Alkalinity, Total as CaCO3	74	mg/L		4		A2320 B	06/16/11 15:29 / zeg		MAN-TECH_110617B	36	R71916
Bicarbonate as HCO3	90	mg/L		4		A2320 B	06/16/11 15:29 / zeg		MAN-TECH_110617B	36	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:29 / zeg		MAN-TECH_110617B	36	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 15:17 / zeg		IC101-H_110618A	25	R71954
Sulfate	21	mg/L		1		E300.0	06/18/11 15:17 / zeg		IC101-H_110618A	25	R71954
Hardness as CaCO3	92	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	2	R72092
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/21/11 22:30 / dck		ICPMS204-B_110620B	241	R72000
Calcium	19	mg/L		1		E200.8	06/21/11 22:30 / dck		ICPMS204-B_110620B	241	R72000
Magnesium	11	mg/L		1		E200.7	06/16/11 13:23 / sld		ICP2-HE_110616A	36	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:23 / sld		ICP2-HE_110616A	36	R71921
Sodium	ND	mg/L		1		E200.7	06/16/11 13:23 / sld		ICP2-HE_110616A	36	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Cadmium	0.00394	mg/L		0.00008		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Copper	0.077	mg/L		0.001		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Iron	0.22	mg/L		0.03		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Lead	0.0122	mg/L		0.0005		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Manganese	0.448	mg/L		0.005		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586
Zinc	0.74	mg/L		0.01		E200.8	06/21/11 22:48 / dck	06/16/11 13:31	ICPMS204-B_110620B	245	12586

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW3A
Lab ID: H11060298-002
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 08:48
Report Date: 06/27/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.	J-	0.1		A4500-H B	06/16/11 15:43 / zeg		MAN-TECH_110617B : 41		R71916
Conductivity	468	umhos/cm		1		A2510 B	06/16/11 10:39 / cmm		COND_110616B : 2110616A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:20 / cmm	06/16/11 09:50	-124 (14410200)_110616A : 20		12578
Solids, Total Dissolved TDS @ 180 C	296	mg/L		10		A2540 C	06/16/11 10:10 / cmm	06/16/11 09:57	-124 (14410200)_111116A : 17		12580
INORGANICS											
Alkalinity, Total as CaCO3	44	mg/L		4		A2320 B	06/16/11 15:43 / zeg		MAN-TECH_110617B : 40		R71916
Bicarbonate as HCO3	53	mg/L		4		A2320 B	06/16/11 15:43 / zeg		MAN-TECH_110617B : 40		R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:43 / zeg		MAN-TECH_110617B : 40		R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 16:03 / zeg		IC101-H_110618A : 28		R71954
Sulfate	170	mg/L		1		E300.0	06/18/11 16:03 / zeg		IC101-H_110618A : 28		R71954
Hardness as CaCO3	195	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B : 3		R72092
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/21/11 23:23 / dck		ICPMS204-B_110620B : 253		R72000
Calcium	37	mg/L		1		E200.8	06/21/11 23:23 / dck		ICPMS204-B_110620B : 253		R72000
Magnesium	25	mg/L		1		E200.7	06/16/11 13:34 / sld		ICP2-HE_110616A : 39		R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:34 / sld		ICP2-HE_110616A : 39		R71921
Sodium	1	mg/L		1		E200.7	06/16/11 13:34 / sld		ICP2-HE_110616A : 39		R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B : 254		R72000
Cadmium	0.0242	mg/L		0.00008		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B : 254		R72000
Copper	0.168	mg/L	J-	0.001		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B : 254		R72000
Iron	0.90	mg/L		0.03		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B : 254		R72000
Lead	0.0201	mg/L		0.0005		E200.8	06/21/11 23:27 / dck		ICPMS204-B_110620B : 254		R72000
Manganese	7.43	mg/L		0.005		E200.8	06/23/11 07:54 / dck		ICPMS204-B_110622A : 115		R72108
Zinc	5.22	mg/L		0.01		E200.8	06/23/11 07:54 / dck		ICPMS204-B_110622A : 115		R72108

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

7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSW3B
Lab ID: H11060298-003
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 09:30
Report Date: 06/27/11
DateReceived: 06/15/11

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	06/16/11 15:49 / zeg		MAN-TECH_110617B : 43		R71916
Conductivity	401	umhos/cm		1		A2510 B	06/16/11 10:39 / cmm		COND_110616B : 2210616A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	22	mg/L		10		A2540 D	06/16/11 10:21 / cmm	06/16/11 09:50	-124 (14410200)_110616A : 21		12578
Solids, Total Dissolved TDS @ 180 C	242	mg/L		10		A2540 C	06/16/11 10:10 / cmm	06/16/11 09:57	-124 (14410200)_111116A : 18		12580
INORGANICS											
Alkalinity, Total as CaCO3	44	mg/L		4		A2320 B	06/16/11 15:49 / zeg		MAN-TECH_110617B : 42		R71916
Bicarbonate as HCO3	54	mg/L		4		A2320 B	06/16/11 15:49 / zeg		MAN-TECH_110617B : 42		R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:49 / zeg		MAN-TECH_110617B : 42		R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 16:19 / zeg		IC101-H_110618A : 29		R71954
Sulfate	150	mg/L		1		E300.0	06/18/11 16:19 / zeg		IC101-H_110618A : 29		R71954
Hardness as CaCO3	118	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B : 4		R72092
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/21/11 23:45 / dck		ICPMS204-B_110620B : 258		R72000
Calcium	23	mg/L		1		E200.8	06/21/11 23:45 / dck		ICPMS204-B_110620B : 258		R72000
Magnesium	15	mg/L		1		E200.7	06/16/11 13:37 / sld		ICP2-HE_110616A : 40		R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:37 / sld		ICP2-HE_110616A : 40		R71921
Sodium	1	mg/L		1		E200.7	06/16/11 13:37 / sld		ICP2-HE_110616A : 40		R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B : 259		12586
Cadmium	0.0488	mg/L		0.00008		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B : 259		12586
Copper	0.447	mg/L		0.001		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B : 259		12586
Iron	2.26	mg/L		0.03		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B : 259		12586
Lead	0.0432	mg/L		0.0005		E200.8	06/21/11 23:50 / dck	06/16/11 13:31	ICPMS204-B_110620B : 259		12586
Manganese	18.0	mg/L		0.005		E200.8	06/23/11 08:07 / dck	06/16/11 13:31	ICPMS204-B_110622A : 118		12586
Zinc	10.3	mg/L		0.01		E200.8	06/23/11 08:07 / dck	06/16/11 13:31	ICPMS204-B_110622A : 118		12586

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-MHTDS-1
Lab ID: H11060298-004
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 09:55
Report Date: 06/27/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	3.8	s.u. J-		0.1		A4500-H B	06/16/11 15:52 / zeg		MAN-TECH_110617B	45	R71916
Conductivity	1650	umhos/cm		1		A2510 B	06/16/11 10:40 / cmm		COND_110616B	2310616A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	32	mg/L		10		A2540 D	06/16/11 10:21 / cmm	06/16/11 09:50	-124 (14410200)_110616A	22	12578
Solids, Total Dissolved TDS @ 180 C	1450	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	-124 (14410200)_111116A	19	12580
INORGANICS											
Acidity, Total as CaCO3	260	mg/L		4.0		A2310 B	06/24/11 13:08 / zeg		MISC WC_110624A	1	H11060294A
Chloride	ND	mg/L		1		E300.0	06/18/11 16:34 / zeg		IC101-H_110618A	30	R71954
Sulfate	970	mg/L	D	5		E300.0	06/18/11 16:34 / zeg		IC101-H_110618A	30	R71954
Hardness as CaCO3	703	mg/L		1		A2340 B	06/24/11 14:17 / sld		WATERCALC_110624A	1	R72141
METALS, DISSOLVED											
Aluminum	9.20	mg/L		0.03		E200.8	06/23/11 08:12 / dck		ICPMS204-B_110622A	119	R72108
Calcium	118	mg/L		1		E200.8	06/21/11 23:54 / dck		ICPMS204-B_110620B	260	R72000
Magnesium	99	mg/L		1		E200.7	06/16/11 13:41 / sld		ICP2-HE_110616A	41	R71921
Potassium	1	mg/L		1		E200.7	06/16/11 13:41 / sld		ICP2-HE_110616A	41	R71921
Sodium	2	mg/L		1		E200.7	06/16/11 13:41 / sld		ICP2-HE_110616A	41	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Cadmium	0.248	mg/L	D	0.0003		E200.8	06/23/11 08:16 / dck		ICPMS204-B_110622A	120	R72108
Copper	1.70	mg/L J-		0.001		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Iron	8.80	mg/L		0.03		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Lead	0.184	mg/L		0.0005		E200.8	06/21/11 23:58 / dck		ICPMS204-B_110620B	261	R72000
Manganese	71.1	mg/L		0.005		E200.8	06/23/11 08:16 / dck		ICPMS204-B_110622A	120	R72108
Zinc	37.8	mg/L		0.01		E200.8	06/23/11 08:16 / dck		ICPMS204-B_110622A	120	R72108

Report Definitions: RL - Analyte reporting limit.
D - RL increased due to sample matrix.

AB 7/26/11

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 UBMC-MHTDS-2
Lab ID: H11060298-005
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 10:10
Report Date: 06/27/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.9	s.u.	J-	0.1		A4500-H B	06/16/11 15:58 / zeg		MAN-TECH_110617B : 47		R71916
Conductivity	387	umhos/cm		1		A2510 B	06/16/11 10:41 / cmm		COND_110616B : 2410616A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:22 / cmm	06/16/11 09:50	-124 (14410200)_110616A : 23		12578
Solids, Total Dissolved TDS @ 180 C	230	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	-124 (14410200)_111116A : 20		12580
INORGANICS											
Alkalinity, Total as CaCO3	15	mg/L		4		A2320 B	06/16/11 15:58 / zeg		MAN-TECH_110617B : 46		R71916
Bicarbonate as HCO3	19	mg/L		4		A2320 B	06/16/11 15:58 / zeg		MAN-TECH_110617B : 46		R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 15:58 / zeg		MAN-TECH_110617B : 46		R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 17:20 / zeg		IC101-H_110618A : 33		R71954
Sulfate	160	mg/L		1		E300.0	06/18/11 17:20 / zeg		IC101-H_110618A : 33		R71954
Hardness as CaCO3	159	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B : 5		R72092
METALS, DISSOLVED											
Aluminum	0.21	mg/L		0.03		E200.8	06/22/11 00:21 / dck		ICPMS204-B_110620B : 266		R72000
Calcium	32	mg/L		1		E200.8	06/22/11 00:21 / dck		ICPMS204-B_110620B : 266		R72000
Magnesium	19	mg/L		1		E200.7	06/16/11 13:45 / sld		ICP2-HE_110616A : 42		R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 13:45 / sld		ICP2-HE_110616A : 42		R71921
Sodium	1	mg/L		1		E200.7	06/16/11 13:45 / sld		ICP2-HE_110616A : 42		R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B : 267		R72000
Cadmium	0.0191	mg/L		0.00008		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B : 267		R72000
Copper	0.205	mg/L	J-	0.001		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B : 267		R72000
Iron	0.67	mg/L		0.03		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B : 267		R72000
Lead	0.0678	mg/L		0.0005		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B : 267		R72000
Manganese	3.98	mg/L		0.005		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B : 267		R72000
Zinc	3.42	mg/L		0.01		E200.8	06/22/11 00:25 / dck		ICPMS204-B_110620B : 267		R72000

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-MHTDS-3
Lab ID: H11060298-006
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 10:46
Report Date: 06/27/11
DateReceived: 06/15/11

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	06/16/11 16:03 / zeg		MAN-TECH_110617B : 49		R71916
Conductivity	1570	umhos/cm		1		A2510 B	06/16/11 10:41 / cmm		COND_110616B : 2510616A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	146	mg/L		10		A2540 D	06/16/11 10:22 / cmm	06/16/11 09:50	-124 (14410200)_110616A : 24		12578
Solids, Total Dissolved TDS @ 180 C	1380	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	-124 (14410200)_111116A : 21		12580
INORGANICS											
Alkalinity, Total as CaCO3	6	mg/L		4		A2320 B	06/16/11 16:03 / zeg		MAN-TECH_110617B : 48		R71916
Bicarbonate as HCO3	8	mg/L		4		A2320 B	06/16/11 16:03 / zeg		MAN-TECH_110617B : 48		R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 16:03 / zeg		MAN-TECH_110617B : 48		R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 17:36 / zeg		IC101-H_110618A : 34		R71954
Sulfate	870	mg/L	D	5		E300.0	06/23/11 19:21 / zeg		IC102-H_110623A : 25		R72128
Hardness as CaCO3	782	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B : 6		R72092
METALS, DISSOLVED											
Aluminum	0.38	mg/L		0.03		E200.8	06/22/11 00:30 / dck		ICPMS204-B_110620B : 268		R72000
Calcium	157	mg/L		1		E200.7	06/23/11 15:02 / sld		ICP2-HE_110623A : 66		R72130
Magnesium	107	mg/L		1		E200.7	06/16/11 13:56 / sld		ICP2-HE_110616A : 45		R71921
Potassium	3	mg/L		1		E200.7	06/16/11 13:56 / sld		ICP2-HE_110616A : 45		R71921
Sodium	2	mg/L		1		E200.7	06/16/11 13:56 / sld		ICP2-HE_110616A : 45		R71921
METALS, TOTAL RECOVERABLE											
Arsenic	0.016	mg/L		0.003		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B : 269		12586
Cadmium	0.220	mg/L	D	0.0003		E200.8	06/23/11 08:21 / dck	06/16/11 13:31	ICPMS204-B_110622A : 121		12586
Copper	2.38	mg/L		0.001		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B : 269		12586
Iron	5.82	mg/L		0.03		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B : 269		12586
Lead	0.185	mg/L		0.0005		E200.8	06/22/11 00:34 / dck	06/16/11 13:31	ICPMS204-B_110620B : 269		12586
Manganese	47.3	mg/L		0.005		E200.8	06/23/11 08:21 / dck	06/16/11 13:31	ICPMS204-B_110622A : 121		12586
Zinc	47.6	mg/L		0.01		E200.8	06/23/11 08:21 / dck	06/16/11 13:31	ICPMS204-B_110622A : 121		12586

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-MHTDS-4
Lab ID: H11060298-007
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 11:10
Report Date: 06/27/11
DateReceived: 06/15/11

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	06/16/11 16:10 / zeg		MAN-TECH_110617B : 51		R71916
Conductivity	457	umhos/cm		1		A2510 B	06/16/11 10:42 / cmm		COND_110616B : 2610616A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:23 / cmm	06/16/11 09:53	-124 (14410200)_110616A : 27		12579
Solids, Total Dissolved TDS @ 180 C	256	mg/L		10		A2540 C	06/16/11 10:11 / cmm	06/16/11 09:57	-124 (14410200)_111116A : 22		12580
INORGANICS											
Alkalinity, Total as CaCO3	34	mg/L		4		A2320 B	06/16/11 16:10 / zeg		MAN-TECH_110617B : 50		R71916
Bicarbonate as HCO3	42	mg/L		4		A2320 B	06/16/11 16:10 / zeg		MAN-TECH_110617B : 50		R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 16:10 / zeg		MAN-TECH_110617B : 50		R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 17:51 / zeg		IC101-H_110618A : 35		R71954
Sulfate	170	mg/L		1		E300.0	06/18/11 17:51 / zeg		IC101-H_110618A : 35		R71954
Hardness as CaCO3	204	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B : 7		R72092
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/22/11 00:39 / dck		ICPMS204-B_110620B : 270		R72000
Calcium	35	mg/L		1		E200.8	06/22/11 00:39 / dck		ICPMS204-B_110620B : 270		R72000
Magnesium	29	mg/L		1		E200.7	06/16/11 14:00 / sld		ICP2-HE_110616A : 46		R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 14:00 / sld		ICP2-HE_110616A : 46		R71921
Sodium	1	mg/L		1		E200.7	06/16/11 14:00 / sld		ICP2-HE_110616A : 46		R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B : 271		R72000
Cadmium	0.00710	mg/L		0.00008		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B : 271		R72000
Copper	0.037	mg/L	J-	0.001		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B : 271		R72000
Iron	0.80	mg/L		0.03		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B : 271		R72000
Lead	0.0141	mg/L		0.0005		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B : 271		R72000
Manganese	0.928	mg/L		0.005		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B : 271		R72000
Zinc	1.41	mg/L		0.01		E200.8	06/22/11 00:43 / dck		ICPMS204-B_110620B : 271		R72000

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

AB 7/26/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-MHTDS-5
Lab ID: H11060298-008
Matrix: Aqueous

Project: UBMC
Collection Date: 06/14/11 11:26
Report Date: 06/27/11
DateReceived: 06/15/11

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	06/16/11 16:16 / zeg		MAN-TECH_110617B	53	R71916
Conductivity	420	umhos/cm		1		A2510 B	06/16/11 10:43 / cmm		COND_110616B	2	710616A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/16/11 10:23 / cmm	06/16/11 09:53	-124 (14410200)_110616A	29	12579
Solids, Total Dissolved TDS @ 180 C	232	mg/L		10		A2540 C	06/16/11 10:12 / cmm	06/16/11 09:57	-124 (14410200)_111116A	23	12580
INORGANICS											
Alkalinity, Total as CaCO3	37	mg/L		4		A2320 B	06/16/11 16:16 / zeg		MAN-TECH_110617B	52	R71916
Bicarbonate as HCO3	46	mg/L		4		A2320 B	06/16/11 16:16 / zeg		MAN-TECH_110617B	52	R71916
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/11 16:16 / zeg		MAN-TECH_110617B	52	R71916
Chloride	ND	mg/L		1		E300.0	06/18/11 18:07 / zeg		IC101-H_110618A	36	R71954
Sulfate	150	mg/L		1		E300.0	06/18/11 18:07 / zeg		IC101-H_110618A	36	R71954
Hardness as CaCO3	183	mg/L		1		A2340 B	06/23/11 07:56 / sld		WATERCALC_110623B	8	R72092
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/22/11 00:48 / dck		ICPMS204-B_110620B	272	R72000
Calcium	32	mg/L		1		E200.8	06/22/11 00:48 / dck		ICPMS204-B_110620B	272	R72000
Magnesium	25	mg/L		1		E200.7	06/16/11 14:04 / sld		ICP2-HE_110616A	47	R71921
Potassium	ND	mg/L		1		E200.7	06/16/11 14:04 / sld		ICP2-HE_110616A	47	R71921
Sodium	1	mg/L		1		E200.7	06/16/11 14:04 / sld		ICP2-HE_110616A	47	R71921
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Cadmium	0.00593	mg/L	J-	0.00008		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Copper	0.032	mg/L		0.001		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Iron	0.11	mg/L		0.03		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Lead	0.0073	mg/L		0.0005		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Manganese	2.02	mg/L		0.005		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000
Zinc	1.26	mg/L		0.01		E200.8	06/22/11 00:52 / dck		ICPMS204-B_110620B	273	R72000

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

AB 7/26/11

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

June 27, 2011

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

Workorder No.: H11060298 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060298-001	UBMC-BRSW23	06/14/11 8:10	06/15/11	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
H11060298-002	UBMC-BRSW3A	06/14/11 8:48	06/15/11	Aqueous	Same As Above
H11060298-003	UBMC-BRSW3B	06/14/11 9:30	06/15/11	Aqueous	Same As Above
H11060298-004	UBMC-MHTDS-1	06/14/11 9:55	06/15/11	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Acidity, Total as CaCO3 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
H11060298-005	UBMC-MHTDS-2	06/14/11 10:10	06/15/11	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
H11060298-006	UBMC-MHTDS-3	06/14/11 10:46	06/15/11	Aqueous	Same As Above
H11060298-007	UBMC-MHTDS-4	06/14/11 11:10	06/15/11	Aqueous	Same As Above
H11060298-008	UBMC-MHTDS-5	06/14/11 11:26	06/15/11	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11060298

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 6/20/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 BRSW3A has a collection time of 8:48 on the COC - sample bottles have 8:43. Emailed client. TI 6/16/11. Per email from A. Dreesbach, the correct sample times for BRSW3A is 0848. TI 6/17/11.

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 - SKS	VBMC	State: MT	Yes ☐ No ☐

Report Mail Address:	Contact Name:	Phone/Fax:	Email:	Sampler: (Please Print)
Quote: 14-645	Shellie Haaland	841-5033	shaaland@mt.gov	Alan Draeseke, Mark Stanisich

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)

R U S H

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

Comments: Please copy adraeseke portageinc.com

Shipped by: Hand

Cooler ID(s): 1

Receipt Temp: 5.5 °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	VBMC-BRSW23	6/14/11	0810	W	X
2	VBMC-BRSW3A		0848		
3	VBMC-BRSW3B		0930		
4	VBMC-MHTDS-1		0955		
5	VBMC-MHTDS-2		1000		
6	VBMC-MHTDS-3		~~0959~~ 1046		
7	VBMC-MHTDS-4		1110		
8	VBMC-MHTDS-5		1126	W	X
9					
10		6/14/11 AD.			

VBMC Surface Water

LABORATORY USE ONLY H11060298

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Draeseke	6/15/11 1215				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:

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

6-15-11 1112 Esther

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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Surface Water			
Acidity, Total as CaCO3	Acidity, Total as CaCO3	4	mg/L
Alkalinity	Alkalinity, Total as CaCO3	4	mg/L
	Bicarbonate as HCO3	4	mg/L
	Carbonate as CO3	4	mg/L
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Calcium	1	mg/L
	Magnesium	1	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
Metals by ICP/ICPMS, Tot. Rec.	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Copper	0.001	mg/L
	Iron	0.03	mg/L
	Lead	0.0005	mg/L
	Manganese	0.005	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

UBMC Sediment

SDG#:	**H11060302**
Number of Samples:	**9**
Sample Matrix:	**Soil/Solid**
Applicable Analytes:	**Total 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**

Validator: Amber Brinly **Date Completed:** 07/27/11

Portage Review: [signature] **Date Completed:** 07/28/11

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 Sediment soil/solid sample results were received by Portage, Inc. in July 2011. The laboratory analytical request provided for a summary data package attached for the total metals (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn) results. The samples were analyzed in accordance with USEPA SW-846 Method 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 Soil/Solid Samples

Field Id#:	Lab Id#:	Matrix:	Analysis Request:	Date of Collection:	Date of Laboratory Receipt:
UBMC-BRSD34	H11060302-001	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD29	H11060302-002	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD38	H11060302-003	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD22	H11060302-004	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD24	H11060302-005	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD45	H11060302-006	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD1	H11060302-007	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD48	H11060302-008	Soil/Solid	Total Metals	06/13/11	06/15/11
UBMC-BRSD23	H11060302-009	Soil/Solid	Total Metals	06/13/11	06/15/11

ANALYTICAL HOLDING TIMES:

The soil/solid samples associated with this SDG were collected on 06/13/11. The total metals results were analyzed on 06/21/11, 06/22/11, 06/23/11, and 06/27/11 within the 180-day 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):

The PB (run ID ICP2-HE_110621A) analyzed on 06/21/11 at 14:46 associated with all target analytes, except iron, in field samples UBMC-BRSD34, UBMC-BRSD29, UBMC-BRSD38, UBMC-BRSD22, UBMC-BRSD24, UBMC-BRSD45, and UBMC-BRSD48 and all target analytes in UBMC-BRSD1 exhibited positive detections between the MDL and RL for aluminum, iron, manganese, and zinc. The associated aluminum, iron, manganese, and zinc results warrant no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The PB (run ID ICP2-HE_110622B) analyzed on 06/22/11 at 20:12 associated with iron in field samples UBMC-BRSD34, UBMC-BRSD29, UBMC-BRSD38, UBMC-BRSD22, UBMC-BRSD24, UBMC-BRSD45, and UBMC-BRSD48exhibited positive detections for aluminum, copper, iron, and zinc between the MDL and RL. Aluminum, copper, and zinc for field samples UBMC-BRSD34, UBMC-BRSD29, UBMC-BRSD38, UBMC-BRSD22, UBMC-BRSD24, UBMC-BRSD45, and UBMC-BRSD48 were associated with PB (run ID ICP2-HE_110621A) analyzed on 06/21/11 at 14:46 and warrant no qualification due to positive detection in this PB. Associated iron results warrant no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The PB (run ID ICP-HE_110623B) analyzed on 06/23/11 at 15:40 associated with sample UBMC-BRSD23 exhibited positive detections for aluminum, arsenic, copper, iron, manganese, and zinc between the MDL and RL. Associated aluminum, arsenic, copper, iron, manganese, and zinc results warrant no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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 result (54%) and MSD result (159%) for cadmium associated with sample UBMC-BRSD23 was outside of the 75-125% acceptance criteria. A post digestion spike was analyzed and was within the 75-125% acceptance criteria. However, in the professional judgment of the validator, the cadmium result for field sample UBMC-BRSD23 exhibited a positive detection and has been qualified with a “J” validation flag due to low and high MS/MSD recoveries.

The remaining MS/MSD recovery and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

A LDS was not required for this SDG as a MSD RPD was reported instead.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were nine (9) soil/solid field samples included in SDG# H11060302. Nine (9) field samples were analyzed for total metals as outlined in the project QAPP.

The cadmium result for field sample UBMC-BRSD23 has been qualified with a "J" validation flag to denote the reported result is an estimate due to low MS and high MSD recoveries.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSD34
Lab ID: H11060302-001
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 10:45
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6240	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Arsenic	28	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Cadmium	9	mg/kg		1		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Copper	301	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Iron	23800	mg/kg		5		SW6010B	06/22/11 20:49 / sld	06/16/11 11:36	ICP2-HE_110622B	34	12582
Lead	956	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Manganese	2200	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582
Zinc	1750	mg/kg		5		SW6010B	06/21/11 14:57 / sld	06/16/11 11:36	ICP2-HE_110621A	85	12582

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 UBMC-BRSD29
Lab ID: H11060302-002
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 11:45
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6430	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A : 88		12582
Arsenic	50	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A : 88		12582
Cadmium	23	mg/kg		1		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A : 88		12582
Copper	491	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A : 88		12582
Iron	31500	mg/kg		5		SW6010B	06/22/11 20:53 / sld	06/16/11 11:36	ICP2-HE_110622B : 35		12582
Lead	1730	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A : 88		12582
Manganese	5720	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A : 88		12582
Zinc	3560	mg/kg		5		SW6010B	06/21/11 15:08 / sld	06/16/11 11:36	ICP2-HE_110621A : 88		12582

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 UBMC-BRSD38
Lab ID: H11060302-003
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 12:45
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5960	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Arsenic	80	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Cadmium	66	mg/kg		1		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Copper	798	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Iron	34000	mg/kg		5		SW6010B	06/22/11 20:56 / sld	06/16/11 11:36	ICP2-HE_110622B	36	12582
Lead	21700	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Manganese	3270	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582
Zinc	10200	mg/kg		5		SW6010B	06/21/11 15:11 / sld	06/16/11 11:36	ICP2-HE_110621A	89	12582

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 UBMC-BRSD22
Lab ID: H11060302-004
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7080	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Arsenic	56	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Cadmium	73	mg/kg		1		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Copper	2030	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Iron	42500	mg/kg		5		SW6010B	06/22/11 21:00 / sld	06/16/11 11:36	ICP2-HE_110622B	37	12582
Lead	2610	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Manganese	17200	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582
Zinc	9960	mg/kg		5		SW6010B	06/21/11 15:15 / sld	06/16/11 11:36	ICP2-HE_110621A	90	12582

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 UBMC-BRSD24
Lab ID: H11060302-005
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 14:10
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7880	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Arsenic	232	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Cadmium	56	mg/kg		1		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Copper	2010	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Iron	38000	mg/kg		5		SW6010B	06/22/11 21:04 / sld	06/16/11 11:36	ICP2-HE_110622B	38	12582
Lead	2980	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Manganese	10400	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582
Zinc	8400	mg/kg		5		SW6010B	06/21/11 15:19 / sld	06/16/11 11:36	ICP2-HE_110621A	91	12582

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 UBMC-BRSD45
Lab ID: H11060302-006
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 15:12
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8840	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Arsenic	73	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Cadmium	25	mg/kg		1		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Copper	1360	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Iron	34600	mg/kg		5		SW6010B	06/22/11 21:07 / sld	06/16/11 11:36	ICP2-HE_110622B	39	12582
Lead	1980	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Manganese	5100	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582
Zinc	3130	mg/kg		5		SW6010B	06/21/11 15:23 / sld	06/16/11 11:36	ICP2-HE_110621A	92	12582

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 UBMC-BRSD1
Lab ID: H11060302-007
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 16:08
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6270	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582
Arsenic	20	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582
Cadmium	ND	mg/kg		1		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582
Copper	21	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582
Iron	21700	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582
Lead	39	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582
Manganese	462	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582
Zinc	153	mg/kg		5		SW6010B	06/21/11 15:27 / sld	06/16/11 11:36	ICP2-HE_110621A	93	12582

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 UBMC-BRSD48
Lab ID: H11060302-008
Matrix: Sediment

Project: UBMC
Collection Date: 06/13/11 17:40
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4520	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Arsenic	165	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Cadmium	23	mg/kg		1		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Copper	663	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Iron	64100	mg/kg	D	8		SW6010B	06/22/11 21:11 / sld	06/16/11 11:36	ICP2-HE_110622B	40	12582
Lead	1810	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Manganese	6560	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582
Zinc	3900	mg/kg		5		SW6010B	06/21/11 15:30 / sld	06/16/11 11:36	ICP2-HE_110621A	94	12582

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 UBMC-BRSD23
Lab ID: H11060302-009
Matrix: Sediment

Project: UBMC
Collection Date: 06/14/11 08:10
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6550	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B : 25		12653
Arsenic	111	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B : 25		12653
Cadmium	45	mg/kg	J	1		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B : 25		12653
Copper	1570	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B : 25		12653
Iron	45900	mg/kg	D	8		SW6010B	06/27/11 14:26 / sld	06/21/11 12:35	ICP2-HE_110627B : 18		12653
Lead	4580	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B : 25		12653
Manganese	10000	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B : 25		12653
Zinc	6630	mg/kg		5		SW6010B	06/23/11 15:50 / sld	06/21/11 12:35	ICP2-HE_110623B : 25		12653

AB 7/27/11

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: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

June 28, 2011

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

Workorder No.: H11060302 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060302-001	UBMC-BRSD34	06/13/11 10:45	06/15/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11060302-002	UBMC-BRSD29	06/13/11 11:45	06/15/11	Sediment	Same As Above
H11060302-003	UBMC-BRSD38	06/13/11 12:45	06/15/11	Sediment	Same As Above
H11060302-004	UBMC-BRSD22	06/13/11 14:10	06/15/11	Sediment	Same As Above
H11060302-005	UBMC-BRSD24	06/13/11 14:10	06/15/11	Sediment	Same As Above
H11060302-006	UBMC-BRSD45	06/13/11 15:12	06/15/11	Sediment	Same As Above
H11060302-007	UBMC-BRSD1	06/13/11 16:08	06/15/11	Sediment	Same As Above
H11060302-008	UBMC-BRSD48	06/13/11 17:40	06/15/11	Sediment	Same As Above
H11060302-009	UBMC-BRSD23	06/14/11 8:10	06/15/11	Sediment	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11060302

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011
Reviewed by: BL2000\sdull
Received by: elm
Reviewed Date: 6/21/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 of BRSD22 on COC - sample jar has BRSW22. Logged in as BRSD22. Received jar with sample ID of BRSD23 collected on 6/14/11 @ 8:10 that is not on COC. Emailed client. TI 6/16/11. Per email from A. Dreesbach, Sediment sample BRSD22 should be “BRSD22” on the jar also. BRSD23 was mistakenly omitted from the COC and does need to be analyzed. TI 6/17/11.

ENERGY

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Page ____ of ____

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC	Sample Origin State:	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote: H-645	Contact Name: Shollie Haaland; Phone/Fax: 841-5033	Email: shaaland@mt.gov	Sampler: (Please Print) Alan Dreesbach, Marko Stanisich
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 adreesbach@portaginc.com

Shipped by: HAND
Cooler ID(s): 1
Receipt Temp: 5.5 °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	ANALYSIS REQUESTED	SEE ATTACHED	LABORATORY USE ONLY
1	UBMC-BRSD34	6/13/11	1045	S	VBMC Sediment	X	H1060302
2	UBMC-BRSD29		1145				
3	UBMC-BRSD38		1245				
4	UBMC-BRSD22		1410				
5	UBMC-BRSD24		1410				
6	UBMC-BRSD45		1512				
7	UBMC-BRSD1		1608				
8	UBMC-BRSD48	6/13/11	1740	S			
9				6/13/11 AD			
10							

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	6/15/11 @ 1215	[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 6-15-11 12:15 Signature: [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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
Sediment			
Metals by ICP/ICPMS, Total	Aluminum	5	mg/kg
	Arsenic	5	mg/kg
	Cadmium	1	mg/kg
	Copper	5	mg/kg
	Iron	5	mg/kg
	Lead	5	mg/kg
	Manganese	5	mg/kg
	Zinc	5	mg/kg

UBMC Sediment

SDG#:	**H11060303**
Number of Samples:	**2**
Sample Matrix:	**Soil/Solid**
Applicable Analytes:	**Total 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**

Validator: _____ **Date Completed:** **07/27/11**

Portage Review: _____ **Date Completed:** **07/28/11**

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 Sediment soil/solid sample results were received by Portage, Inc. in July 2011. The laboratory analytical request provided for a summary data package attached for the total metals (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn) results. The samples were analyzed in accordance with USEPA SW-846 Method 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 Soil/Solid Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMC-BRSD3A	H11060303-001	Soil/Solid	Total Metals	06/14/11	06/15/11
UBMC-BRSD3B	H11060303-002	Soil/Solid	Total Metals	06/14/11	06/15/11

ANALYTICAL HOLDING TIMES:

The soil/solid samples associated with this SDG were collected on 06/14/11. The total metals results were analyzed on 06/21/11 and 06/22/11within the 180-day 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):

The PB (run ID ICP2-HE_110621A) analyzed on 06/21/11 at 14:46 associated with all target analytes, except iron, in field sample UBMC-BRSD3A exhibited positive detections between the MDL and RL for aluminum, iron, manganese, and zinc. Iron in UMBC-BRSD3A warrant no qualification as it was analyzed on 06/22/11 and is associated with PB (run ID ICP2-HE_110622B) analyzed 06/22/11 at 20:12. The associated aluminum, manganese, and zinc results warrant no qualification due to positive detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The PB (run ID ICP2-HE_110622B) analyzed on 06/22/11 at 20:12 associated with iron in field sample UBMC-BRSD3A and all target analytes in field sample UBMC-BRSD3B exhibited positive detections for aluminum, copper, iron, and zinc between the MDL and RL. The associated aluminum, copper, iron, and zinc results warrant no qualification due to positive

detection in the PB as the reported results were greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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 MSD result (63%) for cadmium associated with sample UBMC-BRSD3A was outside of the 75-125% acceptance criteria. Cadmium in UBMC-BRSD3A has been qualified with a "J-" validation flag as the reported result was greater than the MDL and due to low MS recovery.

The remaining MS/MSD recovery and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

A LDS was not required for this SDG as a MSD RPD was reported instead.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were two (2) soil/solid field samples included in SDG# H11060303. Two (2) field samples were analyzed for total metals as outlined in the project QAPP.

The cadmium result for field sample UBMC-BRSD3A has been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MSD recovery.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC-BRSD3A
Lab ID: H11060303-001
Matrix: Sediment

Project: UBMC
Collection Date: 06/14/11 08:48
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3060	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A : 95		12582
Arsenic	28	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A : 95		12582
Cadmium	31	mg/kg	J-	1		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A : 95		12582
Copper	553	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A : 95		12582
Iron	14200	mg/kg		5		SW6010B	06/22/11 21:15 / sld	06/16/11 11:36	ICP2-HE_110622B : 41		12582
Lead	217	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A : 95		12582
Manganese	17700	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A : 95		12582
Zinc	5290	mg/kg		5		SW6010B	06/21/11 15:34 / sld	06/16/11 11:36	ICP2-HE_110621A : 95		12582

AB 7/27/11

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 UMBC-BRSD3B
Lab ID: H11060303-002
Matrix: Sediment

Project: UBMC
Collection Date: 06/14/11 09:30
Report Date: 06/28/11
DateReceived: 06/15/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3570	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Arsenic	27	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Cadmium	30	mg/kg		1		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Copper	534	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Iron	17900	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Lead	229	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Manganese	13700	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582
Zinc	4130	mg/kg		5		SW6010B	06/22/11 21:19 / sld	06/16/11 11:36	ICP2-HE_110622B : 42		12582

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

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

June 28, 2011

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

Workorder No.: H11060303 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 2 samples for MT DEQ-Site Response on 6/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060303-001	UBMC-BRSD3A	06/14/11 8:48	06/15/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11060303-002	UMBC-BRSD3B	06/14/11 9:30	06/15/11	Sediment	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11060303

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 6/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 6/21/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	5.5°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 BRSD3A has a collection time of 8:48 on the COC - sample bag has a time of 8:43. Emailed client. TI 6/16/11. Per email from A. Dreesbach, The correct sample times for BRSD3A is 0848. TI 6/17/11.

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 - SRS		State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:**	**Phone/Fax:**	**Email:**
Quota: 17-645	Shellie Haaland	841-5033	shaaland@mt.gov
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Sampler: (Please Print) Alan Dressback, Marko Stanisich

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ 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

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX										SEE ATTACHED	Normal Turnaround (TAT)
1	VBMC-BRSD3A	6/14/11	0845	S		VBMC								X	X
2	VBMC-BRSD3B	6/17/11	0930	S			Sediment							X	
3															
4															
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9															
10															

6/17/11 MS-

RUSH

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

Comments: Please copy adressback@portageinc.com

Shipped by: HAND

Cooler ID(s): 4

Receipt Temp: 5.5 °C

On Ice: (Yes) No

Custody Seal Y (N)

Intact Y (N)

Signature Match Y N

LABORATORY USE ONLY H11060303

Custody Record MUST be Signed

Relinquished by (print): Alan Dressback	Date/Time: 6/15/11 @ 1215	Signature:	Received by (print):
Relinquished by (print):	Date/Time:	Signature:	Received by (print):
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received By Laboratory: Esther Merrick 6-15-11 12:15

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.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
Sediment			
Metals by ICP/ICPMS, Total	Aluminum	5	mg/kg
	Arsenic	5	mg/kg
	Cadmium	1	mg/kg
	Copper	5	mg/kg
	Iron	5	mg/kg
	Lead	5	mg/kg
	Manganese	5	mg/kg
	Zinc	5	mg/kg

UBMC Groundwater

SDG#:	**H11060352**
Number of Samples:	**10**
Sample Matrix:	**Water**
Applicable Analytes:	**pH, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (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**

Validator: Amber Brinly **Date Completed:** **07/27/11**

Portage Review: [signature] **Date Completed:** **07/28/11**

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 Groundwater water sample results were received by Portage, Inc. in July 2011. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, TSS, TDS, chloride, sulfate, hardness, 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, 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:**
UBMC TDMW07	H11060352-001	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11
UBMC TDMW05	H11060352-002	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11
UBMC TDMW08	H11060352-003	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11
UBMC TDMW4D	H11060352-004	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11
UBMC TDMW06	H11060352-005	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11
UBMC TDMW01	H11060352-006	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11
UBMC TDMW02D	H11060352-007	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11
UBMC TDMW02S	H11060352-008	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11

Cross-Reference for UBMC Groundwater Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMC TDMW3D	H11060352-009	Water	pH, Conductivity, TSS, TDS, chloride, sulfate, hardness, & dissolved metals	06/16/11	06/17/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 06/16/11. The conductivity and TSS results were analyzed on 06/20/11 within the 28-day holding time for conductivity and within the 7-day holding time for TSS. The chloride and sulfate results were analyzed on 06/21/11 within the 28-day holding time. The hardness results were analyzed on 06/29/11 within the 180-day holding time. The dissolved metals were analyzed on 06/24/11 and 06/28/11 within the 180-day holding time.

The TDS result for field sample UBMC TDMW08 was re-analyzed on 06/24/11one day outside of the 7-day holding time to confirm the inital sample result per the Form 1. The laboratory reported the re-analysis result. In the professional judgment of the validator, the TDS result for field sample UBMC TDMW08 was non-detect and has been qualified with a “UJ” validation flag as the holding time was minimally exceeded resulting in minimal impact to the data. The remaining TDS results were analyzed within the 7-day holding time.

The pH samples were collected on 06/16/11, received on 06/17/11, and analyzed on 06/23/11 approximately 6 days 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 and as the samples were properly preserved and as the laboratory made every effort to analyze the samples in a timely fashion.

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 (run ID ACCU-124 (14410200)_110620B) analyzed on 06/20/11 at 15:14 associated with all field samples, except UMBC TDMW08, for TDS exhibited a positive detection between the MDL and RL. No qualification is warranted as the reported results were either non-detect or greater than the RL.

The PB (run ID ICPMS204-b_110622A) analyzed on 06/23/11 at 06:28 associated with all field samples, except zinc in UBMC TDMW05, exhibited positive detections between the MDL and RL for magnesium, potassium, sodium, and zinc. All associated magnesium, potassium, and zinc

results warrant no qualification due to positive detection in the PB due to sample results either non-detect or greater than the RL and greater than five times the PB concentration. Sodium in UBMC TDMW01, UBMC TDMW02D, UBMC TDMW02S, and UBMC TDMW3D has been qualified with a "U" validation flag due to positive detection in the PB between the MDL and RL and sample results equal to the RL. The remaining sodium results warrant no qualification due to positive detection in the PB as they were either non-detect or greater than the RL and five times the PB concentration

The PB (run ID ICPMS204-B_110626A) analyzed on 06/26/11 at 22:03 and PB (run ID ICPMS204-B_110626A) analyzed on 06/28/11, at 01:09 associated with zinc in field sample UBMC TDMW05 exhibited a positive detection for zinc between the MDL and RL. The zinc result for field sample UBMC TDMW05 was non-detect and warrants no qualification due to positive detection in the PB.

The remaining PB results were non-detect and no qualification is warranted.

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):

All MS/MSD recovery RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were nine (9) water field samples included in SDG# H11060352. Nine (9) field samples were analyzed for pH, conductivity, 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 TDS result for field sample UBMC TDMW08 has been qualified with a “UJ” validation flag to denote the data is non-detect, and the reported concentration is an estimate due to exceeded holding times.

The sodium results for field samples UBMC TDMW01, UBMC TDMW02D, UBMC TDMW02S, and UBMC TDMW3D has been qualified with a “U” validation flag to denote the reported data is non-detect, due to positive detection in the PB.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC TDMW07
Lab ID: H11060352-001
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 07:45 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.	J-	0.1		A4500-H B	06/23/11 17:07 / zeg		MAN-TECH_110623B	12	R72125
Conductivity	1	umhos/cm		1		A2510 B	06/20/11 12:21 / cmm		COND_110620A	3510620A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:33 / cmm	06/20/11 10:58	124 (14410200)_110620A	80	12622
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	06/20/11 15:19 / cmm	06/20/11 11:08	124 (14410200)_110620B	34	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 09:26 / zeg		IC101-H_110620A	86	R72019
Sulfate	ND	mg/L	D	2		E300.0	06/21/11 09:26 / zeg		IC101-H_110620A	86	R72019
Hardness as CaCO3	ND	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	9	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Calcium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Magnesium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Sodium	ND	mg/L		1		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 06:46 / dck		ICPMS204-B_110622A	416	R72108

AD 7/27/11

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 UBMC TDMW05
Lab ID: H11060352-002
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 08:42 **DateReceived:** 06/17/11
Report Date: 07/18/11

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	06/23/11 17:13 / zeg		MAN-TECH_110623B	13	R72125
Conductivity	208	umhos/cm		1		A2510 B	06/20/11 12:22 / cmm		COND_110620A	3610620A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	06/20/11 12:33 / cmm	06/20/11 10:58	-124 (14410200)_110620A	81	12622
Solids, Total Dissolved TDS @ 180 C	132	mg/L		10		A2540 C	06/20/11 15:19 / cmm	06/20/11 11:08	-124 (14410200)_110620B	35	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 09:41 / zeg		IC101-H_110620A	87	R72019
Sulfate	65	mg/L		1		E300.0	06/21/11 09:41 / zeg		IC101-H_110620A	87	R72019
Hardness as CaCO3	95	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	10	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Calcium	24	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Magnesium	9	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Manganese	0.006	mg/L		0.005		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Sodium	2	mg/L		1		E200.8	06/24/11 06:51 / dck		ICPMS204-B_110622A	417	R72108
Zinc	ND	mg/L		0.01		E200.8	06/28/11 02:12 / dck		ICPMS204-B_110626A	387	R72189

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

7/27/11

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMC TDMW08
Lab ID: H11060352-003
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 09:10 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.	J-	0.1		A4500-H B	06/23/11 17:18 / zeg		MAN-TECH_110623B	14	R72125
Conductivity	3	umhos/cm		1		A2510 B	06/20/11 12:23 / cmm		COND_110620A	3710620A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	06/20/11 12:34 / cmm	06/20/11 10:58	124 (14410200)_110620A	82	12622
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	UJ H	10		A2540 C	06/24/11 14:38 / cmm	06/24/11 14:22	124 (14410200)_110624C	33	12707
The TDS was re-analyzed past the method recommended hold time to confirm sample results. The result of the re-analysis is reported.											
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 10:27 / zeg		IC101-H_110620A	90	R72019
Sulfate	ND	mg/L		1		E300.0	06/21/11 10:27 / zeg		IC101-H_110620A	90	R72019
Hardness as CaCO3	1	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	11	R72279
METALS, DISSOLVED											
Aluminum	0.09	mg/L		0.03		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Calcium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Copper	0.003	mg/L		0.001		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Iron	0.38	mg/L		0.05		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Lead	0.0014	mg/L		0.0005		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Magnesium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Manganese	0.062	mg/L		0.005		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Sodium	ND	mg/L		1		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 06:55 / dck		ICPMS204-B_110622A	418	R72108

AM 7/27/11

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 UBMC TDMW4D
Lab ID: H11060352-004
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 10:25 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.	J-	0.1		A4500-H B	06/23/11 17:25 / zeg		MAN-TECH_110623B : 15		R72125
Conductivity	249	umhos/cm		1		A2510 B	06/20/11 12:24 / cmm		COND_110620A : 3810620A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	60	mg/L		10		A2540 D	06/20/11 12:34 / cmm	06/20/11 10:58	-124 (14410200)_110620A : 83		12622
Solids, Total Dissolved TDS @ 180 C	152	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	-124 (14410200)_110620B : 37		12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 10:43 / zeg		IC101-H_110620A : 91		R72019
Sulfate	27	mg/L		1		E300.0	06/21/11 10:43 / zeg		IC101-H_110620A : 91		R72019
Hardness as CaCO3	87	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A : 12		R72279
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Calcium	17	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Copper	0.001	mg/L		0.001		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Magnesium	11	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Manganese	0.005	mg/L		0.005		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Sodium	5	mg/L		1		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 07:00 / dck		ICPMS204-B_110622A : 419		R72108

AB 7/27/11

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 UBMC TDMW06
Lab ID: H11060352-005
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 10:25 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.	J-	0.1		A4500-H B	06/23/11 17:32 / zeg		MAN-TECH_110623B	16	R72125
Conductivity	244	umhos/cm		1		A2510 B	06/20/11 12:25 / cmm		COND_110620A	3910620A	-COND-PROBI
Solids, Total Suspended TSS @ 105 C	60	mg/L		10		A2540 D	06/20/11 12:34 / cmm	06/20/11 10:58	-124 (14410200)_110620A	84	12622
Solids, Total Dissolved TDS @ 180 C	156	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	-124 (14410200)_110620B	38	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 10:58 / zeg		IC101-H_110620A	92	R72019
Sulfate	26	mg/L		1		E300.0	06/21/11 10:58 / zeg		IC101-H_110620A	92	R72019
Hardness as CaCO3	86	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	13	R72279
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Calcium	17	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Copper	0.001	mg/L		0.001		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Magnesium	11	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Sodium	5	mg/L		1		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 07:05 / dck		ICPMS204-B_110622A	420	R72108

AB 7/27/11

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 UBMC TDMW01
Lab ID: H11060352-006
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 11:40 **DateReceived:** 06/17/11
Report Date: 07/18/11

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	06/23/11 17:46 / zeg		MAN-TECH_110623B	19	R72125
Conductivity	418	umhos/cm		1		A2510 B	06/20/11 12:26 / cmm		COND_110620A	4	010620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:35 / cmm	06/20/11 10:58	124 (14410200)_110620A	85	12622
Solids, Total Dissolved TDS @ 180 C	286	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	124 (14410200)_110620B	39	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 11:14 / zeg		IC101-H_110620A	93	R72019
Sulfate	170	mg/L		1		E300.0	06/21/11 11:14 / zeg		IC101-H_110620A	93	R72019
Hardness as CaCO3	206	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	14	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Cadmium	0.00035	mg/L		0.00008		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Calcium	38	mg/L		1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Magnesium	27	mg/L		1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Sodium	1	mg/L	U	1		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108
Zinc	0.35	mg/L		0.01		E200.8	06/24/11 07:09 / dck		ICPMS204-B_110622A	421	R72108

AM3 7/27/11

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 UBMC TDMW02D
Lab ID: H11060352-007
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 12:18 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.1		A4500-H B	06/23/11 17:53 / zeg		MAN-TECH_110623B	20	R72125
Conductivity	209	umhos/cm		1		A2510 B	06/20/11 12:27 / cmm		COND_110620A	4	110620A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:36 / cmm	06/20/11 10:58	124 (14410200)_110620A	86	12622
Solids, Total Dissolved TDS @ 180 C	118	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	124 (14410200)_110620B	40	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 11:29 / zeg		IC101-H_110620A	94	R72019
Sulfate	28	mg/L		1		E300.0	06/21/11 11:29 / zeg		IC101-H_110620A	94	R72019
Hardness as CaCO3	106	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	15	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Cadmium	ND	mg/L		0.00008		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Calcium	22	mg/L		1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Copper	0.001	mg/L		0.001		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Magnesium	13	mg/L		1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Sodium	1	mg/L	u	1		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108
Zinc	ND	mg/L		0.01		E200.8	06/24/11 07:14 / dck		ICPMS204-B_110622A	422	R72108

AB 7/27/11

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 UBMC TDMW02S
Lab ID: H11060352-008
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 12:52 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	J-	0.1		A4500-H B	06/23/11 18:00 / zeg		MAN-TECH_110623B	21	R72125
Conductivity	255	umhos/cm		1		A2510 B	06/20/11 12:28 / cmm		COND_110620A	4210620A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:36 / cmm	06/20/11 10:58	-124 (14410200)_110620A	88	12622
Solids, Total Dissolved TDS @ 180 C	148	mg/L		10		A2540 C	06/20/11 15:20 / cmm	06/20/11 11:08	-124 (14410200)_110620B	41	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 11:44 / zeg		IC101-H_110620A	95	R72019
Sulfate	53	mg/L		1		E300.0	06/21/11 11:44 / zeg		IC101-H_110620A	95	R72019
Hardness as CaCO3	124	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	16	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Cadmium	0.00088	mg/L		0.00008		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Calcium	25	mg/L		1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Magnesium	15	mg/L		1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Manganese	1.21	mg/L		0.005		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Sodium	1	mg/L	U	1		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108
Zinc	0.62	mg/L		0.01		E200.8	06/24/11 07:18 / dck		ICPMS204-B_110622A	423	R72108

AB 7/27/11

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 UBMC TDMW3D
Lab ID: H11060352-009
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 06/16/11 13:45 **DateReceived:** 06/17/11
Report Date: 07/18/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	J-	0.1		A4500-H B	06/23/11 18:06 / zeg		MAN-TECH_110623B	22	R72125
Conductivity	325	umhos/cm		1		A2510 B	06/20/11 12:29 / cmm		COND_110620A	4410620A	COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	06/20/11 12:36 / cmm	06/20/11 10:58	124 (14410200)_110620A	89	12622
Solids, Total Dissolved TDS @ 180 C	218	mg/L		10		A2540 C	06/20/11 15:21 / cmm	06/20/11 11:08	124 (14410200)_110620B	42	12625
INORGANICS											
Chloride	ND	mg/L		1		E300.0	06/21/11 12:31 / zeg		IC101-H_110620A	98	R72019
Sulfate	110	mg/L		1		E300.0	06/21/11 12:31 / zeg		IC101-H_110620A	98	R72019
Hardness as CaCO3	154	mg/L		1		A2340 B	06/29/11 15:39 / abb		WATERCALC_110629A	17	R72279
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Arsenic	ND	mg/L		0.003		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Cadmium	0.00012	mg/L		0.00008		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Calcium	36	mg/L		1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Copper	ND	mg/L		0.001		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Iron	ND	mg/L		0.05		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Lead	ND	mg/L		0.0005		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Magnesium	16	mg/L		1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Manganese	ND	mg/L		0.005		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Potassium	ND	mg/L		1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Sodium	1	mg/L	u	1		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108
Zinc	0.03	mg/L		0.01		E200.8	06/24/11 07:55 / dck		ICPMS204-B_110622A	431	R72108

AB 7/27/11

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

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

July 11, 2011

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

Workorder No.: H11060352 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 6/17/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11060352-001	UBMC TDMW07	06/16/11 7:45	06/17/11	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11060352-002	UBMC TDMW05	06/16/11 8:42	06/17/11	Aqueous	Same As Above
H11060352-003	UBMC TDMW08	06/16/11 9:10	06/17/11	Aqueous	Same As Above
H11060352-004	UBMC TDMW4D	06/16/11 10:25	06/17/11	Aqueous	Same As Above
H11060352-005	UBMC TDMW06	06/16/11 10:25	06/17/11	Aqueous	Same As Above
H11060352-006	UBMC TDMW01	06/16/11 11:40	06/17/11	Aqueous	Same As Above
H11060352-007	UBMC TDMW02D	06/16/11 12:18	06/17/11	Aqueous	Same As Above
H11060352-008	UBMC TDMW02S	06/16/11 12:52	06/17/11	Aqueous	Same As Above
H11060352-009	UBMC TDMW3D	06/16/11 13:45	06/17/11	Aqueous	Same As Above

This report was prepared by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604. 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 C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11060352

MT DEQ-Site Response

Login completed by: Wanda Johnson
Date Received: 6/17/2011

Reviewed by: BL2000\ablackburn
Received by: elm

Reviewed Date: 6/22/2011
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?	Yes ☑	No ☐	
Container/Temp Blank temperature:	1.5°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 UBMCTDMW07 raw container was labeled incorrectly as UBMCTDM10T, sample was in with the metals container which was labeled the same as COC. E-mailed A. Dreesbach regarding error. Wj 6/20/11

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ-SRS	Project Name, PWS, Permit, Etc.: UMBC	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote: H-645	Contact Name: Shelley Haaland	Phone/Fax: 841-5033	Email: shaaland@mt.gov
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Sampler: (Please Print) Alan Dreesbach, Marko Stanisich

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

Shipped by: HAND

Cooler ID(s): 4

Receipt Temp: 1.5 °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	UBMCTDMW07	6/16/11	0745	W	UBMC Groundwater	X
2	UBMCTDMW05	6/16/11	0842			
3	UBMCTDMW08	6/16/11	0910			
4	UBMCTDMW4D	6/16/11	1025			
5	UBMCTDMW06	6/16/11	1025			
6	UBMCTDMW01	6/16/11	1140			
7	UBMCTDMW02D	6/16/11	1218			
8	UBMCTDMW02S	6/16/11	1252			
9	UBMCTDMW3D	6/16/11	1345			
10						

MB 6/17/11

LABORATORY USE ONLY H1106035

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 6/17/11 1406 Signature:

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

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

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

Received by Laboratory: Esther Mercatt 6-17-11 14:06 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.

Quotation for Analytical Services # H645

Company: MT DEQ-Site Response
Contact: Shellie Haaland
Address: PO Box 200901
Helena, MT 59620-0901
Phone: (406) 841-5033 Fax:

Submitted By:
Project: UBMC
TAT: 10 Working days
QC Level: LVL4
Quote Date: 30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	**UBMC Surface Water**						
	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$145.00	1	$145.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$320.00**		
			Schedule Total:				**$320.00**
Schedule:	**UBMC Ground Water**						
Aqueous	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$270.00**		
			Schedule Total:				**$270.00**
	No Alkalinity or Acidity						
Schedule:	**UBMC Surface Water Section 35 Baseline**						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$65.00	1	$65.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

Quotation for Analytical Services # H645

Company: MT DEQ-Site Response
Contact: Shellie Haaland
Address: PO Box 200901
Helena, MT 59620-0901
Phone: (406) 841-5033 Fax:

Submitted By:
Project: UBMC
TAT: 10 Working days
QC Level: LVL4
Quote Date: 30-Apr-11 Expires: 31-Dec-12

Matrix	Test Name	Test	Remarks	# Samp	Unit Price		Test Total
Schedule:	**UBMC Surface Water Section 35 Baseline**						
			Schedule Sample Price:		**$425.00**		
			Schedule Total:				**$425.00**
Schedule:	**UBMC Ground Water Section 35 Baseline**						
Aqueous	Acidity, Total as CaCO3	A2310 B	Only Analyzed if pH < 4.5	1	$15.00	1	$15.00
	Alkalinity	A2320 B		1	$10.00	1	$10.00
	Hardness as CaCO3	A2340 B		1	$0.00	1	$0.00
	Conductivity	A2510 B		1	$10.00	1	$10.00
	Solids, Total Dissolved	A2540 C		1	$15.00	1	$15.00
	Solids, Total Suspended	A2540 D		1	$15.00	1	$15.00
	pH	A4500-H B		1	$10.00	1	$10.00
	Metals Digestion by EPA 200.2	E200.2		1	$15.00	1	$15.00
	Metals by ICP/ICPMS, Dissolved	E200.7_8		1	$200.00	1	$200.00
	Metals by ICP/ICPMS, Tot. Rec.	E200.7_8		1	$200.00	1	$200.00
	Mercury, Total	E245.7	Only used if can not be achieved by other methods.	1	$50.00	1	$50.00
	Anions by Ion Chromatography	E300.0	Chloride and Sulfate	1	$20.00	1	$20.00
			Schedule Sample Price:		**$560.00**		
			Schedule Total:				**$560.00**
Schedule:	**Sediment**						
	Metals by ICP/ICPMS, Total	E6010.20		1	$80.00	1	$80.00
	Digestion, Total Metals	SW3050 B		1	$25.00	1	$25.00
			Schedule Sample Price:		**$105.00**		
			Schedule Total:				**$105.00**

Quote Comments: Shipping Labels provided at 12.00 a cooler by UPS or FED EX.

Quote Sub Total:	$1,680.00
Misc:	$0.00
Discount:	30.00%
WO Adjustment:	$0.00
QUOTE TOTAL:	**$1,176.00**

General Comments: Price per sampling event. Sampling to be completed by Portage Inc. 1065 N Ewing Helena, MT 406-457-0056

To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents .

* Methods and/or parameters included in the indicated test group.
Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

Analyte Limits For Quote #: H-645

Schedule Name / TestName	Analyte	Report Limit	Units
UBMC Ground Water			
Anions by Ion Chromatography	Chloride	1	mg/L
	Sulfate	1	mg/L
Conductivity	Conductivity	1	umhos/c
Hardness as CaCO3	Hardness as CaCO3	1	mg/L
Metals by ICP/ICPMS, Dissolved	Aluminum	0.03	mg/L
	Arsenic	0.003	mg/L
	Cadmium	0.00008	mg/L
	Calcium	1	mg/L
	Copper	0.001	mg/L
	Iron	0.05	mg/L
	Lead	0.0005	mg/L
	Magnesium	1	mg/L
	Manganese	0.005	mg/L
	Potassium	1	mg/L
	Sodium	1	mg/L
	Zinc	0.01	mg/L
pH	pH	0.1	s.u.
Solids, Total Dissolved	Solids, Total Dissolved TDS @ 180 C	10	mg/L
Solids, Total Suspended	Solids, Total Suspended TSS @ 105 C	10	mg/L

UBMC Surface Water and Sediment

SDG#:	**I111090333**
Number of Samples:	**20**
Sample Matrix:	**(11) Surface Water & (9) Sediment**
Applicable Analytes:	**(11) pH, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Alkalinity: (Total Alkalinity, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, Dissolved Metals: (Al, Ca, Mg, K, & Na), and Total Recoverable Metals: (As, Cd, Cu, Fe, Pb, Mn, & Zn); (9) Total Recoverable Metals: (Al, As, Cd, Cu, Fe, Pb, Mn, & Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**

Validator: _____ **Date Completed:** **10/26/11**

Portage Review: _____ **Date Completed:** **10/26/11**

REPORT ORGANIZATION:

The Limitations & Validation (L&V) Report for the 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: 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 and Sediment sample results were received by Portage, Inc. in October 2011. The laboratory analytical request provided for a summary data package attached for surface water analysis of pH, conductivity, TSS, TDS, alkalinity: (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, dissolved metals (Al, Ca, Mg, K, and Na), and total recoverable metals (As, Cd, Cu, Fe, Pb, Mn, and Zn), and for sediment analysis of total recoverable 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, 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 and Sediment Samples**					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMCBRSW01	H11090333-001	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/19/11	09/20/11
UBMCBRSW22	H11090333-002	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/19/11	09/20/11
UBMCBRSW24	H11090333-003	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/19/11	09/20/11
UBMCBRSW02	H11090333-004	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/19/11	09/20/11
UBMCBRSW29	H11090333-005	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/20/11	09/20/11

Cross-Reference for UBMC Surface Water and Sediment Samples					
Field Id#:	Lab Id#:	Matrix:	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMCBRSW38	H11090333-006	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSW25	H11090333-007	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSW48	H11090333-008	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSW23	H11090333-009	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSW3A	H11090333-010	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSW3B	H11090333-011	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSD01	H11090333-012	Sediment	Total Recoverable Metals	09/19/11	09/20/11
UBMCBRSD22	H11090333-013	Sediment	Total Recoverable Metals	09/19/11	09/20/11
UBMCBRSD24	H11090333-014	Sediment	Total Recoverable Metals	09/19/11	09/20/11
UBMCBRSD29	H11090333-015	Sediment	Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSD38	H11090333-016	Sediment	Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSD48	H11090333-017	Sediment	Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSD23	H11090333-018	Sediment	Total Recoverable Metals	09/20/11	09/20/11
UBMCBRSD3A	H11090333-019	Sediment	Total Recoverable Metals	09/20/11	09/20/11

Cross-Reference for UBMC Surface Water and Sediment Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
UBMCBRSD3B	H11090333-020	Sediment	Total Recoverable Metals	09/20/11	09/20/11

ANALYTICAL HOLDING TIMES:

The surface water and sediment samples associated with this SDG were collected on 09/19/11 and 09/20/11. Conductivity, pH, TSS, TDS, and alkalinity (total alkalinity, bicarbonate, and carbonate) were analyzed on 09/21/11, within the 7-day holding time for TSS and TDS, 14-day holding time for alkalinity, and 28-day holding time for conductivity. Chloride and sulfate results were analyzed between 09/23/11 and 09/28/11, within the 28-day holding time. Dissolved metals were analyzed on 09/23/11, and total recoverable metals were analyzed between 09/24/11 and 10/05/11, within the 180-day holding time for metals.

The laboratory received the samples on 09/20/11, and analyzed pH on 09/21/11, outside the 24-hr holding time. In the professional judgment of the validator, all pH results have been qualified 'J-' 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.

PREPRATION BLANKS (PB):

Surface Water PBs:
Positive detections were noted in the PB for the following batch IDs/analytes:

- Total alkalinity.
- Batch R74680 for dissolved calcium and dissolved magnesium.
- Batch 13914 for total iron, total lead, and total zinc.
- Batch R74742 for total copper, total iron, total manganese, and total zinc.

However, no action is warranted as the associated sample results were either less than the RL or greater than 5x the PB value. The remaining PB results were non-detect and no qualification is warranted.

Sediment PBs:
Positive detections were noted in the PB for the following batch IDs/analytes:

- Batch 14029 for total aluminum, total arsenic, total iron, total manganese, and total zinc.
- Batch 14108 for total iron and total manganese

However, no action is warranted as the associated sample results were either less than the RL or greater than 5x the PB value. The remaining PB results were non-detect and no qualification is warranted.

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):

Surface Water MS/MSDs:
MS and/or MSD results were outside the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods for the following batch IDs/analytes:

- Batch R74681 for sulfate (117% and 121%). The sulfate result for sample UBMCBRSW25 warrants no qualification due to high MS and MSD recoveries and a sample result less than the RL. The remaining sulfate results in batch R74681 have been qualified 'J+' due to high MS and MSD recoveries, sample results greater than the RL, and the lack of analytical spike analysis.
- Batch R74836 for sulfate (112%). Although the MSD recovery reported with this batch was outside the recovery criteria for USEPA Method 300.0, the sample used for the MS was from another SDG with an unknown sample matrix. Therefore, the MS and MSD results from batch R74774 were used instead, as the sample used for the MS in that batch was included in this SDG and is of a similar sample matrix. MS and MSD results for sulfate from batch R74774 were within the 90-110% recovery criteria and no qualification of associated results is warranted.

The remaining MS and MSD results and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

Sediment MS/MSDs:
MS and/or MSD results were outside the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods for the following batch IDs/analytes:

- Batch 14029 for total arsenic (50% and 64%). All associated total arsenic results have been qualified 'J-' due to low MS and MSD recoveries, sample results greater than the RL, and the lack of analytical spike analysis.
- Batch 14108 for total cadmium (71%). The total cadmium result for sample UBMCBRSD01 has been qualified 'UJ' due to low MSD recovery and a sample result less than the RL. The remaining total cadmium results associated with this batch have been qualified 'J-' due to low MSD recovery, sample results greater than the RL, and the lack of analytical spike analysis.

The remaining MS and MSD results and all MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were (11) surface water and (9) sediment field samples included in SDG# H11090333. The (11) surface water field samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total recoverable metals, and the (9) sediment field samples were analyzed for total recoverable metals as outlined in the project QAPP.

Surface Water Results:
All pH results have been qualified 'J-' to denote the reported results are estimates with a low bias due to exceeded holding times.

All sulfate results in batch R74681 except **UBMCBRSW25** have been qualified 'J+' to denote the reported results are estimates with a high bias due to high MS and MSD recoveries.

The remaining field sample data points have been assessed and remain unqualified.

Sediment Results:
All total arsenic results in batch 14029 have been qualified 'J-' to denote the reported results are estimates with a low bias due to low MS and MSD recoveries.

The total cadmium result for sample UBMCBRSD01 has been qualified 'UJ' to denote the result is non-detect, and the reported value is an estimate due to low MSD recovery. The remaining total cadmium results in batch 14108 have been qualified 'J-' to denote the reported results are estimates with a low bias due to low MSD recovery.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW01
Lab ID: H11090333-001
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 16:10
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u.		0.1		A4500-H B	09/21/11 16:32 / zeg		MAN-TECH_110921B : 29		R74602 J -
Conductivity	187	umhos/cm		1		A2510 B	09/21/11 11:10 / cmm		COND_110921A : 1810921A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:42 / cmm	09/21/11 12:56	124 (14410200)_110921A : 16		13958
Solids, Total Dissolved TDS @ 180 C	109	mg/L		10		A2540 C	09/21/11 13:56 / cmm	09/21/11 13:03	124 (14410200)_110921B : 15		13960
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	09/21/11 16:32 / zeg		MAN-TECH_110921B : 28		R74602
Bicarbonate as HCO3	130	mg/L		4		A2320 B	09/21/11 16:32 / zeg		MAN-TECH_110921B : 28		R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 16:32 / zeg		MAN-TECH_110921B : 28		R74602
Chloride	ND	mg/L		1		E300.0	09/27/11 18:09 / zeg		IC101-H_110927A : 41		R74774
Sulfate	4	mg/L		1		E300.0	09/27/11 18:09 / zeg		IC101-H_110927A : 41		R74774
Hardness as CaCO3	103	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A : 9		R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B : 98		R74680
Calcium	22	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B : 98		R74680
Magnesium	12	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B : 98		R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B : 98		R74680
Sodium	1	mg/L		1		E200.7	09/23/11 17:38 / sld		ICP2-HE_110923B : 98		R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B : 164		13914
Cadmium	ND	mg/L		0.00008		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B : 164		13914
Copper	ND	mg/L		0.001		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B : 164		13914
Iron	0.25	mg/L		0.03		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B : 164		13914
Lead	ND	mg/L		0.0005		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B : 164		13914
Manganese	0.008	mg/L		0.005		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B : 164		13914
Zinc	ND	mg/L		0.01		E200.8	09/24/11 13:29 / dck	09/21/11 09:40	ICPMS204-B_110923B : 164		13914

BJM
11/2/11

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: H11090333-002
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 16:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	09/21/11 16:47 / zeg		MAN-TECH_110921B	33	R74602 J
Conductivity	276	umhos/cm		1		A2510 B	09/21/11 11:11 / cmm		COND_110921A	1	910921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:42 / cmm	09/21/11 12:56	124 (14410200)_110921A	17	13958
Solids, Total Dissolved TDS @ 180 C	194	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	124 (14410200)_110921B	16	13960
INORGANICS											
Alkalinity, Total as CaCO3	89	mg/L		4		A2320 B	09/21/11 16:47 / zeg		MAN-TECH_110921B	32	R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 16:47 / zeg		MAN-TECH_110921B	32	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 16:47 / zeg		MAN-TECH_110921B	32	R74602
Chloride	ND	mg/L		1		E300.0	09/27/11 18:49 / zeg		IC101-H_110927A	44	R74774
Sulfate	65	mg/L		1		E300.0	09/27/11 18:49 / zeg		IC101-H_110927A	44	R74774
Hardness as CaCO3	148	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A	10	R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Calcium	37	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Magnesium	13	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 17:42 / sld		ICP2-HE_110923B	99	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Cadmium	0.0104	mg/L		0.00008		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Copper	0.082	mg/L		0.001		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Iron	ND	mg/L		0.03		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Lead	0.0085	mg/L		0.0005		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Manganese	0.169	mg/L		0.005		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914
Zinc	1.51	mg/L		0.01		E200.8	09/24/11 13:34 / dck	09/21/11 09:40	ICPMS204-B_110923B	165	13914

BJM
11/2/11

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: H11090333-003
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 16:50
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	09/21/11 16:54 / zeg		MAN-TECH_110921B : 35		R74602 J-
Conductivity	265	umhos/cm		1		A2510 B	09/21/11 11:13 / cmm		COND_110921A : 2110921A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:42 / cmm	09/21/11 12:56	-124 (14410200)_110921A : 18		13958
Solids, Total Dissolved TDS @ 180 C	188	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	-124 (14410200)_110921B : 17		13960
INORGANICS											
Alkalinity, Total as CaCO3	89	mg/L		4		A2320 B	09/21/11 16:54 / zeg		MAN-TECH_110921B : 34		R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 16:54 / zeg		MAN-TECH_110921B : 34		R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 16:54 / zeg		MAN-TECH_110921B : 34		R74602
Chloride	ND	mg/L		1		E300.0	09/27/11 19:03 / zeg		IC101-H_110927A : 45		R74774
Sulfate	66	mg/L		1		E300.0	09/27/11 19:03 / zeg		IC101-H_110927A : 45		R74774
Hardness as CaCO3	149	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A : 11		R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B : 102		R74680
Calcium	37	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B : 102		R74680
Magnesium	13	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B : 102		R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B : 102		R74680
Sodium	ND	mg/L		1		E200.7	09/23/11 17:53 / sld		ICP2-HE_110923B : 102		R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B : 166		R74742
Cadmium	0.0105	mg/L		0.00008		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B : 166		R74742
Copper	0.087	mg/L		0.001		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B : 166		R74742
Iron	ND	mg/L		0.03		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B : 166		R74742
Lead	0.0083	mg/L		0.0005		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B : 166		R74742
Manganese	0.168	mg/L		0.005		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B : 166		R74742
Zinc	1.56	mg/L		0.01		E200.8	09/24/11 13:38 / dck		ICPMS204-B_110923B : 166		R74742

BJM
11/2/11

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 UBMCBRSW02
Lab ID: H11090333-004
Matrix: Aqueous

Project: UBMC
Collection Date: 09/19/11 17:10
DateReceived: 09/20/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.9	s.u.		0.1		A4500-H B	09/21/11 17:01 / zeg		MAN-TECH_110921B : 37		R74602 J-
Conductivity	1850	umhos/cm		1		A2510 B	09/21/11 11:14 / cmm		COND_110921A : 2210921A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:43 / cmm	09/21/11 12:56	-124 (14410200)_110921A : 19		13958
Solids, Total Dissolved TDS @ 180 C	2120	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	-124 (14410200)_110921B : 18		13960
INORGANICS											
Alkalinity, Total as CaCO3	34	mg/L		4		A2320 B	09/21/11 17:01 / zeg		MAN-TECH_110921B : 36		R74602
Bicarbonate as HCO3	29	mg/L		4		A2320 B	09/21/11 17:01 / zeg		MAN-TECH_110921B : 36		R74602
Carbonate as CO3	7	mg/L		4		A2320 B	09/21/11 17:01 / zeg		MAN-TECH_110921B : 36		R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 21:29 / zeg		IC102-H_110923A : 50		R74681
Sulfate	1400	mg/L	D	5		E300.0	09/28/11 15:45 / zeg		IC101-H_110928A : 37		R74836
Hardness as CaCO3	1410	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A : 12		R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B : 103		R74680
Calcium	265	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B : 103		R74680
Magnesium	181	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B : 103		R74680
Potassium	2	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B : 103		R74680
Sodium	ND	mg/L		1		E200.7	09/23/11 17:57 / sld		ICP2-HE_110923B : 103		R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B : 167		13914
Cadmium	0.00027	mg/L		0.00008		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B : 167		13914
Copper	0.006	mg/L		0.001		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B : 167		13914
Iron	0.31	mg/L		0.03		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B : 167		13914
Lead	0.0213	mg/L		0.0005		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B : 167		13914
Manganese	0.139	mg/L		0.005		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B : 167		13914
Zinc	0.06	mg/L		0.01		E200.8	09/24/11 13:43 / dck	09/21/11 09:40	ICPMS204-B_110923B : 167		13914

BJM
11/2/11

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 UBMCBRSW29
Lab ID: H11090333-005
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 08:15
Report Date: 10/13/11
DateReceived: 09/20/11

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	09/21/11 17:08 / zeg		MAN-TECH_110921B	39	R74602 J-
Conductivity	216	umhos/cm		1		A2510 B	09/21/11 11:14 / cmm		COND_110921A	2	310921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:43 / cmm	09/21/11 12:56	-124 (14410200)_110921A	20	13958
Solids, Total Dissolved TDS @ 180 C	142	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	-124 (14410200)_110921B	19	13960
INORGANICS											
Alkalinity, Total as CaCO3	87	mg/L		4		A2320 B	09/21/11 17:08 / zeg		MAN-TECH_110921B	38	R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 17:08 / zeg		MAN-TECH_110921B	38	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:08 / zeg		MAN-TECH_110921B	38	R74602
Chloride	2	mg/L		1		E300.0	09/23/11 21:42 / zeg		IC102-H_110923A	51	R74681
Sulfate	30	mg/L		1		E300.0	09/23/11 21:42 / zeg		IC102-H_110923A	51	R74681 J+
Hardness as CaCO3	116	mg/L		1		A2340 B	09/23/11 18:08 / abb		CALC_110926A	564	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Calcium	25	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Magnesium	13	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:08 / sld		ICP2-HE_110923B	106	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Cadmium	0.00291	mg/L		0.00008		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Copper	0.003	mg/L		0.001		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Iron	0.08	mg/L		0.03		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Lead	0.0057	mg/L		0.0005		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Manganese	0.315	mg/L		0.005		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742
Zinc	0.71	mg/L		0.01		E200.8	09/24/11 13:47 / dck		ICPMS204-B_110923B	168	R74742

BJM
11/2/11

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: H11090333-006
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 08:40
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	09/21/11 17:15 / zeg		MAN-TECH_110921B : 41		R74602 J-
Conductivity	264	umhos/cm		1		A2510 B	09/21/11 11:14 / cmm		COND_110921A : 24	10921A	COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:44 / cmm	09/21/11 12:56	124 (14410200)_110921A : 21		13958
Solids, Total Dissolved TDS @ 180 C	176	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	124 (14410200)_110921B : 20		13960
INORGANICS											
Alkalinity, Total as CaCO3	86	mg/L		4		A2320 B	09/21/11 17:15 / zeg		MAN-TECH_110921B : 40		R74602
Bicarbonate as HCO3	110	mg/L		4		A2320 B	09/21/11 17:15 / zeg		MAN-TECH_110921B : 40		R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:15 / zeg		MAN-TECH_110921B : 40		R74602
Chloride	2	mg/L		1		E300.0	09/23/11 21:56 / zeg		IC102-H_110923A : 52		R74681
Sulfate	30	mg/L		1		E300.0	09/23/11 21:56 / zeg		IC102-H_110923A : 52		R74681 J+
Hardness as CaCO3	138	mg/L		1		A2340 B	09/23/11 18:12 / abb		CALC_110926A : 575		R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B : 107		R74680
Calcium	29	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B : 107		R74680
Magnesium	16	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B : 107		R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B : 107		R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:12 / sld		ICP2-HE_110923B : 107		R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B : 169		R74742
Cadmium	0.00462	mg/L		0.00008		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B : 169		R74742
Copper	0.005	mg/L		0.001		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B : 169		R74742
Iron	0.13	mg/L		0.03		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B : 169		R74742
Lead	0.0087	mg/L		0.0005		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B : 169		R74742
Manganese	0.672	mg/L		0.005		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B : 169		R74742
Zinc	1.05	mg/L		0.01		E200.8	09/24/11 13:52 / dck		ICPMS204-B_110923B : 169		R74742

BJM
11/2/11

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: H11090333-007
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 09:10
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	09/21/11 17:20 / zeg		MAN-TECH_110921B : 43		R74602 J-
Conductivity	ND	umhos/cm		1		A2510 B	09/21/11 11:15 / cmm		COND_110921A : 2510921A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:44 / cmm	09/21/11 12:56	124 (14410200)_110921A . 22		13958
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/21/11 13:57 / cmm	09/21/11 13:03	124 (14410200)_110921B : 21		13960
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	09/21/11 17:20 / zeg		MAN-TECH_110921B : 42		R74602
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	09/21/11 17:20 / zeg		MAN-TECH_110921B : 42		R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:20 / zeg		MAN-TECH_110921B : 42		R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 22:37 / zeg		IC102-H_110923A : 55		R74681
Sulfate	ND	mg/L		1		E300.0	09/23/11 22:37 / zeg		IC102-H_110923A : 55		R74681
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/26/11 13:50 / sld		WATERCALC_110926A : 13		R74703
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B : 108		R74680
Calcium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B : 108		R74680
Magnesium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B : 108		R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B : 108		R74680
Sodium	ND	mg/L		1		E200.7	09/23/11 18:15 / sld		ICP2-HE_110923B : 108		R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B : 170		R74742
Cadmium	ND	mg/L		0.00008		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B : 170		R74742
Copper	ND	mg/L		0.001		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B : 170		R74742
Iron	ND	mg/L		0.03		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B : 170		R74742
Lead	ND	mg/L		0.0005		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B : 170		R74742
Manganese	ND	mg/L		0.005		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B : 170		R74742
Zinc	ND	mg/L		0.01		E200.8	09/24/11 13:56 / dck		ICPMS204-B_110923B : 170		R74742

BJM
11/2/11

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: H11090333-008
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 10:35
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.1	s.u.		0.1		A4500-H B	09/21/11 17:27 / zeg		MAN-TECH_110921B : 45		R74602 J-
Conductivity	264	umhos/cm		1		A2510 B	09/21/11 11:15 / cmm		COND_110921A : 2610921A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:45 / cmm	09/21/11 12:56	-124 (14410200)_110921A : 23		13958
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	-124 (14410200)_110921B : 22		13960
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		4		A2320 B	09/21/11 17:27 / zeg		MAN-TECH_110921B : 44		R74602
Bicarbonate as HCO3	120	mg/L		4		A2320 B	09/21/11 17:27 / zeg		MAN-TECH_110921B : 44		R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:27 / zeg		MAN-TECH_110921B : 44		R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 22:50 / zeg		IC102-H_110923A : 56		R74681
Sulfate	45	mg/L		1		E300.0	09/23/11 22:50 / zeg		IC102-H_110923A : 56		R74681 J+
Hardness as CaCO3	139	mg/L		1		A2340 B	09/23/11 18:19 / abb		CALC_110926A : 597		R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B : 109		R74680
Calcium	29	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B : 109		R74680
Magnesium	16	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B : 109		R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B : 109		R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:19 / sld		ICP2-HE_110923B : 109		R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B : 171		13914
Cadmium	0.00277	mg/L		0.00008		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B : 171		13914
Copper	0.008	mg/L		0.001		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B : 171		13914
Iron	0.38	mg/L		0.03		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B : 171		13914
Lead	0.0131	mg/L		0.0005		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B : 171		13914
Manganese	0.779	mg/L		0.005		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B : 171		13914
Zinc	0.58	mg/L		0.01		E200.8	09/24/11 14:01 / dck	09/21/11 09:40	ICPMS204-B_110923B : 171		13914

BJM
11/2/11

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: H11090333-009
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 11:20
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	09/21/11 17:41 / zeg		MAN-TECH_110921B	49	R74602 J-
Conductivity	258	umhos/cm		1		A2510 B	09/21/11 11:17 / cmm		COND_110921A	2	710921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:45 / cmm	09/21/11 12:56	-124 (14410200)_110921A	24	13958
Solids, Total Dissolved TDS @ 180 C	161	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	-124 (14410200)_110921B	23	13960
INORGANICS											
Alkalinity, Total as CaCO3	99	mg/L		4		A2320 B	09/21/11 17:41 / zeg		MAN-TECH_110921B	48	R74602
Bicarbonate as HCO3	120	mg/L		4		A2320 B	09/21/11 17:41 / zeg		MAN-TECH_110921B	48	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:41 / zeg		MAN-TECH_110921B	48	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 23:04 / zeg		IC102-H_110923A	57	R74681
Sulfate	39	mg/L		1		E300.0	09/23/11 23:04 / zeg		IC102-H_110923A	57	R74681 J+
Hardness as CaCO3	136	mg/L		1		A2340 B	09/23/11 18:23 / abb		CALC_110926A	608	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Calcium	28	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Magnesium	16	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:23 / sld		ICP2-HE_110923B	110	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Cadmium	0.00203	mg/L		0.00008		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Copper	0.008	mg/L		0.001		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Iron	0.12	mg/L		0.03		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Lead	0.128	mg/L		0.0005		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Manganese	0.377	mg/L		0.005		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914
Zinc	0.47	mg/L		0.01		E200.8	09/24/11 14:05 / dck	09/21/11 09:40	ICPMS204-B_110923B	172	13914

BJM
11/2/11

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: H11090333-010
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 11:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	09/21/11 17:48 / zeg		MAN-TECH_110921B : 51		R74602 J-
Conductivity	298	umhos/cm		1		A2510 B	09/21/11 11:18 / cmm		COND_110921A : 2810921A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:46 / cmm	09/21/11 12:57	-124 (14410200)_110921A : 27		13959
Solids, Total Dissolved TDS @ 180 C	178	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	-124 (14410200)_110921B : 24		13960
INORGANICS											
Alkalinity, Total as CaCO3	96	mg/L		4		A2320 B	09/21/11 17:48 / zeg		MAN-TECH_110921B : 50		R74602
Bicarbonate as HCO3	120	mg/L		4		A2320 B	09/21/11 17:48 / zeg		MAN-TECH_110921B : 50		R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:48 / zeg		MAN-TECH_110921B : 50		R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 23:18 / zeg		IC102-H_110923A : 58		R74681
Sulfate	60	mg/L		1		E300.0	09/23/11 23:18 / zeg		IC102-H_110923A : 58		R74681 J+
Hardness as CaCO3	156	mg/L		1		A2340 B	09/23/11 18:27 / abb		CALC_110926A : 619		R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B : 111		R74680
Calcium	32	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B : 111		R74680
Magnesium	18	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B : 111		R74680
Potassium	ND	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B : 111		R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:27 / sld		ICP2-HE_110923B : 111		R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B : 177		13914
Cadmium	0.00236	mg/L		0.00008		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B : 177		13914
Copper	0.035	mg/L		0.001		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B : 177		13914
Iron	0.56	mg/L		0.03		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B : 177		13914
Lead	0.0108	mg/L		0.0005		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B : 177		13914
Manganese	0.723	mg/L		0.005		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B : 177		13914
Zinc	0.52	mg/L		0.01		E200.8	09/24/11 14:28 / dck	09/21/11 09:40	ICPMS204-B_110923B : 177		13914

BJM
11/2/11

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: H11090333-011
Matrix: Aqueous

Project: UBMC
Collection Date: 09/20/11 12:15
DateReceived: 09/20/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	09/21/11 17:55 / zeg		MAN-TECH_110921B	53	R74602 J-
Conductivity	333	umhos/cm		1		A2510 B	09/21/11 11:18 / cmm		COND_110921A	29	110921A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/21/11 13:46 / cmm	09/21/11 12:57	124 (14410200)_110921A	29	13959
Solids, Total Dissolved TDS @ 180 C	223	mg/L		10		A2540 C	09/21/11 13:58 / cmm	09/21/11 13:03	124 (14410200)_110921B	25	13960
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	09/21/11 17:55 / zeg		MAN-TECH_110921B	52	R74602
Bicarbonate as HCO3	130	mg/L		4		A2320 B	09/21/11 17:55 / zeg		MAN-TECH_110921B	52	R74602
Carbonate as CO3	ND	mg/L		4		A2320 B	09/21/11 17:55 / zeg		MAN-TECH_110921B	52	R74602
Chloride	ND	mg/L		1		E300.0	09/23/11 23:58 / zeg		IC102-H_110923A	61	R74681
Sulfate	79	mg/L		1		E300.0	09/23/11 23:58 / zeg		IC102-H_110923A	61	R74681 J+
Hardness as CaCO3	175	mg/L		1		A2340 B	09/23/11 18:38 / abb		CALC_110926A	630	R74696
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Calcium	36	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Magnesium	21	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Potassium	1	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
Sodium	1	mg/L		1		E200.7	09/23/11 18:38 / sld		ICP2-HE_110923B	114	R74680
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Cadmium	0.00056	mg/L		0.00008		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Copper	0.002	mg/L		0.001		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Iron	ND	mg/L		0.03		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Lead	ND	mg/L		0.0005		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Manganese	0.045	mg/L		0.005		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742
Zinc	0.79	mg/L		0.01		E200.8	09/24/11 14:33 / dck		ICPMS204-B_110923B	178	R74742

BJM
11/2/11

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: H11090333-012
Matrix: Sediment

Project: UBMC
Collection Date: 09/19/11 16:10
Report Date: 10/13/11
DateReceived: 09/20/11

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	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B : 116		14029
Arsenic	18	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B : 116		14029 J-
Cadmium	ND	mg/kg		1		SW6010B	10/05/11 16:43 / sld	10/03/11 08:23	ICP2-HE_111005A : 89		14108 UJ
Copper	13	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B : 116		14029
Iron	13500	mg/kg		5		SW6010B	09/30/11 00:17 / sld	09/26/11 14:00	ICP2-HE_110929A : 139		14029
Lead	68	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B : 116		14029
Manganese	279	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B : 116		14029
Zinc	120	mg/kg		5		SW6010B	09/28/11 20:12 / sld	09/26/11 14:00	ICP2-HE_110928B : 116		14029

BJM
11/2/11

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: H11090333-013
Matrix: Sediment

Project: UBMC
Collection Date: 09/19/11 16:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID	
3050 EXTRACTABLE METALS												
Aluminum	9410	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B : 117		14029	
Arsenic	57	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B : 117		14029	J-
Cadmium	68	mg/kg		1		SW6010B	10/05/11 16:47 / sld	10/03/11 08:23	ICP2-HE_111005A : 90		14108	J-
Copper	3370	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B : 117		14029	
Iron	34500	mg/kg		5		SW6010B	09/30/11 00:21 / sld	09/26/11 14:00	ICP2-HE_110929A : 140		14029	
Lead	2770	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B : 117		14029	
Manganese	14800	mg/kg		5		SW6010B	09/30/11 00:21 / sld	09/26/11 14:00	ICP2-HE_110929A : 140		14029	
Zinc	9640	mg/kg		5		SW6010B	09/28/11 20:16 / sld	09/26/11 14:00	ICP2-HE_110928B : 117		14029	

BJM
11/2/11

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: H11090333-014
Matrix: Sediment

Project: UBMC
Collection Date: 09/19/11 16:50
DateReceived: 09/20/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID	
3050 EXTRACTABLE METALS												
Aluminum	9810	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029	
Arsenic	59	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029	J-
Cadmium	60	mg/kg		1		SW6010B	10/05/11 16:51 / sld	10/03/11 08:23	ICP2-HE_111005A : 91		14108	J-
Copper	3940	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029	
Iron	37100	mg/kg		5		SW6010B	09/30/11 00:25 / sld	09/26/11 14:00	ICP2-HE_110929A : 141		14029	
Lead	4420	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029	
Manganese	17000	mg/kg		5		SW6010B	09/30/11 00:25 / sld	09/26/11 14:00	ICP2-HE_110929A : 141		14029	
Zinc	10700	mg/kg		5		SW6010B	09/28/11 20:20 / sld	09/26/11 14:00	ICP2-HE_110928B : 118		14029	

BJM
11/2/11

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 UBMCBRSD29
Lab ID: H11090333-015
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 08:15
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID	
3050 EXTRACTABLE METALS												
Aluminum	6470	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029	
Arsenic	37	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029	J-
Cadmium	10	mg/kg		1		SW6010B	10/05/11 16:54 / sld	10/03/11 08:23	ICP2-HE_111005A : 92		14108	J-
Copper	228	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029	
Iron	29200	mg/kg		5		SW6010B	09/30/11 00:28 / sld	09/26/11 14:00	ICP2-HE_110929A : 142		14029	
Lead	1040	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029	
Manganese	2220	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029	
Zinc	2040	mg/kg		5		SW6010B	09/28/11 20:24 / sld	09/26/11 14:00	ICP2-HE_110928B : 119		14029	

BJM
11/2/11

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: H11090333-016
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 08:40
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6560	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Arsenic	89	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029 J-
Cadmium	15	mg/kg		1		SW6010B	10/05/11 16:58 / sld	10/03/11 08:23	ICP2-HE_111005A	93	14108 J-
Copper	354	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Iron	35700	mg/kg		5		SW6010B	09/30/11 00:32 / sld	09/26/11 14:00	ICP2-HE_110929A	143	14029
Lead	4020	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Manganese	3770	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029
Zinc	2690	mg/kg		5		SW6010B	09/28/11 20:28 / sld	09/26/11 14:00	ICP2-HE_110928B	120	14029

BJM
11/2/11

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: H11090333-017
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 10:35
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID	
3050 EXTRACTABLE METALS												
Aluminum	5760	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029	
Arsenic	62	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029	J-
Cadmium	26	mg/kg		1		SW6010B	10/05/11 17:02 / sld	10/03/11 08:23	ICP2-HE_111005A	94	14108	J-
Copper	768	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029	
Iron	41900	mg/kg		5		SW6010B	09/30/11 00:36 / sld	09/26/11 14:00	ICP2-HE_110929A	144	14029	
Lead	5030	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029	
Manganese	5250	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029	
Zinc	5130	mg/kg		5		SW6010B	09/28/11 21:05 / sld	09/26/11 14:00	ICP2-HE_110928B	130	14029	

BJM
11/2/11

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: H11090333-018
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 11:20
DateReceived: 09/20/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5740	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Arsenic	66	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029 J-
Cadmium	66	mg/kg		1		SW6010B	10/05/11 17:06 / sld	10/03/11 08:23	ICP2-HE_111005A : 95		14108 J-
Copper	961	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Iron	107000	mg/kg	D	20		SW6010B	09/30/11 17:56 / sld	10/03/11 08:23	ICP2-HE_110930B : 79		14108
Lead	8040	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Manganese	3630	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029
Zinc	4130	mg/kg		5		SW6010B	09/28/11 21:09 / sld	09/26/11 14:00	ICP2-HE_110928B : 131		14029

BJM
11/2/11

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 UBMCBRSD3A
Lab ID: H11090333-019
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 11:45
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID	
3050 EXTRACTABLE METALS												
Aluminum	4490	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029	
Arsenic	41	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029	J-
Cadmium	2	mg/kg		1		SW6010B	10/05/11 17:10 / sld	10/03/11 08:23	ICP2-HE_111005A : 96		14108	J-
Copper	137	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029	
Iron	38200	mg/kg		5		SW6010B	09/30/11 01:17 / sld	09/26/11 14:00	ICP2-HE_110929A : 155		14029	
Lead	109	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029	
Manganese	154	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029	
Zinc	288	mg/kg		5		SW6010B	09/28/11 21:13 / sld	09/26/11 14:00	ICP2-HE_110928B : 132		14029	

BJM
11/2/11

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: H11090333-020
Matrix: Sediment

Project: UBMC
Collection Date: 09/20/11 12:15
Report Date: 10/13/11
DateReceived: 09/20/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6930	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029
Arsenic	30	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029 J-
Cadmium	29	mg/kg		1		SW6010B	10/05/11 17:14 / sld	10/03/11 08:23	ICP2-HE_111005A : 97		14108 J-
Copper	793	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029
Iron	20300	mg/kg		5		SW6010B	09/30/11 01:20 / sld	09/26/11 14:00	ICP2-HE_110929A : 156		14029
Lead	368	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029
Manganese	46200	mg/kg		5		SW6010B	09/30/11 18:00 / sld	10/03/11 08:23	ICP2-HE_110930B : 80		14108
Zinc	4840	mg/kg		5		SW6010B	09/28/11 21:17 / sld	09/26/11 14:00	ICP2-HE_110928B : 133		14029

BJM
11/2/11

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

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

October 13, 2011

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

Workorder No.: H11090333 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 20 samples for MT DEQ-Site Response on 9/20/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11090333-001	UBMCBRSW01	09/19/11 16:10	09/20/11	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
H11090333-002	UBMCBRSW22	09/19/11 16:45	09/20/11	Aqueous	Same As Above
H11090333-003	UBMCBRSW24	09/19/11 16:50	09/20/11	Aqueous	Same As Above
H11090333-004	UBMCBRSW02	09/19/11 17:10	09/20/11	Aqueous	Same As Above
H11090333-005	UBMCBRSW29	09/20/11 8:15	09/20/11	Aqueous	Same As Above
H11090333-006	UBMCBRSW38	09/20/11 8:40	09/20/11	Aqueous	Same As Above
H11090333-007	UBMCBRSW25	09/20/11 9:10	09/20/11	Aqueous	Same As Above
H11090333-008	UBMCBRSW48	09/20/11 10:35	09/20/11	Aqueous	Same As Above
H11090333-009	UBMCBRSW23	09/20/11 11:20	09/20/11	Aqueous	Same As Above
H11090333-010	UBMCBRSW3A	09/20/11 11:45	09/20/11	Aqueous	Same As Above
H11090333-011	UBMCBRSW3B	09/20/11 12:15	09/20/11	Aqueous	Same As Above
H11090333-012	UBMCBRSD01	09/19/11 16:10	09/20/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11090333-013	UBMCBRSD22	09/19/11 16:45	09/20/11	Sediment	Same As Above
H11090333-014	UBMCBRSD24	09/19/11 16:50	09/20/11	Sediment	Same As Above
H11090333-015	UBMCBRSD29	09/20/11 8:15	09/20/11	Sediment	Same As Above
H11090333-016	UBMCBRSD38	09/20/11 8:40	09/20/11	Sediment	Same As Above
H11090333-017	UBMCBRSD48	09/20/11 10:35	09/20/11	Sediment	Same As Above
H11090333-018	UBMCBRSD23	09/20/11 11:20	09/20/11	Sediment	Same As Above
H11090333-019	UBMCBRSD3A	09/20/11 11:45	09/20/11	Sediment	Same As Above
H11090333-020	UBMCBRSD3B	09/20/11 12:15	09/20/11	Sediment	Same As Above

ANALYTICAL SUMMARY REPORT

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:

Amanda B. Blackburn
Inorganic Supervisor

Digitally signed by
Amanda B. Blackburn
Date: 2011.10.13 16:14:24 -06:00

Attachment C: Chain of Custody Forms and Sample Receipt Checklist

ENERGY

Chain of Custody and Analytical Request Record

Page 1 of 2

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ-SRS	Project Name, PWS, Permit, Etc. UBMC Surface water/sediment	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 a dreesbach@portageinc.com

Shipped by: HAND
Cooler ID(s): 4
Receipt Temp 3.4 °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	UBMCBRSW01	9/19/11	1610	W	UBMC Surface water/sediments	X			
2	UBMCBRSD01	"	"	S					
3	UBMCBRSW22	9/19/11	1645	W					
4	UBMCBRSD22	"	"	S					
5	UBMCBRSW24	9/19/11	1650	W					
6	UBMCBRSD24	"	"	S					
7	UBMCBRSW02	9/19/11	1710	W					
8	UBMCBRSW29	9/20/11	0815	W					
9	UBMCBRSD29	"	"	S					
10	UBMCBRSW38	9/20/11	0840	W		X			

LABORATORY USE ONLY H11090333

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	9/20/11 0945	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Esther Merritt	Date/Time: 9-20-11 14:45	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.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ-SRS	Project Name, PWS, Permit, Etc. VBMC Surface water - sediment	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Shallie Haaland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach Jackie Janusko
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)

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

Shipped by: Hand

Cooler ID(s): 4

Receipt Temp 3.4 °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
1	VBMC BRSD38	9/20/11	0840	S	VBMC Surface water/sediment	X
2	VBMCBRSW25	9/20/11	0910	W		(
3	VBMCBRSW48	9/20/11	1035	W		
4	VBMCBRSD 48	"	"	S		
5	VBMCBRSW 23	9/20/11	1120	W		
6	VBMCBRSD 23	"	"	S		
7	VBMCBRSW3A	9/20/11	1145	W		
8	VBMCBRSD3A	"	"	S		
9	VBMCBRSW3B	9/20/11	1215	W		
10	VBMCBRSD3B	"	"	S		X

LABORATORY USE ONLY H11090333

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 9/20/11 1445	Signature:	
Relinquished by (print):	Date/Time:	Signature:	
Received by (print):	Date/Time:	Signature:	
Received by (print):	Date/Time:	Signature:	
Received by Laboratory: Heather Merritt	Date/Time: 9.20.11 14:45	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.

Workorder Receipt Checklist



H11090333

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 9/20/2011

Reviewed by: BL2000\ablackburn
Received by: elm

Reviewed Date: 9/28/2011
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.	3.4°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

Upper Blackfoot Mining Complex (UBMC) Groundwater

SDG#:	**H11090404**
Number of Samples:	**9**
Sample Matrix:	**Groundwater**
Applicable Analytes:	**pH, Conductivity, TSS, TDS, Anions: (Chloride and Sulfate), Hardness, and Dissolved Metals: (Al, As, Cd, Ca, Cu, Fe, Pb, Hg, Mn, K, Na & Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**

Validator: _____ **Date Completed:** 10/25/11

Portage Review: _____ **Date Completed:** 10-31-11

REPORT ORGANIZATION:

The Limitations & Validation (L&V) Report for the 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: 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 Groundwater sample results were received by Portage, Inc. in October 2011. The laboratory analytical request provided for a summary data package for the following analytes: pH, conductivity, 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, 2510B, 2540D, and 2540C, 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:**
UBMCTDMW05	H11090404-001	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11
UBMCTDMW4D	H11090404-002	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11
UBMCTDMW06	H11090404-003	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11
UBMCTDMW07	H11090404-004	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11
UBMCTDMW08	H11090404-005	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11
UBMCTDMW3D	H11090404-006	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11
UBMCTDMW1	H11090404-007	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11
UBMCTDMW2D	H11090404-008	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11

Cross-Reference for UBMC Groundwater Water Samples					
UBMCTDMW2S	H11090404-009	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	09/22/11	09/23/11

ANALYTICAL HOLDING TIMES:

The groundwater samples associated with this SDG were collected on 09/22/11. Conductivity, TSS, and TDS were analyzed on 09/26/11, within the 7-day holding time for TSS and TDS and 28-day holding time for conductivity. Chloride and sulfate were analyzed on 10/05/11, within the 28-day holding time. Dissolved metals were analyzed on 09/28/11 and 10/01/11, within the 180-day holding time; hardness results were calculated from calcium and magnesium results.

The samples were collected on 09/22/11. The laboratory received the samples on 09/23/11 and analyzed pH on 09/26/11, approximately 3 days outside the 24-hr holding time. In the professional judgment of the validator, all pH results have been qualified 'J-' 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.

PREPRATION BLANKS (PB):

The dissolved metals PB exhibited positive detections for aluminum, calcium, copper, iron, magnesium, manganese, potassium, sodium and zinc. However, no qualification is warranted as the reported results were either non-detect or greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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):

All MS and MSD results and the associated MSD RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were nine (9) water field samples included in SDG# H11090404. All field samples were analyzed for pH, conductivity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals as outlined in the project QAPP.

All pH results have been qualified 'J-' 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.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW05
Lab ID: H11090404-001
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 07:50 **DateReceived:** 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.2	s.u.		0.1		A4500-H B	09/26/11 18:49 / zeg		MAN-TECH_110926A : 22		R74718 J-
Conductivity	285	umhos/cm		1		A2510 B	09/26/11 11:39 / cmm		COND_110926A : 2210926A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:16 / cmm	09/26/11 13:56	J-124 (14410200)_110926A : 3		14027
Solids, Total Dissolved TDS @ 180 C	182	mg/L		10		A2540 C	09/26/11 14:37 / cmm	09/26/11 14:04	J-124 (14410200)_110926B : 8		14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:06 / zeg		IC101-H_111005A : 21		R75087
Sulfate	46	mg/L		1		E300.0	10/05/11 13:06 / zeg		IC101-H_111005A : 21		R75087
Hardness as CaCO3	155	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A : 18		R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Cadmium	0.00008	mg/L		0.00008		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Calcium	35	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Magnesium	17	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Manganese	ND	mg/L		0.005		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Sodium	3	mg/L		1		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807
Zinc	0.02	mg/L		0.01		E200.8	09/28/11 07:11 / dck		ICPMS204-B_110927B : 149		R74807

BJM
10/25/11

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: H11090404-002
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 10:20
DateReceived: 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u.		0.1		A4500-H B	09/26/11 18:56 / zeg		MAN-TECH_110926A	23	R74718 J-
Conductivity	289	umhos/cm		1		A2510 B	09/26/11 11:40 / cmm		COND_110926A	2	310926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	58	mg/L		10		A2540 D	09/26/11 14:17 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	5	14027
Solids, Total Dissolved TDS @ 180 C	174	mg/L		10		A2540 C	09/26/11 14:38 / cmm	09/26/11 14:04	-124 (14410200)_110926B	10	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:20 / zeg		IC101-H_111005A	22	R75087
Sulfate	26	mg/L		1		E300.0	10/05/11 13:20 / zeg		IC101-H_111005A	22	R75087
Hardness as CaCO3	143	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	19	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Calcium	25	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Magnesium	19	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Manganese	0.012	mg/L		0.005		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Sodium	14	mg/L		1		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 07:15 / dck		ICPMS204-B_110927B	150	R74807

BJM
10/25/11

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: H11090404-003
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 10:30 **DateReceived:** 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u.		0.1		A4500-H B	09/26/11 19:03 / zeg		MAN-TECH_110926A : 24		R74718 J-
Conductivity	290	umhos/cm		1		A2510 B	09/26/11 11:39 / cmm		COND_110926A : 24	10926A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	40	mg/L		10		A2540 D	09/26/11 14:17 / cmm	09/26/11 13:56	J-124 (14410200)_110926A : 6		14027
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	09/26/11 14:38 / cmm	09/26/11 14:04	-124 (14410200)_110926B : 12		14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:33 / zeg		IC101-H_111005A : 23		R75087
Sulfate	27	mg/L		1		E300.0	10/05/11 13:33 / zeg		IC101-H_111005A : 23		R75087
Hardness as CaCO3	138	mg/L		1		A2340 B	10/05/11 07:42 / sld		WATERCALC_111005A : 8		R75020
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Calcium	24	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Magnesium	19	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Manganese	0.009	mg/L		0.005		E200.8	10/01/11 05:32 / dck		ICPMS204-B_110930B : 98		R74966
Potassium	ND	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Sodium	13	mg/L		1		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 07:20 / dck		ICPMS204-B_110927B : 151		R74807

BJM
10/25/11

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: H11090404-004
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 12:03 **DateReceived:** 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.9	s.u.		0.1		A4500-H B	09/26/11 19:08 / zeg		MAN-TECH_110926A : 26		R74718 J-
Conductivity	3	umhos/cm		1		A2510 B	09/26/11 11:38 / cmm		COND_110926A : 2510926A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:17 / cmm	09/26/11 13:56	J-124 (14410200)_110926A : 7		14027
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/26/11 14:38 / cmm	09/26/11 14:04	-124 (14410200)_110926B : 13		14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 13:47 / zeg		IC101-H_111005A : 24		R75087
Sulfate	ND	mg/L		1		E300.0	10/05/11 13:47 / zeg		IC101-H_111005A : 24		R75087
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A : 20		R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Calcium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Magnesium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Manganese	ND	mg/L		0.005		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Sodium	ND	mg/L		1		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 07:24 / dck		ICPMS204-B_110927B : 152		R74807

BJM
10/25/11

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: H11090404-005
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 12:15 **DateReceived:** 09/23/11
Report Date: 10/13/11

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	09/26/11 19:22 / zeg		MAN-TECH_110926A	29	R74718 J-
Conductivity	18	umhos/cm		1		A2510 B	09/26/11 11:40 / cmm		COND_110926A	2	610926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	8	14027
Solids, Total Dissolved TDS @ 180 C	12	mg/L		10		A2540 C	09/26/11 14:39 / cmm	09/26/11 14:04	124 (14410200)_110926B	14	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 14:27 / zeg		IC101-H_111005A	27	R75087
Sulfate	ND	mg/L		1		E300.0	10/05/11 14:27 / zeg		IC101-H_111005A	27	R75087
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	21	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Calcium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Copper	0.001	mg/L		0.001		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Iron	0.11	mg/L		0.05		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Lead	0.0018	mg/L		0.0005		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Magnesium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Manganese	0.015	mg/L		0.005		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Sodium	ND	mg/L		1		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 08:01 / dck		ICPMS204-B_110927B	160	R74807

BJM
10/25/11

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: H11090404-006
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 12:45 **DateReceived:** 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	09/26/11 19:28 / zeg		MAN-TECH_110926A	30	R74718 J-
Conductivity	230	umhos/cm		1		A2510 B	09/26/11 11:41 / cmm		COND_110926A	2	710926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	J-124 (14410200)_110926A	9	14027
Solids, Total Dissolved TDS @ 180 C	146	mg/L		10		A2540 C	09/26/11 14:39 / cmm	09/26/11 14:04	-124 (14410200)_110926B	15	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 14:40 / zeg		IC101-H_111005A	28	R75087
Sulfate	59	mg/L		1		E300.0	10/05/11 14:40 / zeg		IC101-H_111005A	28	R75087
Hardness as CaCO3	116	mg/L		1		A2340 B	10/05/11 07:42 / sld		WATERCALC_111005A	9	R75020
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Calcium	26	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Lead	0.0005	mg/L		0.0005		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Magnesium	12	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Manganese	0.006	mg/L		0.005		E200.8	10/01/11 06:08 / dck		ICPMS204-B_110930B	106	R74966
Potassium	ND	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 08:06 / dck		ICPMS204-B_110927B	161	R74807

BJM
10/25/11

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 UBMCTDMW1
Lab ID: H11090404-007
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 14:55 **DateReceived:** 09/23/11
Report Date: 10/13/11

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	09/26/11 19:35 / zeg		MAN-TECH_110926A	31	R74718 J-
Conductivity	717	umhos/cm		1		A2510 B	09/26/11 11:41 / cmm		COND_110926A	28	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	-124 (14410200)_110926A	10	14027
Solids, Total Dissolved TDS @ 180 C	588	mg/L		10		A2540 C	09/26/11 14:40 / cmm	09/26/11 14:04	-124 (14410200)_110926B	17	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 14:54 / zeg		IC101-H_111005A	29	R75087
Sulfate	370	mg/L		1		E300.0	10/05/11 14:54 / zeg		IC101-H_111005A	29	R75087
Hardness as CaCO3	438	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	22	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Cadmium	0.00461	mg/L		0.00008		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Calcium	71	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Magnesium	63	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Manganese	1.25	mg/L		0.005		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Potassium	2	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807
Zinc	1.18	mg/L		0.01		E200.8	09/28/11 08:10 / dck		ICPMS204-B_110927B	162	R74807

BJM
10/25/11

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: H11090404-008
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 15:30 **DateReceived:** 09/23/11
Report Date: 10/13/11

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	09/26/11 19:42 / zeg		MAN-TECH_110926A	32	R74718 J-
Conductivity	206	umhos/cm		1		A2510 B	09/26/11 11:42 / cmm		COND_110926A	29	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:18 / cmm	09/26/11 13:56	124 (14410200)_110926A	11	14027
Solids, Total Dissolved TDS @ 180 C	124	mg/L		10		A2540 C	09/26/11 14:40 / cmm	09/26/11 14:04	124 (14410200)_110926B	18	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 15:07 / zeg		IC101-H_111005A	30	R75087
Sulfate	23	mg/L		1		E300.0	10/05/11 15:07 / zeg		IC101-H_111005A	30	R75087
Hardness as CaCO3	119	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	23	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Cadmium	ND	mg/L		0.00008		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Calcium	23	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Magnesium	15	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Manganese	ND	mg/L		0.005		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807
Zinc	ND	mg/L		0.01		E200.8	09/28/11 08:15 / dck		ICPMS204-B_110927B	163	R74807

BJM
10/25/11

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: H11090404-009
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 09/22/11 15:55 **DateReceived:** 09/23/11
Report Date: 10/13/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	09/26/11 19:49 / zeg		MAN-TECH_110926A	33	R74718 J-
Conductivity	406	umhos/cm		1		A2510 B	09/26/11 11:52 / cmm		COND_110926A	31	10926A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/11 14:19 / cmm	09/26/11 13:56	-124 (14410200)_110926A	12	14027
Solids, Total Dissolved TDS @ 180 C	286	mg/L		10		A2540 C	09/26/11 14:40 / cmm	09/26/11 14:04	-124 (14410200)_110926B	19	14030
INORGANICS											
Chloride	ND	mg/L		1		E300.0	10/05/11 15:20 / zeg		IC101-H_111005A	31	R75087
Sulfate	140	mg/L		1		E300.0	10/05/11 15:20 / zeg		IC101-H_111005A	31	R75087
Hardness as CaCO3	238	mg/L		1		A2340 B	09/29/11 07:51 / sld		WATERCALC_110929A	24	R74814
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Arsenic	ND	mg/L		0.003		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Cadmium	0.00208	mg/L		0.00008		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Calcium	43	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Copper	ND	mg/L		0.001		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Iron	ND	mg/L		0.05		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Lead	ND	mg/L		0.0005		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Magnesium	32	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Manganese	2.66	mg/L		0.005		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Potassium	ND	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Sodium	2	mg/L		1		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807
Zinc	1.33	mg/L		0.01		E200.8	09/28/11 08:19 / dck		ICPMS204-B_110927B	164	R74807

BJM
10/25/11

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

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

October 13, 2011

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

Workorder No.: H11090404 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 9/23/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11090404-001	UBMCTDMW05	09/22/11 7:50	09/23/11	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11090404-002	UBMCTDMW4D	09/22/11 10:20	09/23/11	Aqueous	Same As Above
H11090404-003	UBMCTDMW06	09/22/11 10:30	09/23/11	Aqueous	Same As Above
H11090404-004	UBMCTDMW07	09/22/11 12:03	09/23/11	Aqueous	Same As Above
H11090404-005	UBMCTDMW08	09/22/11 12:15	09/23/11	Aqueous	Same As Above
H11090404-006	UBMCTDMW3D	09/22/11 12:45	09/23/11	Aqueous	Same As Above
H11090404-007	UBMCTDMW1	09/22/11 14:55	09/23/11	Aqueous	Same As Above
H11090404-008	UBMCTDMW2D	09/22/11 15:30	09/23/11	Aqueous	Same As Above
H11090404-009	UBMCTDMW2S	09/22/11 15:55	09/23/11	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 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:

Amanda B. Blackburn
Inorganic Supervisor

Digitally signed by
Amanda B. Blackburn
Date: 2011.10.13 17:03:39 -06:00

Attachment C: Chain of Custody Forms and Sample Receipt Checklist

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	Alan Drasbek, Jackie Janeski
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Page 27 of 28

Special Report/Formats:

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

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	VBMC Groundwater	SEE ATTACHED
1	VBMCTDMW05	9/22/11	0750	W	X	X
2	VBMCTDMW4D		1020			
3	VBMCTDMW06		1030			
4	VBMCTDMW07		1203			
5	VBMCTDMW08		1215			
6	VBMCTDMW3D		1245			
7	VBMCTDMW1		1455			
8	VBMCTDMW2D	↓	1530	↓	↓	↓
9	VBMCTDMW2S	9/22/11	1555	W	X	X
10				9/22/11		

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 adrasbek@portageinc.com

40-5135

Shipped by: HAND
Cooler ID(s): 4
Receipt Temp: 6.0 °C
On Ice: Y N
Custody Seal: On Bottle Y N, On Cooler Y N
Intact Y N
Signature Match Y N

HH090404

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Drasbek	9/23/11 1135				
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
			Esther Merritt	9-23-11 11:35	Esther Merritt

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

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 noted on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Workorder Receipt Checklist

H11090404

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 9/23/2011

Reviewed by: BL2000\ablackburn
Received by: elm

Reviewed Date: 9/28/2011
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	6.0°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 Surface Water

SDG#:	**H11120149**
Number of Samples:	**17**
Sample Matrix:	**(9) Surface Water and (8) Sediment**
Applicable Analytes:	**(9) 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 (8) 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**

Validator: _____ **Date Completed:** 01/30/12

Portage Review: _____ **Date Completed:** 2/2/12

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Surface Waterr 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 January 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:**
UBMCBRSW25	H11120149-001	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSW38	H11120149-002	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSW48	H11120149-003	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSW23	H11120149-004	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11

Cross-Reference for UBMC Surface Water Sediment and Surface Water Samples					
UBMCBRSW3A	H11120149-005	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSW3B	H11120149-006	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSW22	H11120149-007	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSW24	H11120149-008	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSW1	H11120149-009	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	12/11/11	12/12/11
UBMCBRSD38	H11120149-010	Sediment	Total Metals	12/11/11	12/12/11
UBMCBRSD48	H11120149-011	Sediment	Total Metals	12/11/11	12/12/11
UBMCBRSD23	H11120149-012	Sediment	Total Metals	12/11/11	12/12/11
UBMCBRSD3A	H11120149-013	Sediment	Total Metals	12/11/11	12/12/11
UBMCBRSD3B	H11120149-014	Sediment	Total Metals	12/11/11	12/12/11
UBMCBRSD22	H11120149-015	Sediment	Total Metals	12/11/11	12/12/11
UBMCBRSD24	H11120149-016	Sediment	Total Metals	12/11/11	12/12/11
UBMCBRSD1	H11120149-017	Sediment	Total Metals	12/11/11	12/12/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 12/11/11. The conductivity, TSS, TDS, and alkalinity (total alkalinity, bicarbonate, and carbonate) results were analyzed on 12/12/11 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 12/12/11 within the 28-day holding time. The hardness results were analyzed on 12/14/11 within the 180-day holding time. The dissolved metals were analyzed on 12/13/11 and the total recoverable metals were analyzed on 12/14/11, total metals results were analyzed on 12/16/11 within the 180-day holding time for the remaining analytes.

The pH samples were collected on 12/11/11, received on 12/12/11, and analyzed on 12/12/11 approximately 9-10 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 and as the samples were properly preserved.

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

For Dissolved Metals by ICP-AES, the PB for calcium and zinc exhibited positive detections between the MDL and the RL. The associated sodium and zinc results warrant no qualification due to positive detection in the method blank as the reported results were greater than the RL and greater than five times the PB concentration.

For Total Recoverable Metals by ICP-MS, the PB for copper, iron, manganese, and zinc exhibited positive detections between the MDL and the RL. Iron, manganese, and zinc warrant no qualification due to positive detection in the method blank as the reported results were either greater than the RL and greater than five times the PB concentration, or were non-detect. The copper results for samples UBMCBRSW38, UBMCBRSW23, UBMCBRSW3A, and UBMCBRSW3B have been qualified with a "U" validation flag due to sample results greater than the RL, but less than five times the amount found in the blank. The remaining copper results warrant no qualification due to positive detection in the method blank as the

reported results were greater than the RL and greater than five times the PB concentration or were non-detect

For Total Metals by SW-846 6010B, the PB for iron and zinc exhibited positive detections between the MDL and the RL. The associated iron and zinc results warrant no qualification due to positive detection in the method blank as the reported results were greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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 lead and manganese MS for Total Metals by 6010B exhibited recovery outside the 90-110% recovery criteria prescribed by the Functional Guidelines. All associated lead and manganese sample results have been qualified with a "J+" validation flag due to high MS recovery and sample results greater than the RL.

The remaining MS/MSD recovery and RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were nine (9) surface water and eight (8) sediment field samples included in SDG# H11120149. Nine (9) field samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total recoverable metals, eight (8) 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.

The total recoverable copper results for samples UBMCBRSW38, UBMCBRSW23, UBMCBRSW3A, and UBMCBRSW3B have been qualified with a "U" validation flag to denote the data is non-detect at the reported result due to positive PB results.

All lead and manganese sediment 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 remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW38
Lab ID: H11120149-002
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 09:00 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	J-	0.1		A4500-H B	12/12/11 17:49 / cmm		MAN-TECH_111212B : 15		R76690
Conductivity	317	umhos/cm		1		A2510 B	12/12/11 11:32 / zeg		COND_111212A : 2211212A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:31 / cmm	12/12/11 14:34	J-124 (14410200)_111212A : 4		15073
Solids, Total Dissolved TDS @ 180 C	206	mg/L		10		A2540 C	12/12/11 15:01 / cmm	12/12/11 14:42	J-124 (14410200)_111212B : 6		15075
INORGANICS											
Alkalinity, Total as CaCO3	82	mg/L		4		A2320 B	12/12/11 17:49 / cmm		MAN-TECH_111212B : 14		R76690
Bicarbonate as HCO3	100	mg/L		4		A2320 B	12/12/11 17:49 / cmm		MAN-TECH_111212B : 14		R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 17:49 / cmm		MAN-TECH_111212B : 14		R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 19:25 / zeg		IC102-H_111212A : 38		R76698
Sulfate	79	mg/L		1		E300.0	12/12/11 19:25 / zeg		IC102-H_111212A : 38		R76698
Hardness as CaCO3	150	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A : 2		R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A : 21		R76725
Calcium	32	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A : 21		R76725
Magnesium	17	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A : 21		R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A : 21		R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:30 / sld		ICP2-HE_111213A : 21		R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A : 65		R76786
Cadmium	0.00467	mg/L		0.00008		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A : 65		R76786
Copper	0.004	mg/L	U	0.001		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A : 65		R76786
Iron	0.17	mg/L		0.03		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A : 65		R76786
Lead	0.0065	mg/L		0.0005		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A : 65		R76786
Manganese	0.775	mg/L		0.005		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A : 65		R76786
Zinc	1.22	mg/L		0.01		E200.8	12/14/11 18:35 / dck		ICPMS204-B_111214A : 65		R76786

JHN 1-30-12

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 UBMCBRSW48
Lab ID: H11120149-003
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 10:40 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u. J-		0.1		A4500-H B	12/12/11 17:56 / cmm		MAN-TECH_111212B	17	R76690
Conductivity	301	umhos/cm		1		A2510 B	12/12/11 11:33 / zeg		COND_111212A	2	311212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:31 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	5	15073
Solids, Total Dissolved TDS @ 180 C	202	mg/L		10		A2540 C	12/12/11 15:01 / cmm	12/12/11 14:42	J-124 (14410200)_111212B	7	15075
INORGANICS											
Alkalinity, Total as CaCO3	98	mg/L		4		A2320 B	12/12/11 17:56 / cmm		MAN-TECH_111212B	16	R76690
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/12/11 17:56 / cmm		MAN-TECH_111212B	16	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 17:56 / cmm		MAN-TECH_111212B	16	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 19:38 / zeg		IC102-H_111212A	39	R76698
Sulfate	64	mg/L		1		E300.0	12/12/11 19:38 / zeg		IC102-H_111212A	39	R76698
Hardness as CaCO3	151	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	3	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Calcium	31	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Magnesium	18	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:34 / sld		ICP2-HE_111213A	22	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Cadmium	0.00296	mg/L		0.00008		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Copper	0.009	mg/L		0.001		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Iron	0.80	mg/L		0.03		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Lead	0.0191	mg/L		0.0005		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Manganese	1.41	mg/L		0.005		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786
Zinc	0.80	mg/L		0.01		E200.8	12/14/11 18:41 / dck		ICPMS204-B_111214A	66	R76786

JtN 1-30-12

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 UBMCBRSW23
Lab ID: H11120149-004
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 11:05 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u. J-		0.1		A4500-H B	12/12/11 18:03 / cmm		MAN-TECH_111212B : 19		R76690
Conductivity	291	umhos/cm		1		A2510 B	12/12/11 11:34 / zeg		COND_111212A : 241	1212A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:31 / cmm	12/12/11 14:34	J-124 (14410200)_111212A : 6		15073
Solids, Total Dissolved TDS @ 180 C	182	mg/L		10		A2540 C	12/12/11 15:02 / cmm	12/12/11 14:42	J-124 (14410200)_111212B : 8		15075
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/12/11 18:03 / cmm		MAN-TECH_111212B : 18		R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:03 / cmm		MAN-TECH_111212B : 18		R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:03 / cmm		MAN-TECH_111212B : 18		R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 20:19 / zeg		IC102-H_111212A : 42		R76698
Sulfate	50	mg/L		1		E300.0	12/12/11 20:19 / zeg		IC102-H_111212A : 42		R76698
Hardness as CaCO3	141	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A : 4		R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A : 23		R76725
Calcium	29	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A : 23		R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A : 23		R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A : 23		R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:37 / sld		ICP2-HE_111213A : 23		R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A : 67		R76786
Cadmium	0.00175	mg/L		0.00008		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A : 67		R76786
Copper	0.005	mg/L U		0.001		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A : 67		R76786
Iron	0.11	mg/L		0.03		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A : 67		R76786
Lead	0.0073	mg/L		0.0005		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A : 67		R76786
Manganese	0.553	mg/L		0.005		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A : 67		R76786
Zinc	0.56	mg/L		0.01		E200.8	12/14/11 18:48 / dck		ICPMS204-B_111214A : 67		R76786

JLH 1-30-12

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 UBMCBRSW3A
Lab ID: H11120149-005
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 11:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u. J-		0.1		A4500-H B	12/12/11 18:18 / cmm		MAN-TECH_111212B	23	R76690
Conductivity	299	umhos/cm		1		A2510 B	12/12/11 11:35 / zeg		COND_111212A	251	1212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	7	15073
Solids, Total Dissolved TDS @ 180 C	204	mg/L		10		A2540 C	12/12/11 15:02 / cmm	12/12/11 14:42	J-124 (14410200)_111212B	9	15075
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/12/11 18:18 / cmm		MAN-TECH_111212B	22	R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:18 / cmm		MAN-TECH_111212B	22	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:18 / cmm		MAN-TECH_111212B	22	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 20:33 / zeg		IC102-H_111212A	43	R76698
Sulfate	55	mg/L		1		E300.0	12/12/11 20:33 / zeg		IC102-H_111212A	43	R76698
Hardness as CaCO3	155	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	5	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Calcium	34	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Magnesium	17	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:41 / sld		ICP2-HE_111213A	24	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Cadmium	0.00083	mg/L		0.00008		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Copper	0.001	mg/L U		0.001		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Iron	0.08	mg/L		0.03		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Lead	0.0023	mg/L		0.0005		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Manganese	0.595	mg/L		0.005		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786
Zinc	0.48	mg/L		0.01		E200.8	12/14/11 18:54 / dck		ICPMS204-B_111214A	68	R76786

JAN 1-30-12

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 UBMCBRSW3B
Lab ID: H11120149-006
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 11:55 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u. J-		0.1		A4500-H B	12/12/11 18:24 / cmm		MAN-TECH_111212B : 25		R76690
Conductivity	301	umhos/cm		1		A2510 B	12/12/11 11:35 / zeg		COND_111212A : 26	11212A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	J-124 (14410200)_111212A : 8		15073
Solids, Total Dissolved TDS @ 180 C	192	mg/L		10		A2540 C	12/12/11 15:02 / cmm	12/12/11 14:42	-124 (14410200)_111212B : 10		15075
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/12/11 18:24 / cmm		MAN-TECH_111212B : 24		R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:24 / cmm		MAN-TECH_111212B : 24		R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:24 / cmm		MAN-TECH_111212B : 24		R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 20:46 / zeg		IC102-H_111212A : 44		R76698
Sulfate	51	mg/L		1		E300.0	12/12/11 20:46 / zeg		IC102-H_111212A : 44		R76698
Hardness as CaCO3	150	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A : 6		R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A : 25		R76725
Calcium	33	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A : 25		R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A : 25		R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A : 25		R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:45 / sld		ICP2-HE_111213A : 25		R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A : 78		15103
Cadmium	0.00080	mg/L		0.00008		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A : 78		15103
Copper	0.004	mg/L U		0.001		E200.8	12/20/11 16:41 / dck	12/13/11 11:08	ICPMS204-B_111220A : 90		15103
Iron	0.31	mg/L		0.03		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A : 78		15103
Lead	0.0115	mg/L		0.0005		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A : 78		15103
Manganese	0.303	mg/L		0.005		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A : 78		15103
Zinc	0.49	mg/L		0.01		E200.8	12/14/11 20:00 / dck	12/13/11 11:08	ICPMS204-B_111214A : 78		15103

JAN 1-30-12

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 UBMCBRSW22
Lab ID: H11120149-007
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 13:30 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u. J-		0.1		A4500-H B	12/12/11 18:31 / cmm		MAN-TECH_111212B	27	R76690
Conductivity	400	umhos/cm		1		A2510 B	12/12/11 11:37 / zeg		COND_111212A	271	1212A-COND-PROBI
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	J-124 (14410200)_111212A	9	15073
Solids, Total Dissolved TDS @ 180 C	280	mg/L		10		A2540 C	12/12/11 15:03 / cmm	12/12/11 14:42	-124 (14410200)_111212B	11	15075
INORGANICS											
Alkalinity, Total as CaCO3	87	mg/L		4		A2320 B	12/12/11 18:31 / cmm		MAN-TECH_111212B	26	R76690
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/12/11 18:31 / cmm		MAN-TECH_111212B	26	R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:31 / cmm		MAN-TECH_111212B	26	R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 21:00 / zeg		IC102-H_111212A	45	R76698
Sulfate	120	mg/L		1		E300.0	12/12/11 21:00 / zeg		IC102-H_111212A	45	R76698
Hardness as CaCO3	199	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A	7	R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Calcium	53	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:48 / sld		ICP2-HE_111213A	26	R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Cadmium	0.00958	mg/L		0.00008		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Copper	0.018	mg/L		0.001		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Iron	ND	mg/L		0.03		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Lead	0.0054	mg/L		0.0005		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Manganese	ND	mg/L		0.005		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786
Zinc	2.11	mg/L		0.01		E200.8	12/14/11 20:32 / dck		ICPMS204-B_111214A	83	R76786

JTM 1-30-12

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 UBMCBRSW24
Lab ID: H11120149-008
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 13:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u. J-		0.1		A4500-H B	12/12/11 18:38 / cmm		MAN-TECH_111212B : 29		R76690
Conductivity	402	umhos/cm		1		A2510 B	12/12/11 11:38 / zeg		COND_111212A : 2811212A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:32 / cmm	12/12/11 14:34	-124 (14410200)_111212A : 10		15073
Solids, Total Dissolved TDS @ 180 C	278	mg/L		10		A2540 C	12/12/11 15:03 / cmm	12/12/11 14:42	-124 (14410200)_111212B : 12		15075
INORGANICS											
Alkalinity, Total as CaCO3	87	mg/L		4		A2320 B	12/12/11 18:38 / cmm		MAN-TECH_111212B : 28		R76690
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/12/11 18:38 / cmm		MAN-TECH_111212B : 28		R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:38 / cmm		MAN-TECH_111212B : 28		R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 21:14 / zeg		IC102-H_111212A : 46		R76698
Sulfate	120	mg/L		1		E300.0	12/12/11 21:14 / zeg		IC102-H_111212A : 46		R76698
Hardness as CaCO3	200	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A : 8		R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A : 27		R76725
Calcium	53	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A : 27		R76725
Magnesium	16	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A : 27		R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A : 27		R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:52 / sld		ICP2-HE_111213A : 27		R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A : 84		R76786
Cadmium	0.00964	mg/L		0.00008		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A : 84		R76786
Copper	0.018	mg/L		0.001		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A : 84		R76786
Iron	ND	mg/L		0.03		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A : 84		R76786
Lead	0.0054	mg/L		0.0005		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A : 84		R76786
Manganese	ND	mg/L		0.005		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A : 84		R76786
Zinc	2.13	mg/L		0.01		E200.8	12/14/11 20:38 / dck		ICPMS204-B_111214A : 84		R76786

JTN 1-30-12

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 UBMCBRSW1
Lab ID: H11120149-009
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/11/11 14:20 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.3	s.u. J-		0.1		A4500-H B	12/12/11 18:45 / cmm		MAN-TECH_111212B : 31		R76690
Conductivity	190	umhos/cm		1		A2510 B	12/12/11 11:39 / zeg		COND_111212A : 29	11212A-COND-PROBI	
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/12/11 15:33 / cmm	12/12/11 14:34	-124 (14410200)_111212A : 12		15073
Solids, Total Dissolved TDS @ 180 C	110	mg/L		10		A2540 C	12/12/11 15:03 / cmm	12/12/11 14:42	-124 (14410200)_111212B : 14		15075
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/12/11 18:45 / cmm		MAN-TECH_111212B : 30		R76690
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/12/11 18:45 / cmm		MAN-TECH_111212B : 30		R76690
Carbonate as CO3	ND	mg/L		4		A2320 B	12/12/11 18:45 / cmm		MAN-TECH_111212B : 30		R76690
Chloride	ND	mg/L		1		E300.0	12/12/11 21:27 / zeg		IC102-H_111212A : 47		R76698
Sulfate	5	mg/L		1		E300.0	12/12/11 21:27 / zeg		IC102-H_111212A : 47		R76698
Hardness as CaCO3	101	mg/L		1		A2340 B	12/14/11 16:15 / sld		WATERCALC_111214A : 9		R76752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A : 28		R76725
Calcium	21	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A : 28		R76725
Magnesium	12	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A : 28		R76725
Potassium	ND	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A : 28		R76725
Sodium	1	mg/L		1		E200.7	12/13/11 12:56 / sld		ICP2-HE_111213A : 28		R76725
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A : 85		15103
Cadmium	ND	mg/L		0.00008		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A : 85		15103
Copper	ND	mg/L		0.001		E200.8	12/20/11 16:48 / dck	12/13/11 11:08	ICPMS204-B_111220A : 91		15103
Iron	0.08	mg/L		0.03		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A : 85		15103
Lead	ND	mg/L		0.0005		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A : 85		15103
Manganese	0.006	mg/L		0.005		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A : 85		15103
Zinc	ND	mg/L		0.01		E200.8	12/14/11 20:45 / dck	12/13/11 11:08	ICPMS204-B_111214A : 85		15103

JAN 1-30-12

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: H11120149-010
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 09:00 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6830	mg/kg		5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Arsenic	32	mg/kg		5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Cadmium	10	mg/kg		1		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Copper	258	mg/kg		5		SW6010B	12/16/11 17:49 / sld	12/13/11 14:15	ICP2-HE_111216B : 84		15107
Iron	25200	mg/kg		5		SW6010B	12/16/11 17:49 / sld	12/13/11 14:15	ICP2-HE_111216B : 84		15107
Lead	950	mg/kg	H+	5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107
Manganese	1930	mg/kg	H+	5		SW6010B	12/16/11 17:49 / sld	12/13/11 14:15	ICP2-HE_111216B : 84		15107
Zinc	2050	mg/kg		5		SW6010B	12/16/11 02:31 / sld	12/13/11 14:15	ICP2-HE_111215B : 205		15107

JAN
1-30-12

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: H11120149-011
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 10:40 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7140	mg/kg		5		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107
Arsenic	115	mg/kg		5		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107
Cadmium	52	mg/kg		1		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107
Copper	2850	mg/kg		5		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Iron	65800	mg/kg	D	8		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Lead	15200	mg/kg J+	D	20		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Manganese	4190	mg/kg J+		5		SW6010B	12/16/11 18:00 / sld	12/13/11 14:15	ICP2-HE_111216B : 87		15107
Zinc	9060	mg/kg		5		SW6010B	12/16/11 02:35 / sld	12/13/11 14:15	ICP2-HE_111215B : 206		15107

JAH
1-30-12

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 UBMCBRSD23
Lab ID: H11120149-012
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 11:05 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6760	mg/kg		5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Arsenic	52	mg/kg		5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Cadmium	16	mg/kg		1		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Copper	2430	mg/kg		5		SW6010B	12/16/11 18:04 / sld	12/13/11 14:15	ICP2-HE_111216B : 88		15107
Iron	41400	mg/kg		5		SW6010B	12/16/11 18:04 / sld	12/13/11 14:15	ICP2-HE_111216B : 88		15107
Lead	2890	mg/kg	J+	5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107
Manganese	6200	mg/kg	J+	5		SW6010B	12/16/11 18:04 / sld	12/13/11 14:15	ICP2-HE_111216B : 88		15107
Zinc	3300	mg/kg		5		SW6010B	12/16/11 02:38 / sld	12/13/11 14:15	ICP2-HE_111215B : 207		15107

JAN
1-30-12

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: H11120149-013
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 11:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4150	mg/kg		5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Arsenic	33	mg/kg		5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Cadmium	40	mg/kg		1		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Copper	471	mg/kg		5		SW6010B	12/16/11 18:08 / sld	12/13/11 14:15	ICP2-HE_111216B : 89		15107
Iron	15600	mg/kg		5		SW6010B	12/16/11 18:08 / sld	12/13/11 14:15	ICP2-HE_111216B : 89		15107
Lead	400	mg/kg	J+	5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107
Manganese	10900	mg/kg	J+	5		SW6010B	12/16/11 18:08 / sld	12/13/11 14:15	ICP2-HE_111216B : 89		15107
Zinc	2880	mg/kg		5		SW6010B	12/16/11 02:42 / sld	12/13/11 14:15	ICP2-HE_111215B : 208		15107

JAN
1-30-12

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: H11120149-014
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 11:55 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4830	mg/kg		5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Arsenic	65	mg/kg		5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Cadmium	7	mg/kg		1		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Copper	244	mg/kg		5		SW6010B	12/16/11 18:11 / sld	12/13/11 14:15	ICP2-HE_111216B : 90		15107
Iron	36500	mg/kg		5		SW6010B	12/16/11 18:11 / sld	12/13/11 14:15	ICP2-HE_111216B : 90		15107
Lead	333	mg/kg	J+	5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107
Manganese	5300	mg/kg	J+	5		SW6010B	12/16/11 18:11 / sld	12/13/11 14:15	ICP2-HE_111216B : 90		15107
Zinc	1380	mg/kg		5		SW6010B	12/16/11 02:46 / sld	12/13/11 14:15	ICP2-HE_111215B : 209		15107

JAN
1-30-12

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: H11120149-015
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 13:30 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	9130	mg/kg		5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Arsenic	49	mg/kg		5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Cadmium	31	mg/kg		1		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Copper	905	mg/kg		5		SW6010B	12/16/11 18:15 / sld	12/13/11 14:15	ICP2-HE_111216B : 91		15107
Iron	32800	mg/kg		5		SW6010B	12/16/11 18:15 / sld	12/13/11 14:15	ICP2-HE_111216B : 91		15107
Lead	2320	mg/kg	J+	5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107
Manganese	9280	mg/kg	J+	5		SW6010B	12/16/11 18:15 / sld	12/13/11 14:15	ICP2-HE_111216B : 91		15107
Zinc	4420	mg/kg		5		SW6010B	12/16/11 02:58 / sld	12/13/11 14:15	ICP2-HE_111215B : 212		15107

JAM
1-30-12

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: H11120149-016
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 13:35 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8800	mg/kg		5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Arsenic	27	mg/kg		5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Cadmium	26	mg/kg		1		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Copper	642	mg/kg		5		SW6010B	12/16/11 18:18 / sld	12/13/11 14:15	ICP2-HE_111216B : 92		15107
Iron	22800	mg/kg		5		SW6010B	12/16/11 18:18 / sld	12/13/11 14:15	ICP2-HE_111216B : 92		15107
Lead	1480	mg/kg	H+	5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107
Manganese	8390	mg/kg	H+	5		SW6010B	12/16/11 18:18 / sld	12/13/11 14:15	ICP2-HE_111216B : 92		15107
Zinc	3390	mg/kg		5		SW6010B	12/16/11 03:02 / sld	12/13/11 14:15	ICP2-HE_111215B : 213		15107

JAM
1-30-12

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 UBMCBRSD1
Lab ID: H11120149-017
Matrix: Sediment

Project: UBMC Surface Water
Collection Date: 12/11/11 14:20 **DateReceived:** 12/12/11
Report Date: 12/27/11

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6890	mg/kg		5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Arsenic	11	mg/kg		5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Cadmium	ND	mg/kg		1		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Copper	11	mg/kg		5		SW6010B	12/16/11 18:22 / sld	12/13/11 14:15	ICP2-HE_111216B : 93		15107
Iron	14100	mg/kg		5		SW6010B	12/16/11 18:22 / sld	12/13/11 14:15	ICP2-HE_111216B : 93		15107
Lead	19	mg/kg	J+	5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107
Manganese	257	mg/kg	J+	5		SW6010B	12/16/11 18:22 / sld	12/13/11 14:15	ICP2-HE_111216B : 93		15107
Zinc	69	mg/kg		5		SW6010B	12/16/11 03:06 / sld	12/13/11 14:15	ICP2-HE_111215B : 214		15107

JLN
1-30-12

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

Attachment B: Laboratory Case Narrative

ANALYTICAL SUMMARY REPORT

December 27, 2011

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

Workorder No.: H11120149 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water

Energy Laboratories Inc Helena MT received the following 17 samples for MT DEQ-Site Response on 12/12/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11120149-001	UBMCBRSW25	12/11/11 8:30	12/12/11	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 TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11120149-002	UBMCBRSW38	12/11/11 9:00	12/12/11	Surface Water	Same As Above
H11120149-003	UBMCBRSW48	12/11/11 10:40	12/12/11	Surface Water	Same As Above
H11120149-004	UBMCBRSW23	12/11/11 11:05	12/12/11	Surface Water	Same As Above
H11120149-005	UBMCBRSW3A	12/11/11 11:35	12/12/11	Surface Water	Same As Above
H11120149-006	UBMCBRSW3B	12/11/11 11:55	12/12/11	Surface Water	Same As Above
H11120149-007	UBMCBRSW22	12/11/11 13:30	12/12/11	Surface Water	Same As Above
H11120149-008	UBMCBRSW24	12/11/11 13:35	12/12/11	Surface Water	Same As Above
H11120149-009	UBMCBRSW1	12/11/11 14:20	12/12/11	Surface Water	Same As Above
H11120149-010	UBMCBRSD38	12/11/11 9:00	12/12/11	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H11120149-011	UBMCBRSD48	12/11/11 10:40	12/12/11	Sediment	Same As Above
H11120149-012	UBMCBRSD23	12/11/11 11:05	12/12/11	Sediment	Same As Above
H11120149-013	UBMCBRSD3A	12/11/11 11:35	12/12/11	Sediment	Same As Above
H11120149-014	UBMCBRSD3B	12/11/11 11:55	12/12/11	Sediment	Same As Above
H11120149-015	UBMCBRSD22	12/11/11 13:30	12/12/11	Sediment	Same As Above
H11120149-016	UBMCBRSD24	12/11/11 13:35	12/12/11	Sediment	Same As Above
H11120149-017	UBMCBRSD1	12/11/11 14:20	12/12/11	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.

ANALYTICAL SUMMARY REPORT

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

Report Approved By:

Attachment C: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H11120149

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 12/12/2011

Reviewed by: BL2000\sdull
Received by: wjj

Reviewed Date: 12/13/2011
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 with a temperature of 0.4C and cooler #2 @ 2.3C. Tl 12/12/11.

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:**
Quote H-6455	Shellie Haaland	841-5033	shaaland@mt.gov
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Sampler: (Please Print) Alan Dreesbach, Jackie Jamiska

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

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	UBMC Surface Water	SEE ATTACHED
2	1 UBMCBRSW25	12/11/2011	0830	W	X	
2	2 UBMCBRSW38		0900			
2	3 UBMCBRSW48		1040			
2	4 UBMCBRSW23		1105			
2	5 UBMCBRSW3A		1135			
2	6 UBMCBRSW3B		1155			
2	7 UBMCBRSW22		1330			
2	8 UBMCBRSW24		1335			
2	9 UBMCBRSW1	12/11/2011	1420	W	X	
	10					

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 490-5135

Shipped by: hand del
Cooler ID(s): 4
Receipt Temp: see attachments C 2.3
On Ice: Y N
Custody Seal: On Bottle Y N; On Cooler Y N
Intact Y N
Signature Match Y N

Cooler #1 white 1 0.4
Cooler #2 Red 2 2.3

H11120149

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 12/12/11 0746 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 Z Date/Time: 12-12-11 7:40 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:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC ~~Surface Water~~ Sediments mr 12/11/2011	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, 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 23 °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	Sediments-UBMC	SEE ATTACHED		LABORATORY USE ONLY
1	UBMCBRSD38	12/11/2011	0900	Sediment	X		see front page	H11120149
2	UBMCBRSD48		1040					
3	UBMCBRSD23		1105					
4	UBMCBRSD3A		1135					
5	UBMCBRSD3B		1155					
6	UBMCBRSD22		1330					
7	UBMCBRSD24		1335					
8	UBMCBRSD1	12/11/2011	1420	Sediment	X			
9								
10								

2

mr 12/11/2011

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	12/12/11 0746	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Wanda Jon	Date/Time: 12-12-11 7:46	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.

UBMC Ground Water

SDG#:	**H11120229**
Number of Samples:	**9**
Sample Matrix:	**Groundwater**
Applicable Analytes:	**(9) 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**

Validator: _____ **Date Completed:** 02/02/12

Portage Review: _____ **Date Completed:** 2/2/12

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 December 2011. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, 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, 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:**
07	H11120229-001	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11
UBMCTDMW05	H11120229-002	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11
UBMCTDMW08	H11120229-003	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11
UBMCTDMW4D	H11120229-004	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11
UBMCTDMW06	H11120229-005	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11
UBMCTDMW3D	H11120229-006	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11
UBMCTDMW01	H11120229-007	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11
UBMCTDMW2D	H11120229-008	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11

Cross-Reference for UBMC Groundwater Water Samples					
UBMCTDMW2S	H11120229-009	Groundwater	pH, Conductivity, TSS, TDS, Chloride, Sulfate, Hardness, Dissolved Metals	12/14/11	12/15/11

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 12/14/2011. The conductivity, TSS, TDS, results were analyzed on 12/16/11 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 12/16/11 within the 28-day holding time. The hardness results were analyzed on 12/28/11 within the 180-day holding time. The dissolved metals were analyzed on 12/22/11 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 12/14/11, received on 12/15/11, and analyzed on 12/19/11 approximately 4 days 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 and as the samples were properly preserved.

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 TDS results for samples UBMCTDMW07 and UBMCTDMW08 have been qualified with a "U" validation flag due to sample results greater than the RL but less than five times the blank value. The remaining associated TDS results no qualification due to positive detection in the method blank as the reported results were greater than the RL and greater than five times the PB concentration

For Dissolved Metals by ICP-AES, the PB for aluminum, calcium, lead, magnesium, manganese, sodium, and zinc exhibited positive detections between the MDL and the RL. The associated aluminum, calcium, lead, magnesium, manganese, sodium, and zinc results warrant no qualification due to positive detection in the method blank as the reported results were greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect and no qualification is warranted.

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 RPD results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS results were within the RPD criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

LABORATORY CONTROL SAMPLE (LCS):

All analytes exhibited recoveries within the guidelines prescribed by the USEPA Functional Guidelines and analytical methods.

CHAIN OF CUSTODY:

The laboratory chain of custody forms are complete and accurate.

OVERALL ASSESSMENT OF DATA:

There were nine (9) groundwater field samples included in SDG# H11120229. Nine (9) field samples were analyzed for pH, conductivity, 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 TDS results for sample UBMCTDMW07 and UBMCTDMW08 have been qualified with a "U" validation flag to denote the data is non-detect at the reported value due to positive PB detection.

The remaining field sample data points have been assessed and remain unqualified.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW07
Lab ID: H11120229-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 09:40 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.	J-	0.10		A4500-H B	12/19/11 13:18 / cmm		PHSC_101-H_111219A : 36		R76850
Conductivity @ 25 C	3.0	umhos/cm		1.0		A2510 B	12/19/11 13:18 / cmm		PHSC_101-H_111219A : 6		R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:34 / cmm	12/16/11 09:22	J-124 (14410200)_111216B : 3		15143
Solids, Total Dissolved TDS @ 180 C	18	mg/L	U	10		A2540 C	12/16/11 09:43 / cmm	12/16/11 09:20	J-124 (14410200)_111216A : 3		15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:04 / zeg		IC102-H_111216A : 36		R76837
Sulfate	ND	mg/L		1		E300.0	12/16/11 17:04 / zeg		IC102-H_111216A : 36		R76837
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/28/11 14:08 / skd		WATERCALC_111228A : 1		R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Calcium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Magnesium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Sodium	ND	mg/L		1		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 15:24 / dck		ICPMS204-B_111220A : 429		R76896

JAN 2-1-12

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: H11120229-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 09:55 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.10		A4500-H B	12/19/11 13:23 / cmm		PHSC_101-H_111219A	38	R76850
Conductivity @ 25 C	280	umhos/cm		1.0		A2510 B	12/19/11 13:23 / cmm		PHSC_101-H_111219A	8	R76850
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	12/16/11 09:35 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	5	15143
Solids, Total Dissolved TDS @ 180 C	158	mg/L		10		A2540 C	12/16/11 09:44 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	5	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:18 / zeg		IC102-H_111216A	37	R76837
Sulfate	46	mg/L		1		E300.0	12/16/11 17:18 / zeg		IC102-H_111216A	37	R76837
Hardness as CaCO3	132	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	2	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Calcium	29	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Iron	0.05	mg/L		0.05		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Magnesium	14	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Sodium	2	mg/L		1		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896
Zinc	0.01	mg/L		0.01		E200.8	12/22/11 16:36 / dck		ICPMS204-B_111220A	440	R76896

JAN 2-1-12

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: H11120229-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 10:20 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.	J-	0.10		A4500-H B	12/19/11 13:26 / cmm		PHSC_101-H_111219A	39	R76850
Conductivity @ 25 C	3.0	umhos/cm		1.0		A2510 B	12/19/11 13:26 / cmm		PHSC_101-H_111219A	9	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:35 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	6	15143
Solids, Total Dissolved TDS @ 180 C	12	mg/L	U	10		A2540 C	12/16/11 09:44 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	7	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:32 / zeg		IC102-H_111216A	38	R76837
Sulfate	ND	mg/L		1		E300.0	12/16/11 17:32 / zeg		IC102-H_111216A	38	R76837
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	3	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Calcium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Iron	0.06	mg/L		0.05		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Magnesium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Manganese	0.006	mg/L		0.005		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Sodium	ND	mg/L		1		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 16:42 / dck		ICPMS204-B_111220A	441	R76896

JLN 2-1-12

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: H11120229-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 11:15 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.10		A4500-H B	12/19/11 13:29 / cmm		PHSC_101-H_111219A	40	R76850
Conductivity @ 25 C	320	umhos/cm		1.0		A2510 B	12/19/11 13:29 / cmm		PHSC_101-H_111219A	10	R76850
Solids, Total Suspended TSS @ 105 C	56	mg/L		10		A2540 D	12/16/11 09:35 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	7	15143
Solids, Total Dissolved TDS @ 180 C	172	mg/L		10		A2540 C	12/16/11 09:45 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	8	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 17:45 / zeg		IC102-H_111216A	39	R76837
Sulfate	26	mg/L		1		E300.0	12/16/11 17:45 / zeg		IC102-H_111216A	39	R76837
Hardness as CaCO3	135	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	4	R77010
METALS, DISSOLVED											
Aluminum	0.83	mg/L		0.03		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Cadmium	0.00031	mg/L		0.00008		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Calcium	25	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Copper	0.042	mg/L		0.001		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Iron	1.15	mg/L		0.05		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Lead	0.0097	mg/L		0.0005		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Magnesium	17	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Manganese	0.253	mg/L		0.005		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Sodium	11	mg/L		1		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896
Zinc	0.02	mg/L		0.01		E200.8	12/22/11 16:49 / dck		ICPMS204-B_111220A	442	R76896

JAN 2-1-12

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: H11120229-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 11:20 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.	J-	0.10		A4500-H B	12/19/11 13:31 / cmm		PHSC_101-H_111219A	41	R76850
Conductivity @ 25 C	320	umhos/cm		1.0		A2510 B	12/19/11 13:31 / cmm		PHSC_101-H_111219A	11	R76850
Solids, Total Suspended TSS @ 105 C	56	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	8	15143
Solids, Total Dissolved TDS @ 180 C	184	mg/L		10		A2540 C	12/16/11 09:45 / cmm	12/16/11 09:20	J-124 (14410200)_111216A	9	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 18:26 / zeg		IC102-H_111216A	42	R76837
Sulfate	26	mg/L		1		E300.0	12/16/11 18:26 / zeg		IC102-H_111216A	42	R76837
Hardness as CaCO3	135	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	5	R77010
METALS, DISSOLVED											
Aluminum	0.83	mg/L		0.03		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Cadmium	0.00029	mg/L		0.00008		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Calcium	25	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Copper	0.042	mg/L		0.001		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Iron	1.25	mg/L		0.05		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Lead	0.0097	mg/L		0.0005		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Magnesium	17	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Manganese	0.270	mg/L		0.005		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Sodium	11	mg/L		1		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896
Zinc	0.02	mg/L		0.01		E200.8	12/22/11 17:22 / dck		ICPMS204-B_111220A	447	R76896

JLN 2-1-12

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: H11120229-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 13:10 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.	J-	0.10		A4500-H B	12/19/11 13:33 / cmm		PHSC_101-H_111219A	42	R76850
Conductivity @ 25 C	420	umhos/cm		1.0		A2510 B	12/19/11 13:33 / cmm		PHSC_101-H_111219A	12	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	J-124 (14410200)_111216B	9	15143
Solids, Total Dissolved TDS @ 180 C	256	mg/L		10		A2540 C	12/16/11 09:45 / cmm	12/16/11 09:20	-124 (14410200)_111216A	10	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 18:40 / zeg		IC102-H_111216A	43	R76837
Sulfate	140	mg/L		1		E300.0	12/16/11 18:40 / zeg		IC102-H_111216A	43	R76837
Hardness as CaCO3	196	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	6	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Calcium	47	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Magnesium	19	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Sodium	2	mg/L		1		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 17:28 / dck		ICPMS204-B_111220A	448	R76896

JAN 2-1-12

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: H11120229-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 13:45 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.9	s.u.	J-	0.10		A4500-H B	12/19/11 13:36 / cmm		PHSC_101-H_111219A	43	R76850
Conductivity @ 25 C	640	umhos/cm		1.0		A2510 B	12/19/11 13:36 / cmm		PHSC_101-H_111219A	13	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	-124 (14410200)_111216B	10	15143
Solids, Total Dissolved TDS @ 180 C	428	mg/L		10		A2540 C	12/16/11 09:46 / cmm	12/16/11 09:20	-124 (14410200)_111216A	11	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 18:53 / zeg		IC102-H_111216A	44	R76837
Sulfate	240	mg/L		1		E300.0	12/16/11 18:53 / zeg		IC102-H_111216A	44	R76837
Hardness as CaCO3	320	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	7	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Cadmium	0.00026	mg/L		0.00008		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Calcium	61	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Magnesium	41	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Potassium	1	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Sodium	2	mg/L		1		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896
Zinc	0.21	mg/L		0.01		E200.8	12/22/11 17:35 / dck		ICPMS204-B_111220A	449	R76896

JAN 2-1-12

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: H11120229-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 14:20 **DateReceived:** 12/15/11
Report Date: 01/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.	J-	0.10		A4500-H B	12/19/11 13:38 / cmm		PHSC_101-H_111219A	44	R76850
Conductivity @ 25 C	260	umhos/cm		1.0		A2510 B	12/19/11 13:38 / cmm		PHSC_101-H_111219A	14	R76850
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22	-124 (14410200)_111216B	11	15143
Solids, Total Dissolved TDS @ 180 C	154	mg/L		10		A2540 C	12/16/11 09:46 / cmm	12/16/11 09:20	-124 (14410200)_111216A	12	15142
INORGANICS											
Chloride	ND	mg/L		1		E300.0	12/16/11 19:07 / zeg		IC102-H_111216A	45	R76837
Sulfate	29	mg/L		1		E300.0	12/16/11 19:07 / zeg		IC102-H_111216A	45	R76837
Hardness as CaCO3	128	mg/L		1		A2340 B	12/28/11 14:08 / sld		WATERCALC_111228A	8	R77010
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Cadmium	ND	mg/L		0.00008		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Calcium	27	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Copper	ND	mg/L		0.001		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Magnesium	15	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Manganese	ND	mg/L		0.005		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Potassium	ND	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Sodium	1	mg/L		1		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896
Zinc	ND	mg/L		0.01		E200.8	12/22/11 17:41 / dck		ICPMS204-B_111220A	450	R76896

JAN 2-1-12

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: H11120229-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/14/11 14:35 **DateReceived:** 12/15/11
Report Date: 01/06/12

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	12/20/11 10:51 / cmm		PH2_111220A : 5		111220A-PH-W
Conductivity	1060	umhos/cm		1		A2510 B	12/16/11 09:13 / cmm		COND_111216A : 1711216A-COND-PROBI		
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	12/16/11 09:36 / cmm	12/16/11 09:22 -124 (14410200)_111216B : 12			15143
Solids, Total Dissolved TDS @ 180 C	1080	mg/L		10		A2540 C	12/16/11 09:46 / cmm	12/16/11 09:20 -124 (14410200)_111216A : 13			15142
INORGANICS											
Chloride	1	mg/L		1		E300.0	12/16/11 19:20 / zeg		IC102-H_111216A : 46		R76837
Sulfate	1400	mg/L	D	2		E300.0	12/16/11 19:20 / zeg		IC102-H_111216A : 46		R76837
Hardness as CaCO3	681	mg/L		1		A2340 B	01/04/12 09:52 / sld		WATERCALC_120104A : 1		R77139
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Arsenic	ND	mg/L		0.003		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Cadmium	0.00943	mg/L		0.00008		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Calcium	119	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Copper	0.001	mg/L		0.001		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Iron	ND	mg/L		0.05		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Lead	ND	mg/L		0.0005		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Magnesium	93	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Manganese	16.0	mg/L		0.005		E200.8	12/31/11 02:42 / dck		ICPMS204-B_111231B : 100		R77101
Potassium	1	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Sodium	2	mg/L		1		E200.8	12/22/11 17:48 / dck		ICPMS204-B_111220A : 451		R76896
Zinc	7.42	mg/L		0.01		E200.8	12/31/11 02:42 / dck		ICPMS204-B_111231B : 100		R77101

JAN 2-1-12

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

H11120229

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 12/15/2011

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 12/20/2011
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:	4.2°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:

None

ENERGY

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)
Quote H-645	Shellie Haaland	841-5033	shaaland@mt.gov	Alan Dreesbach Jackie Janosko

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

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): 1
Receipt Temp 4.2 °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	UBMC Groundwater	SEE ATTACHED	LABORATORY USE ONLY
1	UBMCTDMW07	12/14/2011	0940	W	X	X	H11120229
2	UBMCTDMW05	↓	0955	↓	↓	↓	
3	UBMCTDMW08	↓	1020	↓	↓	↓	
4	UBMCTDMW4D	↓	1115	↓	↓	↓	
5	UBMCTDMW06	↓	1120	↓	↓	↓	
6	UBMCTDMW3D	↓	1310	↓	↓	↓	
7	UBMCTDMW01	↓	1345	↓	↓	↓	
8	UBMCTDMW2D	↓	1420	↓	↓	↓	
9	UBMCTDMW2S	12/14/2011	1435	W	X	X	
10							

MY 12/14/2011

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	12/15/11 @ 1148	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Esther Merritt	Date/Time: 12/15/11 11:48	Signature: Elm

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.

ANALYTICAL SUMMARY REPORT

January 04, 2012

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

Workorder No.: H11120229 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 12/15/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H11120229-001	UBMCTDMW07	12/14/11 9:40	12/15/11	Groundwater	Metals by ICP/ICPMS, Dissolved Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H11120229-002	UBMCTDMW05	12/14/11 9:55	12/15/11	Groundwater	Same As Above
H11120229-003	UBMCTDMW08	12/14/11 10:20	12/15/11	Groundwater	Same As Above
H11120229-004	UBMCTDMW4D	12/14/11 11:15	12/15/11	Groundwater	Same As Above
H11120229-005	UBMCTDMW06	12/14/11 11:20	12/15/11	Groundwater	Same As Above
H11120229-006	UBMCTDMW3D	12/14/11 13:10	12/15/11	Groundwater	Same As Above
H11120229-007	UBMCTDMW01	12/14/11 13:45	12/15/11	Groundwater	Same As Above
H11120229-008	UBMCTDMW2D	12/14/11 14:20	12/15/11	Groundwater	Same As Above
H11120229-009	UBMCTDMW2S	12/14/11 14:35	12/15/11	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:

Appendix C

Field Forms and Logs

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Portage

Groundwater Sampling Collection Summary

Site: UBMC Date: 5/4/11
Time: 1405 Sampler(s): AD, PS
Field Sample Id#: TDMW-4D Weather: Clear / 51°F
Preservative(s): (2) HNO_3 / (1) RAW
Number / Type of Containers this Sample: HDPE
(1) Filtered HNO_3; (1) unFiltered HNO_3; (1) unfiltered unpreserved
Sampling Method Used: Low volume bladder pump
Photo Id# (s): 26

Groundwater Analyses:

- Alkalinity (Y / N) preservative ____
- ~~Acidity (Y / N) preservative~~ ____
- Sulfate (Y / N) preservative ____
- Chloride (Y / N) preservative ____
- Nitrate/Nitrite (Y / N) preservative ____
- TDS (Y / N) preservative ____
- TM/Cations (Y / N) preservative HNO_3
- DM/Cations (Y / N) preservative HNO_3
- Hardness (Y / N) preservative ____
- ~~pH (Y / N) preservative~~ ____
- ~~SC (Y / N) preservative~~ ____

pH(su) 7.39
~~SC(µs/cm)~~ 0.347 (milliS/cm²)
DO (mg/l) 7.87
ORP (mV) 172.2
temperature(°C) 5.70

See COC 5/4/11

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	Well Volume	Volume Purged
81.7 ft + .25 probe	31.9 ft	0.41 ft	30.05	—	3L

Top outer case to top of inner case = 0.21
Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed / hand delivered

Portage

Groundwater Sampling Collection Summary

Site: UBMC | Date: 5/4/11

Time: 1405 | Sampler(s): AD / PKS

Field Sample Id#: TDMW-06 | Weather: 51°F / clear

~~Preservative(s):~~ (2) HNO_3 1(1) RAW

Number / Type of Containers this Sample: HDPE

(1) unfiltered HNO_3; (1) Filtered HNO_3; (1) unfiltered unpreserved

Sampling Method Used: Low Volume bladder pump

Photo Id# (s): 26

Field Duplicate of TDMW-4D

Groundwater Analyses:

➢ Alkalinity	(Y / N) preservative		pH(su) 7.39
➢ ~~Acidity~~	~~(Y / N) preservative~~		~~SC(µs/cm)~~ 0.347
➢ Sulfate	(Y / N) preservative		DO (mg/l) 7.87
➢ Chloride	(Y / N) preservative		ORP (mV) 172.2
➢ Nitrate/Nitrite	(Y / N) preservative		temperature(°C) 5.70
➢ TDS	(Y / N) preservative		
➢ TM/Cations	(Y / N) preservative	HNO_3	
➢ DM/Cations	(Y / N) preservative	HNO_3	See CoC 5/7/11
➢ Hardness	(Y / N) preservative		
➢ ~~pH~~	~~(Y / N) preservative~~		
➢ ~~SC~~	~~(Y / N) preservative~~		

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	Well Volume	Volume Purged
See TDMW-4D					

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed / Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: UBMC | Date: 5/4/11

Time: 1430 | Sampler(s): AD / PES

Field Sample Id#: TDMW-08 | Weather: 51°F / clear

~~Preservative(s):~~ (2) HNO_3 / (1) RAW

Number / Type of Containers this Sample: 4 DPE

(1) unfiltered HNO_3; (1) Filtered HNO_3; (1) unfiltered unpreserved

Sampling Method Used: low volume bladder pump

Photo Id# (s): 26

Rinsate Blank collected following collection of TDMW-4D; TDMW-06 dup

Groundwater Analyses:

➢ Alkalinity	(Y / N) preservative ____	pH(su)	N/A
➢ ~~Acidity~~	~~(Y / N) preservative~~ ____	~~SC(µs/cm)~~	
➢ Sulfate	(Y / N) preservative ____	DO (mg/l)	
➢ Chloride	(Y / N) preservative ____	ORP (mV)	
➢ Nitrate/Nitrite	(Y / N) preservative ____	temperature(°C)	
➢ TDS	(Y / N) preservative ____		
➢ TM/Cations	(Y / N) preservative HNO_3		
➢ DM/Cations	(Y / N) preservative HNO_3		
➢ Hardness	(Y / N) preservative ____		
➢ ~~pH~~	~~(Y / N) preservative~~ ____		
➢ ~~SC~~	~~(Y / N) preservative~~ ____		

Σ_2 CoC
5/7/11 AD

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	Well Volume	Volume Purged
N/A →					→

Transducer Downloaded: N/A

Sample Location (latitude / longitude in *deg/min/sec*):

N/A

Chain of Custody Form Number & Shipping Information:

N/A Completed/hand delivered

Portage

Groundwater Sampling Collection Summary

Site: VBMC Date: 5/5/11

Time: 0930 Sampler(s): AD, PS.

Field Sample Id#: VBMC TOMW5 Weather: Cool, Clear

~~Preservative(s):~~ HNO_3 for Dissolved

Number / Type of Containers this Sample: 3 - HDPE

Sampling Method Used: Bladder pump

Photo Id# (s): X1

Groundwater Analyses:

- Alkalinity (Y / N) preservative ____
- ~~Acidity~~ ~~(Y / N) preservative~~ ____
- Sulfate (Y / N) preservative ____
- Chloride (Y / N) preservative ____
- Nitrate/Nitrite (Y / N) preservative ____
- TDS (Y / N) preservative ____
- TM/Cations (Y / N) preservative ____
- DM/Cations (Y / N) preservative ____
- Hardness (Y / N) preservative ____
- ~~pH~~ ~~(Y / N) preservative~~ ____
- ~~SC~~ ~~(Y / N) preservative~~ ____

pH(su) 7.89

~~SC(µs/cm)~~ 0.221 (mS/cm)

DO (mg/l) 10.37

ORP (mV) 223.6

temperature(°C) 5.16

Sent COC 5/5/11 JD.

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	Well Volume	Volume Purged
81.35	71.73	2.39	9.62	—	3 L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed / Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: UBMC Date: 5/5/11

Time: 0912 Sampler(s): AD., PS.

Field Sample Id#: UBMCTDAW07 Weather: Cool, Clear

Preservative(s): HNO_3 for dis. metals

Number / Type of Containers this Sample: 3 - HDPE

Sampling Method Used: Direct

Photo Id# (s): ~~Yes~~ NA

Field Blank

Groundwater Analyses:

- Alkalinity (Y / N) preservative ____
- Acidity (Y / N) preservative ____
- Sulfate (Y / N) preservative ____
- Chloride (Y / N) preservative ____
- Nitrate/Nitrite (Y / N) preservative ____
- TDS (Y / N) preservative ____
- TM/Cations (Y / N) preservative ____
- DM/Cations (Y / N) preservative ____
- Hardness (Y / N) preservative ____
- pH (Y / N) preservative ____
- SC (Y / N) preservative ____

pH(su) ____

SC(µs/cm) ____

DO (mg/l) ____

ORP (mV) ____

temperature(°C) ____

See COC 5/5/11 AD

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	Well Volume	Volume Purged
NA	NA	NA	NA	NA	NA

Transducer Downloaded: No

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed / hand delivered

Portage

Groundwater Sampling Collection Summary

Site: VBMC
Date: 5/5/11
Time: 1040
Sampler(s): AV. PS.
Field Sample Id#: TDMW 03D
Weather: Clear, cool
~~Preservative(s)~~: HNO3 for diss. metals
Number / Type of Containers this Sample: 3 - HDPE

Sampling Method Used: Bladder pump
Photo Id# (s): Yes

Groundwater Analyses:

- Alkalinity (Y / N) preservative ____
- ~~Acidity~~ (Y / N) ~~preservative~~ ____
- ~~Sulfate~~ (Y / N) ~~preservative~~ ____
- Chloride (Y / N) preservative ____
- Nitrate/Nitrite (Y / N) preservative ____
- TDS (Y / N) preservative ____
- TM/Cations (Y / N) preservative ____
- DM/Cations (Y / N) preservative ____
- Hardness (Y / N) preservative ____
- ~~pH~~ (Y / N) ~~preservative~~ ____
- ~~SC~~ (Y / N) ~~preservative~~ ____

See COC 5/5/11 AD.

pH(su) 7.19
~~SC(µs/cm)~~ 0.488 (mS/cm2)
~~DO (mg/l)~~ 9.55
ORP (mV) 205.5
temperature(°C) 6.80

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	Well Volume	Volume Purged
50.76*	44.78	1.5	5.98	—	3L

Transducer Downloaded: NA

* WLM probe length at 50.76'. Previous TD = 70'.

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed / hand delivered

Portage

Groundwater Sampling Collection Summary

Site: VBMC Date: 5/5/11

Time: 1255 Sampler(s): AD., PS.

Field Sample Id#: VBMCTDMW01 Weather: Cool, clear

~~Preservative(s)~~: HNO_3 for dis. metals

Number / Type of Containers this Sample: 3 - HDPE

Sampling Method Used: Bladder pump

Photo Id# (s): X1

Groundwater Analyses:

- Alkalinity (Y / N) preservative ____
- ~~Acidity~~ ~~(Y / N) preservative~~ ____
- ~~Sulfate~~ ~~(Y / N) preservative~~ ____
- Chloride (Y / N) preservative ____
- Nitrate/Nitrite (Y / N) preservative ____
- TDS (Y / N) preservative ____
- TM/Cations (Y / N) preservative ____
- DM/Cations (Y / N) preservative ____
- Hardness (Y / N) preservative ____
- ~~pH~~ ~~(Y / N) preservative~~ ____
- ~~SC~~ ~~(Y / N) preservative~~ ____

pH(su) 6.54

~~SC(ps/cm)~~ 0.321 (mS/cm²)

~~DO (mg/l)~~ 6.11

ORP (mV) 202.4

temperature(°C) 7.78

See COC 5/5/11 AD.

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	Well Volume	Volume Purged
34.14	9.04	2.01	25.1	—	3L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed / hand delivered

Portage

Groundwater Sampling Collection Summary

Site: UBMC Date: 5/15/11

Time: 1340 Sampler(s): AO., PS.

Field Sample Id#: VBMCTPMW2D Weather: Cool, clear

~~Preservative(s):~~ HNO3 for diss. metals

Number / Type of Containers this Sample: 3 - HDPE

Sampling Method Used: Bladder pump

Photo Id# (s): Yes

Groundwater Analyses:

- Alkalinity (Y / N) preservative ____
- ~~Acidity~~ ~~(Y / N) preservative~~ ____
- Sulfate (Y / N) preservative ____
- Chloride (Y / N) preservative ____
- Nitrate/Nitrite (Y / N) preservative ____
- TDS (Y / N) preservative ____
- TM/Cations (Y / N) preservative ____
- DM/Cations (Y / N) preservative ____
- Hardness (Y / N) preservative ____
- ~~pH~~ ~~(Y / N) preservative~~ ____
- ~~SC~~ ~~(Y / N) preservative~~ ____

per COC 5/15/11 AO.

pH(su) 7.15

~~SC(µs/cm)~~ 0.188 (mS/cm2)

DO (mg/l) 2.25

ORP (mV) 188.3

temperature(°C) 2.86

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	Well Volume	Volume Purged
37.35	8.01	2.45	29.34	—	3L

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed/ hand delivered

Portage

Groundwater Sampling Collection Summary

Site: VBMC Date: 5/5/11

Time: 1400 Sampler(s): AD, PS.

Field Sample Id#: VBMCTMW25 Weather: Cool, clear

~~Preservative(s)~~: HNO3 for diss. metals

Number / Type of Containers this Sample: 3 - HDPE

Sampling Method Used: Bladder pump

Photo Id# (s): Yes

Groundwater Analyses:

- Alkalinity (Y / N) preservative ____
- ~~Acidity~~ ~~(Y / N) preservative~~ ____
- Sulfate (Y / N) preservative ____
- Chloride (Y / N) preservative ____
- Nitrate/Nitrite (Y / N) preservative ____
- TDS (Y / N) preservative ____
- TM/Cations (Y / N) preservative ____
- DM/Cations (Y / N) preservative ____
- Hardness (Y / N) preservative ____
- ~~pH~~ ~~(Y / N) preservative~~ ____
- ~~SC~~ ~~(Y / N) preservative~~ ____

pH(su) 7.06

~~SC(µs/cm)~~ 0.212 (mS/cm²)

DO (mg/l) 4.02

ORP (mV) 202.5

temperature(°C) 7.64

See COC 5/5/11 AD.

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	Well Volume	Volume Purged
20.27	7.77	3.05	12.5	—	3L

Transducer Downloaded: NA - Transducer gone

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed / hand delivered

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: UBMC - MDEQ	STATION NUMBER: SW01
PROJECT NUMBER: UBMC	SAMPLE NUMBER: UBMC BR SW01
LOCATION: UBMC	WEATHER: Cool, cloudy, int. snow
DATE: 4/29/11 @ 1507	SAMPLERS: AD., MB

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.89	2.73	131.0	9.22	———	206.5

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID					See COC			
Time				4/29/11 AD.				
Preservative								
Filtered								
Container								

Streambank description: Buried in snow

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: gravely

Water quality description: Clear

Also collected f.d. sample UBMC BR SD01 @ 1507

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: UBMC - MSQ	STATION NUMBER: SW02
PROJECT NUMBER: UBMC	SAMPLE NUMBER: UBMC BKSW02
LOCATION: UBMC	WEATHER: Cold, Heavy snow
DATE: 4/29/14 @ 1615	SAMPLERS: AP, MB

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.8	1.33	943.7	0	—	200.5

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID				See COC				
Time								
Preservative			4/29/14	AO.				
Filtered								
Container								

Streambank description: tails

Water flow (circle one): Laminar (Stagnant) Turbulent Other(describe)

Stream bed description: tails

Water quality description: Clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MEQ - UBMC	STATION NUMBER: SV22
PROJECT NUMBER: UBMC	SAMPLE NUMBER: UBMC BRSW 22
LOCATION: UBMC	WEATHER: Cool, cloudy, NW 19km
DATE: 4/30/11 @ 0915	SAMPLERS: AB., MB

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.65	2.28	583.3	0.04	—	262.3

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID								
Time								
Preservative			See COC					
Filtered								
Container			4/30/11 AA.					

Streambank description: Burrowing crayfish

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Gravel

Water quality description: clear

Collected UBMC BRSW 22A (duplicate)
UBMC BRSW 22B (Blank)
UBMC BRSD 22 (sediment)
UBMC BRSD 22A (duplicate sediment)

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MHEQ - VBMC	STATION NUMBER: SW47
PROJECT NUMBER: Prt. TO 11	SAMPLE NUMBER: VBMC BRSW47
LOCATION: VBMC	WEATHER: Cool, partly cloudy
DATE: 4/30/14 @ 1045	SAMPLERS: AD., MB

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.04	3.59	353.3	1.25	—	95

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID								
Time				1045				
Preservative								
Filtered				4/30/14 AD				
Container								

Streambank description: Bypass row

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: gravel and cobbles

Water quality description: Clear

Collected rd. sample VBMCBRSW48

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDAA – VBMC	STATION NUMBER: SW 23
PROJECT NUMBER: Port. To 11	SAMPLE NUMBER: VBMC BRSW23
LOCATION: VBMC	WEATHER: Cool, partly cloudy
DATE: 4/30/24 1135	SAMPLERS: AA, MB

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.29	4.11	273.6	2.90	———	151

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID								
Time								
Preservative			Ice	COC				
Filtered			4/30/24	AA.				
Container								

Streambank description: deep snow

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: rocky

Water quality description: slightly turbid

Collected sed sample VBMC BRSD 23

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-VBMC	STATION NUMBER: SW3A
PROJECT NUMBER: Port. TO 11	SAMPLE NUMBER: VBMCBRSW3A
LOCATION: VBMC	WEATHER: Cool, partly cloudy
DATE: 4/30/11 @ 1215	SAMPLERS: AM., MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.12	9.51	429.9	0.45	———	224.7

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID								
Time			See COC					
Preservative								
Filtered			4/30/11 AM.					
Container								

Streambank description: Rocky

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: slimes, orange-rust colored

Water quality description: clear

Collected Sed. sample VBMCBRSD3A

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDAG - UBMC	STATION NUMBER: SW 3B
PROJECT NUMBER: Port. TO11	SAMPLE NUMBER: UBMC BRSW 3B
LOCATION: UBMC	WEATHER: Cool, partly Cloudy
DATE: 4/30/11 @ 1245	SAMPLERS: AD, MR

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.13	5.45	1628	0	———	461

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID								
Time			4/30/11 AD.					
Preservative								
Filtered								
Container								

Streambank description: Rocky

Water flow (circle one): Laminar (Stagnant) Turbulent Other(describe)

Stream bed description: slimes, orange stains, moss

Water quality description: slightly turbid

Collected sed sample UBMC BRSD3B

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ VBMC	STATION NUMBER: SW3P
PROJECT NUMBER: Port. Tol1	SAMPLE NUMBER: VBMC BRSW3P
LOCATION: VBMC	WEATHER: Cool, partly cloudy
DATE: 4/30/11 @ 1415	SAMPLERS: AD, MB

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
5.82	6.07	351.5	Malfunction	———	160.2

SAMPLES

	TSS	TDS, Alkalinity, Hardness	Carbonate, Bicarbonate	Total Metals,	Total Cations	Dissolved Metals, Sulfate, Chloride	Dissolved Cations	Total Sulfate, Total Chloride, pH, EC, acidity
Sample ID								
Time			Sed CaC					
Preservative								
Filtered			4/30/11		AD.			
Container								

Streambank description: Snow, tailings

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: rocky, orange stains

Water quality description: clear

Collected sed sample VBMC BRSW3P AD. MB

Portage

Sediment Sampling Collection Summary

Site: VBNC
Date: 7/29/11
Time: 1507
Sampler(s): AD. MB
Field Sample Id#: VBNCBR50 01
Weather: Cool, cloudy, snowing
Number / Type of Containers this Sample: 1, quart ziplock

Sampling Method Used: Grab
Photo Id# (s): Yes

Sediment Analyses:

- TM/Cations (Y / N) preservative None

Chain of Custody Form Number & Shipping Information:
Completed / hand deliverd

Sample Location (latitude / longitude in *deg/min/sec*):
N 47 01.412 W 122 21.168

Other Observations:

Daily Contractor Quality Control Summary

Date: 7/29/11

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:
None

Portage

Were these deviations detrimental to sampling (explain)?

Heavy snow is slowing sampling. Access to site difficult

Other observations:

Portage

Sediment Sampling Collection Summary

Site: VBMC Date: 4/3=/11
Time: 0915 Sampler(s): AB, MB
Field Sample Id#: VBMCBRSD22 Weather: Cool, partly cloudy
Number / Type of Containers this Sample: 1, quart ziplock

Sampling Method Used: Grab
Photo Id# (s): Yes

Sediment Analyses:

➢ TM/Cations (Y)/ N) preservative None

Chain of Custody Form Number & Shipping Information:
Completed/hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):
N 47 01. ~~6~~ 54 W 112 21. ~~246~~ 507
MB MB

Other Observations: Deep snow
Also collected duplicate VBMCBRSD22A

Daily Contractor Quality Control Summary

Date: 4

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:

Portage

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC
Date: 4/3/11
Time: 1045
Sampler(s): AD, MB
Field Sample Id#: UBMCBRSD48
Weather: Cool, partly cloud x
Number / Type of Containers this Sample: 1, quart ziplock

Sampling Method Used: Grab
Photo Id# (s): Yes

Sediment Analyses:

- TM/Cations (Y / N) preservative None

Chain of Custody Form Number & Shipping Information:
Completed / hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):
N 47 01.836 W112 21.227

Other Observations: Deep snow

Daily Contractor Quality Control Summary

Date:

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:

Portage

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Sediment Sampling Collection Summary

Site: VBMC
Date: 4/30/11
Time: 1135
Sampler(s): AB., MB
Field Sample Id#: VBMCBRSD23
Weather: Cool, partly cloudy
Number / Type of Containers this Sample: 1, quart ziplock

Sampling Method Used: Grab
Photo Id# (s): Yes

Sediment Analyses:

- TM/Cations (Y / N) preservative None

Chain of Custody Form Number & Shipping Information:
Completed / hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):
N 47 01.720 W 112 21.258

Other Observations: New snow

Daily Contractor Quality Control Summary

Date:

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:

Portage

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 4/3 /11
Time: 1215 Sampler(s): AL., MB
Field Sample Id#: UBMCBKSD3A Weather: cool, partly cloudy
Number / Type of Containers this Sample: 1, quart ziplock

Sampling Method Used: Grab
Photo Id# (s): Y

Sediment Analyses:

➢ TM/Cations (Y) N) preservative None

Chain of Custody Form Number & Shipping Information:
Completed, hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):
N 47 01.247 W112 21.261

Other Observations: New snow

Daily Contractor Quality Control Summary

Date:

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:

Portage

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC
Date: 4/30/11
Time: 1245
Sampler(s): AD., MB
Field Sample Id#: UBMCBFSD3B
Weather: cool, partly cloudy
Number / Type of Containers this Sample: 1, qt ziplock

Sampling Method Used: Grab
Photo Id# (s): Yes

Sediment Analyses:

- TM/Cations (Y)/ N) preservative None

Chain of Custody Form Number & Shipping Information:
completed / hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):
N 47 01.723 W 112 21.270

Other Observations: New snow

Daily Contractor Quality Control Summary

Date:

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:

Portage

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC
Date: 4/30/11
Time: 1415
Sampler(s): AO, MB.
Field Sample Id#: UBMCBKSD3B
Weather: Cool, partly cloudy
Number / Type of Containers this Sample: 1, qt ziplock

Sampling Method Used: Corer
Photo Id# (s): Yes

Sediment Analyses:

- TM/Cations (Y/N) preservative None

Chain of Custody Form Number & Shipping Information:
Completed / hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):
N 47 02.075 W 112 21.548

Other Observations: New snow

Daily Contractor Quality Control Summary

Date: 4/30/11

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:
Scraps buried in deep snow - no sample

Portage

Were these deviations detrimental to sampling (explain)?

Other observations:

17 to 24" new snow since 4/29/11. Deep snow slowing access and sampling

Portage

SITE: BRSW01 PERSONNEL: Babits / Diesbach

DATE: 4/29/11 Gage Reading: NA

TIME: 1507 Gage Time NA

Other: Section width 47.5 - 2.5 = 5.0

Discharge calculated at office.

DISCHARGE MEASUREMENTS

	Tape (ft)	~~Width (ft)~~ Depth	~~Depth (ft)~~ Velocity	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1 .2 MD	~~2~~ 7.2	.2	.27			
2 MD	~~3~~ 7.0	.3	.85			
3 MD	~~3~~ 6.8	.3	.50			
4 MD	~~3~~ 6.6	.3	.34			
5 MD	~~4~~ 6.4	.4	.95			
6 MD	~~3~~ 6.2	.3	.73			
7 MD	~~3~~ 6.0	.3	.54			
8 MD	~~3~~ 5.8	.3	.03			
9 MD	~~3~~ 5.6	.3	.62			
10 MD	~~3~~ 5.4	.3	.13			
11		.3				
12						
13						
14						
15						
16						
17		4/29/11 AD.				
18						
19						
20						

Portage

SITE: BRSW22 PERSONNEL: AD, MB

DATE: 4/30/11 Gage Reading: NA

~~TIME:~~ 0915 ~~Gage Time:~~ NA

Other: discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
~~LWE~~	~~4"~~					
1	4.3		0.4		0.22	
2	4.5		0.4		0.33	
3	4.7		0.4		0.16	
4	4.9		0.4		0.08	
5	5.1		0.5		0.28	
6	5.3		0.5		0.29	
7	5.5		0.3		0	
8	5.7		0.2		0	
~~9~~						
10						
11						
12						
13						
14						
15	4/30/11 AD.					
16						
~~17~~						
~~18~~						
19						
20						

Portage

SITE: BKSW48 PERSONNEL: AD, MB

DATE: 4/30/11 Gage Reading: NA

TIME: 1045 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
~~LWE~~	~~4"~~					
1	3.0		0.1		0.30	
2	3.4		0.3		0.53	
3	3.8		0.4		0.68	
4	4.2		0.5		0.96	
5	4.6		0.5		0.98	
6	5.0		0.5		1.22	
7	5.4		0.3		1.40	
8	5.8		0.2		1.14	
9	6.2		0.1		0.98	
10	6.6		0.2		1.33	
11						
12						
13						
14						
15						
16	4/30/11 AD					
17						
18						
19						
20						

Portage

SITE: BKSW23 PERSONNEL: AP., MB

DATE: 4/30/11 Gage Reading: NA

TIME: 1135 Gage Time NA

~~Other:~~ discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1	7.5		0.2		0.02	
2	7.8		0.3		0.32	
3	8.1		0.3		0.60	
4	8.4		0.4		0.66	
5	8.7		0.4		1.73	
6	9.0		0.3		2.73	
7	9.3		0.3		3.35	
8	9.6		0.3		2.60	
9	9.9		0.2		1.27	
10	10.2		0.1		0.61	
11						
12						
13						
14						
~~15~~						
16		4/30/11	AO.			
17						
18						
19						
20						

Portage

SITE: BKFWSA PERSONNEL: AD, MB.

DATE: 4/30/11 Gage Reading: NA

~~TIME~~: 1215 ~~Gage Time~~ NA

Other: discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
~~EWE~~	~~4"~~					
1	3.0		0.2		0	
2	3.5		0.2		0.04	
3	4.0		0.2		0.10	
4	4.5		0.3		0.25	
5	5.0		0.3		0.20	
6	5.5		0.2		0.10	
7	6.0		0.2		0.05	
8	6.5		0.2		0	
9	7.0		0.2		0	
10	7.5		0.1		0	
11						
12						
13						
14						
15						
16		4/30/11 AD.				
17						
18						
19						
20						

Portage

SITE: BRSW38 PERSONNEL: AD, MB.

DATE: 4/30/11 Gage Reading: NA

TIME: 1415 Gage Time NA

Other: discharge calculations file

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1	9		0.2		0	
2	9.5		0.2		0.11	
3	10		0.2		0.35	
4	10.5		0.2		0.31	
5	11		0.4		0.42	
6	11.5		0.4		0.73	
7	12		0.5		1.28	
8	12.5		0.6		2.16	
9	13		0.6		1.34	
10	13.5		0.7		0.66	
11	14		0.6		0.60	
12	14.5		0.4		0.54	
13	15		0.3		0.41	
14	15.5		0.3		0.34	
15	12		0.3		0.14	
16	16.5		0.3		0.06	
17	17		0		0	
18						
19						
20	AD. 4/30/11					

Portage

Other Observations:

Daily Contractor Quality Control Summary

Date: 5/4/11

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:

Resumed planned sampling

5/4/11 RD.

Portage

Other Observations:

Daily Contractor Quality Control Summary

Date: 5/5/11

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:

Could not find TWMW 035 because of deep snow.

Were these deviations detrimental to sampling (explain)?

could not sample TWMW 035

Other observations:

Due to snow slowed sampling

5/5/11 AG.

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 6/16/11

Time: 0842 Sampler(s): AD., MS

Field Sample Id#: UBMCTDMW5 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, S

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.33	5.41	212	11.98	93.7	290.7
7.44	5.35	216	11.74	89.1	294.4
7.50	5.31	218	10.27	81.3	297.5
7.51	5.39	218	10.11	80.0	299
7.51	5.40	217	10.22	80.9	299

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
91.8'	53.4'	----------		≈3.5L

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: 6/16/16

Time: 1025 Sampler(s): AD, MS

Field Sample Id#: UBMCTDMW42 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)
7.98	6.25	325	1.24	10.41	291.9
8.0	5.93	325	0.94	7.61	292.3
7.99	5.86	320	1.3	10.31	293.9
8.04	5.79	309	2.09	16.61	294.8

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
61.3'	26.58'			~4L

Transducer Downloaded: Y

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:
Hand delivered

TDMW04 is Duplicate Sample

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 6/16/16

Time: 1140 Sampler(s): AD., MS.

Field Sample Id#: UBMC_TDMW01 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)
6.66	7.26	340	7.7	65.2	301.9
6.26	7.58	344	7.51	63.41	302.6
6.66	7.65	345	7.44	62.61	302.7

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
35'	3.82'			~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: 6/16/11

Time: 1218 Sampler(s): MO., MS

Field Sample Id#: UBMC TMW20 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: No

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.27	9.45	219	6.51	56.0	395.9
7.26	8.90	217	6.12	53.0	405.8
7.27	8.91	218	6.09	52.4	410.6
7.28	8.57	219	6.09	52.2	412.3

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
38	5.38			≈ 4L

Transducer Downloaded: No

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: 6/16/11

Time: 1252 Sampler(s): AD, MS

Field Sample Id#: UBMC + DMW25 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)
6.99	8.01	253	1.86	16.1	395.7
7.00	8.11	257	1.4	12.2	392.2
7.01	8.07	259	1.27	11.8	399.9

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
20.2'	5.99'			~3L

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: 6/16/14

Time: 1335 Sampler(s): AD, MS

Field Sample Id#: UBMC TMW 3D 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)
7.15	9.51	272	7.9	83.7	335.4
7.21	7.60	316	9.65	80.5	334.2
7.22	7.01	335	9.45	82.2	340.1
7.23	6.89	335	9.57	78.5	342.8

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
49.0'	45.21'			~4L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand Deliver

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW 34
PROJECT NUMBER: TO-11	SAMPLE NUMBER: VRMC BRSW34
LOCATION: UMBC	WEATHER: Partly cloudy, cool, lightwind
DATE/TIME: 6/13/11 @1045	SAMPLERS: AD, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.65	5.53	171	10.16	80.6	430.08

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: 6/13/11 AD ~~NA~~ rocky

Water flow (circle one): (Laminar) Stagnant Turbulent (Other(describe)) Pipe discharge above

Stream bed description: 6/13/11 AD ~~NA~~ rocky

Water quality description: Clear

Flow = 134 - 182 GPM per plant operator

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW29
PROJECT NUMBER: TO-11	SAMPLE NUMBER: VBMCBRSW2j
LOCATION: UMBC	WEATHER: light rain, cool, light wind
DATE/TIME: 6/13/18 ~ 1:45	SAMPLERS: AP, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.15	5.47	140	~~7.78~~ 10.03	79.1	43.9

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: rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW 38
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRSW38
LOCATION: UMBC	WEATHER: Cool, windy
DATE/TIME: 6/13/18 1245	SAMPLERS: AD, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.63	5.61	159	10.12	91	406.6

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: Rocky

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW22
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRSW22
LOCATION: UMBC	WEATHER: C.I, windy
DATE/TIME: 6/13/16 @ 1410	SAMPLERS: AD, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.87	5.6	217	9.75	77.6	447.7

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: rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW45
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBRSW45
LOCATION: UMBC	WEATHER: Cool, windy
DATE/TIME: 6/13/11 @ 1512	SAMPLERS: AO, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
8.10	5.1	175	10.09	99.5	420.8

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: rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BKSW2
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBKSW2
LOCATION: UMBC	WEATHER: cool, windy
DATE/TIME: 6/13/11 @ 1608	SAMPLERS: AD, AS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
8.13	4.57	157	9.47	77.21	454

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: rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW2
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBRSW2
LOCATION: UMBC	WEATHER: Cool, windy
DATE/TIME: 6/13/11 @ 1215	SAMPLERS: AD, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.11	14.87	1279	7.6	7.29	332.6

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: NA - Impoundment pool

Water flow (circle one): Laminar Stagnant Turbulent Other(describe) Pool

Stream bed description: NA - Tailings

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSD48
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRSW48
LOCATION: UMBC	WEATHER: Sol, windy
DATE/TIME: 6/13/18 1740	SAMPLERS: AD., MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
8.0	5.15	180	10.05	79.11	199.9

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: rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMC BRDN 23
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRDN 23
LOCATION: UMBC	WEATHER: Cool, windy, cloudy
DATE/TIME: 6/14/16 0810	SAMPLERS: AO, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.21	4.4	462	9.76	76.91	76.9

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: rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSw3A
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBRSw3A
LOCATION: UMBC	WEATHER: Cool, windy, cloudy
DATE/TIME: 6/14/22 @ 0848	SAMPLERS: AO, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.1	6.54	351	7.55	61.6	217.8

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: Vegetation and silt

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW 3B
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRSW 3B
LOCATION: UMBC	WEATHER: cool, cloudy, windy
DATE/TIME: 6/14/16 0930	SAMPLERS: AB, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
4.53	7.2	580	9.71	72.6	393.5

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: Veg. matt and slime

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: MHTDS1
PROJECT NUMBER: TO-11	SAMPLE NUMBER: VBMCMHTDS1
LOCATION: UMBC	WEATHER: Cool, cloudy, windy
DATE/TIME: 6/14/4 ~~AA~~ @ 0955	SAMPLERS: AD., MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
3.21	9.34	1218	6.24	54.21	463.4

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: NA - Seep

Water flow (circle one): Laminar Stagnant Turbulent Other(describe) Seep

Stream bed description: NA - Seep

Water quality description: Clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: MHTOJ2
PROJECT NUMBER: TO-11	SAMPLE NUMBER: VBMCMHTOJ2
LOCATION: UMBC	WEATHER: Cool, cloudy, windy
DATE/TIME: 6/14/11 @ 1010	SAMPLERS: AJ, BJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
5.79	7.35	323	8.2	68.2	216.2

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: NA - Jump

Water flow (circle one): Laminar Stagnant Turbulent Other(describe) Jump

Stream bed description: NA - Jump

Water quality description: Clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: MHTDS3
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCMHTDS3
LOCATION: UMBC	WEATHER: Cool, clear, windy
DATE/TIME: 6/14/11 @ ~~1034~~ 1046	SAMPLERS: AD, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
5.97	18.45	1252	5.99	64.1	234

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: NA - Seep

Water flow (circle one): Laminar Stagnant Turbulent Other(describe) Seep

Stream bed description: NA - Seep

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: MHTDS 4
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC MHTDS 4
LOCATION: UMBC	WEATHER: cool, windy
DATE/TIME: 6/14/11 @ ~~12~~ AM 1110	SAMPLERS: AM, MS

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.89	11.51	374	7.81	77.1	336.6

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: NA - sump

Water flow (circle one): Laminar Stagnant Turbulent Other(describe) Sump

Stream bed description: NA - Sump

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: MHTDS5
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC MHTDS5
LOCATION: UMBC	WEATHER: cool, windy
DATE/TIME: 6/14/16 1126	SAMPLERS: AD, MJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.08	6.12	345	8.05	65.1	331.6

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: NA - Surp

Water flow (circle one): Laminar Stagnant Turbulent Other(describe) Surp

Stream bed description: NA - Surp

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 6/13/11

Time: 1045 Sampler(s): AD, MS

Field Sample Id#: UBMCBRSD34 Weather: Cool, wind

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

Sediment Sampling Collection Summary

Site: UBMC Date: 6/13/11

Time: 1145 Sampler(s): KO, MS

Field Sample Id#: UBMCBRSM29 Weather: Cool, wind

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

Sediment Sampling Collection Summary

Site: UBMC Date: 6/13/14

Time: 1245 Sampler(s): KD, MS

Field Sample Id#: UBMCBRSD38 Weather: 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 Deliver

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 6/13/11

Time: 1410 Sampler(s): AO, MJ

Field Sample Id#: UBMCBKSD22 Weather: Cool, windy

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:

UBMCBKSD 24 is duplicate

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 6/13/11

Time: 1512 Sampler(s): AO., CS

Field Sample Id#: UBMCBKSD 45 Weather:

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 Deliver

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 6/13/11

Time: 1407 Sampler(s): AP, MS

Field Sample Id#: UBMCBRSD1 Weather: Cool, windy

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

Sediment Sampling Collection Summary

Site: UBMC Date: 6/13/4

Time: 1240 Sampler(s): AD, MS

Field Sample Id#: UBMC BKSW 48 Weather: Cool, windy

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

Sediment Sampling Collection Summary

Site: UBMC Date: 9/14/11

Time: 0910 Sampler(s): AV., MS

Field Sample Id#: UBMCBRSD23 Weather: Cool, windy, cloudy

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

Sediment Sampling Collection Summary

Site: UBMC Date: 6/17/11

Time: 0848 Sampler(s): AD, MS

Field Sample Id#: UBMC BRS03A Weather: Cool, windy, cloudy

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

Sediment Sampling Collection Summary

Site: UBMC Date: 6/17/11

Time: 0930 Sampler(s): AD, MS

Field Sample Id#: UBMCBRSD3B Weather: Cool, cloudy, 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: VBMC BRSW24 PERSONNEL: AD, MS

DATE: 6/13/24 Gage Reading: NA

TIME: 1045 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"				0	
1	1		0.1		0.65	
2	2		0.2		0.34	
3	3		0.3		1.99	
4	4		0.5		1.69	
5	5		0.6		3.02	
6	6		0.9		3.28	
7	7		1.1		3.67	
8	8		1.1		4.41	
9	9		1.1		4.98	
10	10		1.2		5.05	
11	11		1.1		6.43	
12	12		0.9		3.22	
13	13		1.0		3.20	
14	14		0.9		5.64	
15	15		0.4		4.42	
16	16		0.4		2.68	
17	17		0.2		1.50	
18	18		0.2		2.25	
19	19		0.3		3.13	
20	20		0		0	

Portage

SITE: UBMC BRSW29 PERSONNEL: KO., MS

DATE: 6/13/24 Gage Reading: NA

TIME: 1145 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"		0.2		0.54	
1	1		0.3		1.53	
2	2		0.6		1.74	
3	3		0.7		2.19	
4	4		0.8		2.44	
5	5		0.7		2.12	
6	6		0.4		1.86	
7	7		0.5		1.93	
8	8		0.5		1.88	
9	9		0.9		2.91	
10	10		1.0		2.55	
11	11		1.1		2.94	
12	12		1.2		4.10	
13	13		1.3		4.36	
14	14		1.0		3.25	
15	15		0.9		4.20	
16	16		1.1		3.92	
17	17		1.0		4.52	
18	18		1.2		3.53	
19	19		1.1		3.23	
20	20		0.8		3.45	
	21		0.1		2.10	
	22		0.5		0.14	
	23					

Portage

SITE: VBMC BKSW3P PERSONNEL: AD, MS

DATE: 6/13/11 Gage Reading: NA

TIME: 1232 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1	0.5		0.1		0	
2	1.0		0.2		1.61	
3	1.5		0.4		0.73	
4	2		0.6		1.92	
5	2.5		0.6		2.02	
6	3		0.6		2.58	
7	3.5		0.8		2.82	
8	4		0.9		2.55	
9	4.5		1.0		2.65	
10	5		0.9		3.24	
11	5.5		1.0		3.31	
12	6		1.0		2.52	
13	6.5		1.0		2.49	
14	7		1.1		2.89	
15	7.5		0.9		3.49	
16	8		0.9		3.62	
17	8.5		1.0		2.85	
18	9		0.9		2.66	
19	9.5		0.9		2.99	
20	10		0.8		3.01	
	10.5		0.1		2.52	
	11		0.6		2.44	
	11.5		0.5		2.51	
	12		0.4		2.04	
	12.5		0.4		1.20	
	13		0.2		1.36	

Portage

SITE: VBMCBRSW22 PERSONNEL: VAD + MS

DATE: 6/13/14 Gage Reading: NA

TIME: 1410 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1	0.5		0		0	
2	1		0.1		0.11	
3	1.5		0.2		0.60	
4	2.0		0.3		1.69	
5	2.5		0.3		2.85	
6	3		0.3		3.08	
7	3.5		0.3		2.82	
8	4		0.2		3.44	
9	4.5		0.3		2.18	
10	5		0.3		2.01	
11	5.5		0.3		2.39	
12	6		0.3		2.47	
13	6.5		0.3		2.75	
14	7		0.2		2.16	
15	7.5		0		0	
16	8					
17	8.5					
18	9					
19						
20						

Portage

SITE: VBMCBRSW45 PERSONNEL: MD, MS

DATE: 6/13/11 Gage Reading: NA

TIME: 1512 Gage Time NA

Other: Discharge calculated at spice

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"		0.01			
1	0		0.1		0-0.9	
2	0.4		0.1		0.11	
3	0.8		0.2		0.24	
4	1.2		0.3		0.25	
5	1.6		0.3		0.48	
6	2.0		0.3		0.73	
7	2.4		0.4		1.03	
8	2.8		0.5		1.31	
9	3.2		0.5		1.88	
10	3.6		0.6		2.42	
11	4.0		0.5		2.38	
12	4.4		0.5		1.88	
13	4.8		0.4		1.52	
14	5.2		0.2		0.94	
15	5.6		0.1		0.37	
16	6.0				0.16	
17						
18						
19						
20						

Portage

SITE: UBC BRSW2 PERSONNEL: VAO, MJ

DATE: 6/13/24 Gage Reading: NA

TIME: 1607 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1	0		0.2		0.1	
2	0.5		0.9		0.63	
3	1.0		0.7		1.55	
4	1.5		0.6		1.57	
5	2.0		0.8		2.08	
6	2.5		0.9		2.41	
7	3.0		0.9		3.19	
8	3.5		1.0		3.12	
9	4.0		0.8		3.02	
10	4.5		0.9		2.97	
11	5.0		1.1		2.51	
12	5.5		1.0		2.98	
13	6.0		0.9		2.60	
14	6.5		1.0		1.67	
15	7.0		1.2		1.41	
16	7.5		0.8		1.27	
17	8.0		0.6		0.40	
18	8.5		0.5		0.21	
19	9.0		0.4		0.95	
20	9.5		0.3		0.41	
	10.0		0		0	

Portage

SITE: VBMC BKSW48 PERSONNEL: AD, MS

DATE: 6/13/11 Gage Reading: NA

TIME: 1740 Gage Time NA

Other: Calculated discharge at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1	0.5		0.2		0	
2	1.0		0.2		0.22	
3	1.5		0.5		2.54	
4	2.0		0.6		3.17	
5	2.5		0.6		2.12	
6	3.0		0.7		3.93	
7	3.5		0.5		4.11	
8	4.0		0.4		4.79	
9	4.5		0.4		3.62	
10	5.0		0.4		2.58	
11	5.5		0.5		4.64	
12	6.0		0.5		4.01	
13	6.5		0.7		4.36	
14	7.0		0.8		1.97	
15	7.5		1.0		2.04	
16	8.0		1.0		2.98	
17	8.5		0.9		4.31	
18	9.0		0.8		2.34	
19	9.5		0.9		3.21	
20	10.0		0.8		3.79	
	10.5		0.7		2.41	
	11.0		0.5		3.51	
	11.5		0.2		0.21	
	12.0					

Portage

SITE: VBMC BRLW23 PERSONNEL: AD + MS

DATE: 6/14/11 AD. Gage Reading: NA

TIME: 0810 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	4"					
1	0.5		0		0	
2	1		0.1		0	
3	1.5		0.1		0.02	
4	2		0.2		0.73	
5	2.5		0.3		1.81	
6	3		0.5		1.75	
7	3.5		0.6		2.02	
8	4		0.5		2.07	
9	4.5		0.3		0.79	
10	5		0.3		1.23	
11	5.5		0.4		3.56	
12	6		0.8		4.59	
13	6.5		0.9		4.21	
14	7		1.0		4.19	
15	7.5		0.9		3.45	
16	8		0.6		3.43	
17	8.5		0.6		2.22	
18	9		0.6		3.12	
19	9.5		0.6		3.15	
20	10		0.5		2.91	
	10.5		0.6		1.86	
	11		0.6		2.59	
	11.5		0.3		2.93	
	12		0.3		3.63	
	12.5		0.2		0.53	
	13		0		0	

Portage

SITE: UBMC BRSW3A PERSONNEL: AO, MS

DATE: 6/14/11 Gage Reading: NA

TIME: 0843 Gage Time NA

Other: Discharge calculated at office

DISCHARGE MEASUREMENTS

	Tape (ft)	Width (ft)	Depth (ft)	Area (ft2)	Velocity (ft/sec)	Discharge (cfs)
LWE	~~4"~~					
1	0.5		0		0	
2	1		0.2		0	
3	1.5		0.3		0	
4	2		0.4		0	
5	2.5		0.4		0	
6	3		0.3		0	
7	3.5		0.3		0	
8	4		0.3		0	
9	4.5		0.3		0	
10	5		0.2		0	
11	5.5		0.3		0	
12	6		0.3		0	
13	6.5		0.3		0	
14	7		0.5		0	
15	7.5		0.5		0	
16	8		0.6		0.07	
17	8.5		0.6		0	
18	9		0.6		0.08	
19	9.5		0.7		0.02	
20	10		0.7		0	
	10.5		0.6		0	
	11		0.5		0	
	11.5		0.5		0	
	12		0.5		0	
	12.5		0.2		0	
	13		0		0	

Portage

Daily Contractor Quality Control Summary

Date: 6/13/14 AO.

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

Daily Contractor Quality Control Summary

Date: 6/15/11 AO

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: 9/22/11

Time: 0750 Sampler(s): AD, JJ

Field Sample Id#: UBMC+DMW05 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)
8.04	5.93	306	12.7	101.8	174.8
8.04	5.93	306	12.7	101.8	174.9
8.04	5.93	306	12.69	101.8	174.9

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
114	73.63	—	—	7 YL

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 9/22/11

Time: 1020 Sampler(s): IAO, JT

Field Sample Id#: UBMCTDMW40 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)
8.07	7.46	316	10.24	83.7	196.3
8.07	7.45	316	10.22	83.6	196.3
8.07	7.44	316	10.23	83.6	196.3

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
61.23	39.54	—	—	~4L

Transducer Downloaded: Y

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 9/22/11

Time: 1245 Sampler(s): MD, JJ

Field Sample Id#: UBMCTDMW30 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)
7.52	9.45	248	11.54	101.0	214.6
7.52	9.46	248	11.50	101.3	214.8
7.52	9.46	248	11.50	104.4	214.9

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
67.1	47.53	—	—	12L

Transducer Downloaded: N/A

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Complete, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 9/22/11

Time: 1455 Sampler(s): MO, JT

Field Sample Id#: UBMCTRMW1 Weather: Part. cloudy, 60's

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)
6.26	13.21	811	8.25	82.6	127
6.26	13.20	811	8.23	82.5	127
6.27	13.00	811	8.21	82.1	128.9

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
35.55'	11.38'	—	—	~4L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 9/22/11

Time: ~~1535~~ 1530 Sampler(s): AD, JJ

Field Sample Id#: UBMC TMW20 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)
7.40	12.22	235	10.24	95.2	121.1
7.40	12.22	236	10.26	95.4	121.1
7.40	12.22	236	10.24	95.2	121.1

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
38.55'	11.56	—	—	≈ 4L

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 9/22/11

Time: 1515 Sampler(s): KD, JT

Field Sample Id#: UBMCTPMW25 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)
7.23	15.71	454	8.56	86.9	177.4
7.23	15.92	458	8.55	86.5	177.4
7.23	15.92	458	8.63	87.4	177.4

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
20.12'	11.4'	—	—	≈4L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

completed, hand delivered

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW02
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC.BRSW01
LOCATION: UMBC	WEATHER: Overcast, cool
DATE/TIME: 9/19/ue 1210	SAMPLERS: MD., JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
8.09	6.63	203	9.51	78.1	217.5

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: Rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW 22
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRSW 22
LOCATION: UMBC	WEATHER: Overcast, cool
DATE/TIME: 9/19/11 @ 1053	SAMPLERS: MD., JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.66	9.54	308	9.14	80.7	233.2

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: Rocky

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rocky

Water quality description: clear

UBMC BRSW 24 is duplicate sample

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BKW2
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UMC BKW2
LOCATION: UMBC	WEATHER: Overcast, cool
DATE/TIME: 9/19/24 @1210	SAMPLERS: IA D, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
9-3	10.63	215	9.91	89.7	224.3

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: NA - Mainstem pool

Water flow (circle one): Laminar (Stagnant) Turbulent Other(describe)

Stream bed description: NA

Water quality description: Clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW29
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBRSW29
LOCATION: UMBC	WEATHER: part. cloudy, 60s
DATE/TIME: 9/2014 @ 0915	SAMPLERS: AO, JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.56	5.42	226	11.14	91.9	225.1

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: Rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: RRTW38
PROJECT NUMBER: TO-11	SAMPLE NUMBER: VBMCRRTW38
LOCATION: UMBC	WEATHER: Pt. cloudy, cool
DATE/TIME: 9/20/11 @ 0840	SAMPLERS: KA, JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.46	4.23	277	10.19	78.6	224.1

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: Rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BKSW 48
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBRC BRSW 48
LOCATION: UMBC	WEATHER: partly cloudy, cool
DATE/TIME: 9/20/11 @ 1035	SAMPLERS: KD, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.90	5.80	273	15.48	135.0	87.9

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: Rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW-23
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UMBCBRSW23
LOCATION: UMBC	WEATHER: Partly cloudy, cool
DATE/TIME: 9/20/16 1120	SAMPLERS: AO, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.98	6.43	264	10.38	85.3	144.4

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: Rocky

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rocky

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW3A
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBRSW3A
LOCATION: UMBC	WEATHER: Partly cloudy, [illegible]
DATE/TIME: 9/20/[illegible] 1145	SAMPLERS:

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.64	6.98	301	10.23	85.3	168.3

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: Rocky

Water flow (circle one): laminar Stagnant Turbulent Other(describe)

Stream bed description: Muck

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW3B
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCRRW3B
LOCATION: UMBC	WEATHER: Partly cloudy, cool
DATE/TIME: 9/20/24 @ 1215	SAMPLERS: AO., JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.55	6.09	342	9.54	80.1	186.8

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: Muck

Water quality description: clear

Portage

SITE: UMBC BRSW1 PERSONNEL: VAD, JJ

DATE: 9/17/11 Gage Reading: NA

TIME: 1610 Gage Time NA

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0.5	0.1	0
2	1	0.3	0.09
3	1.5	0.3	0.37
4	2	0.3	0.41
5	2.5	0.4	0.60
6	3	0.4	0.56
7	3.5	0.4	0.40
8	4	0.2	0.03
9	4.5	0.1	0
10	5	0	0
11			0
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC BKSW22 PERSONNEL: KD, JJ

DATE: 9/19/16 Gage Reading: NA

TIME: 1645 Gage Time NA

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0.5	0.1	0
2	1.0	0.1	0
3	1.5	0.1	0.69
4	2.0	0.1	0.53
5	2.5	0.1	0
6	3.0	0.1	0.48
7	3.5	0.1	0.14
8	4.0	0.1	0.02
9	4.5	0.1	0
10			0
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC BKJW29 PERSONNEL: AO, JJ

DATE: 9/20/11 Gage Reading: NA

TIME: 0815 Gage Time NA

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1 0.5	0.1		0
2 1	0.1		0
3 1.5	0.1		0.01
4 2	0.1		0.01
5 2.5	0.1		0.05
6 3	0.1		0.12
7 3.5	0.1		0.03
8 4	0.2		0.12
9 4.5	0.2		0.31
10 5	0.3		0.34
11 5.5	0.2		0.45
12 6	0.2		0.55
13 6.5	0.2		0.3
14 7	0.2		0.14
15 7.5	0.3		0.54
16 8	0.3		0.86
17 8.5	0.3		0.66
18 9	0.3		0.53
19 9.5	0.4		0.69
20 10	0.4		0.63
10.5	0.3		0.63
11	0.2		0.35
11.5	0.4		0.49
12	0.4		0.50
12.5	0.3		0.20
13	0.4		
13.5	0.2		0

Portage

SITE: UMBC BRSW3P PERSONNEL: IAG, JJ

DATE: 9/20/11 Gage Reading: NA

TIME: 0950 Gage Time NA

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0.5	0	0
2	1.0	0.1	0
3	1.5	0.1	0.07
4	2.0	0.2	0.04
5	2.5	0.2	0.20
6	3.0	0.2	0.20
7	3.5	0.2	0.61
8	4.0	0.3	0.65
9	4.5	0.2	0.68
10	5.0	0.2	0.99
11	5.5	0.2	0.79
12	6.0	0.2	0.33
13	6.5	0.2	0.22
14	7.0	0.2	0.13
15	7.5	0.1	0
16	7.6	0	0
17			
18			
19			
20			

Portage

SITE: UMBC BRSW48 PERSONNEL: AD, JT

DATE: 7/20/11 Gage Reading: NA

TIME: 1107 Gage Time NA

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0.2	0.18
2	0.5	0.2	0.51
3	1.0	0.3	0.57
4	1.5	0.3	0.65
5	2.0	0.2	0.66
6	2.5	0.2	0.27
7	3.0	0.2	0.02
8	3.5	0.2	0.03
9	4.0	0.2	0.33
10	4.5	0.2	0.35
11	5.0	0.2	0.08
12	5.5	0.2	0
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC BKSW23 PERSONNEL: AD, TI

DATE: 9/27/11 Gage Reading: NA

TIME: 1130 Gage Time NA

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0	0
2	0.5	0.1	0
3	1.0	0.3	0.07
4	1.5	0.2	0.03
5	2.0	0.2	0.18
6	2.5	0.2	0.19
7	3.0	0.2	0.61
8	3.5	0.2	1.2
9	4.0	0.2	1.17
10	4.5	0.3	0.32
11	5.0	0.2	0.14
12	5.5	0.2	0.13
13	6.0	0.1	0
14	6.5	0	0
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC BKSW3A PERSONNEL: AD., IJ

DATE: 9/20/17 Gage Reading: NA

TIME: 1145 Gage Time NA

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0.3	0
2	0.3	0.3	0
3	0.6	0.4	0
4	0.9	0.6	0
5	1.2	0.5	0
6	1.5	0.6	0.02
7	1.8	0.5	0.17
8	2.1	0.6	0.11
9	2.4	0.4	0.25
10	2.7	0.2	0
11	3.0	0	0
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

Sediment Sampling Collection Summary

Site: UBMC 1 Date: 9/12/11

Time: 1610 Sampler(s): AO, JJ

Field Sample Id#: UBMC BRSD1 Weather: Overcast, 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:

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 9/19/11

Time: 1650 Sampler(s): AD, JJ

Field Sample Id#: UBMCBKSD22 Weather: Overcast, 60s

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

Sediment Sampling Collection Summary

Site: UBMC Date: 9/20/11

Time: 0915 Sampler(s): NO, JJ

Field Sample Id#: UBMCBRSD29 Weather: Partly cloudy, 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

Sediment Sampling Collection Summary

Site: UBMC Date: 9/20/11

Time: 0840 Sampler(s): AD, JJ

Field Sample Id#: UBMCBRSD38 Weather: Pt+C, 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

Sediment Sampling Collection Summary

Site: UBMC Date: 9/2/11

Time: 1035 Sampler(s): AD, JJ

Field Sample Id#: UBMC BRSD 48 Weather: Pt. cloudy, 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

Sediment Sampling Collection Summary

Site: UBMC | Date: 9/20/11

Time: 1120 | Sampler(s): AD, JJ

Field Sample Id#: UBMC BRSD23 | Weather: partly cloudy, 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

Sediment Sampling Collection Summary

Site: UBMC Date: 9/20/11

Time: 1145 Sampler(s): AB, TT

Field Sample Id#: UBMCSRS034 Weather: Partly cloudy, 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

Sediment Sampling Collection Summary

Site: UBMC
Date: 9/20/11
Time: 1215
Sampler(s): AD, JJ
Field Sample Id#:
Weather: Partly cloudy, 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: 7/20/14

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:

No grading at VBMCRKRW33 because of stagnant conditions.

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Daily Contractor Quality Control Summary

Date: 9/23/11

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: BRSW37
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBRSW38
LOCATION: UMBC	WEATHER: Cool, Partly cloudy
DATE/TIME: 12/1/11 @ 0900	SAMPLERS: AO., TT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.22	0.62	322	12.63	88	278.3

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: Snow covered

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rocky

Water quality description: Clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSWY8
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCKRSWY8
LOCATION: UMBC	WEATHER: Pt. cloudy, cool
DATE/TIME: 12/11/14 @ 1040	SAMPLERS: KO, TJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.59	0.86	312	12.41	87	105.1

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: Snow covered

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Rocky

Water quality description: Clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW23
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UMBC BRSW23
LOCATION: UMBC	WEATHER: Partly cloudy, cold
DATE/TIME: 12/11/19 @ 1105	SAMPLERS: AO, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.65	1.17	297	12.08	85.4	192.4

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

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BKJW3A
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BKJW3A
LOCATION: UMBC	WEATHER: Cold, Pt. cloudy
DATE/TIME: 12/11/19 @ 1135	SAMPLERS: AD., JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.43	4.94	317	8.92	69.8	204.4

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: Rocky, snow covered

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Small gravel

Water quality description: clear

- Installation of new culvert under drain appears to have changed the channel. Low Mucky, veg, and narrower flow channel.

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSWJB
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UMCBRSWJB
LOCATION: UMBC	WEATHER: Cloudy, cold
DATE/TIME: 12/11/20 1155	SAMPLERS: AO., TT.

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.24	5.94	310	6.51	52.3	213.9

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 covered

Water flow (circle one) (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: small gravel

Water quality description: clear

See note, on 3A.

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW 22
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRSW22
LOCATION: UMBC	WEATHER: cold, part. cloudy
DATE/TIME: 12/1/14 @ 1330	SAMPLERS: A.D., T.J.

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.33	1.70	398	11.92	86.2	252.0

Collected duplicate sample UBMC BRSW24

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

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW1
PROJECT NUMBER: TO-11	SAMPLE NUMBER: VBMCBRSW1
LOCATION: UMBC	WEATHER: 61°, cloudy
DATE/TIME: 12/11/11 @ 1420	SAMPLERS: AD, JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.08	0.42	202	13.02	90.2	261.4

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

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 12/11/11

Time: 0900 Sampler(s): AD, DT

Field Sample Id#: UBMCBRS03P Weather: Part. cloudy, 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:

Complete, hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 12/11/11

Time: 1043 Sampler(s): AD, JT

Field Sample Id#: UBMCBRSD48 Weather: Partly cloudy, 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:

Completed, Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 12/4/11

Time: 1105 Sampler(s): AD, JT

Field Sample Id#: UBMCSR5023 Weather: Pt. 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:

Completed, hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 12/11/11.

Time: 1135 Sampler(s): KO., JJ

Field Sample Id#: UBMC BK D3A Weather: Part. 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:

Completed, hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Channel configuration changed since last event. less veg. + slime, more sand + gravel

Portage

Sediment Sampling Collection Summary

Site: UBMC | Date: 12/6/11

Time: 1155 | Sampler(s): MD, JT

Field Sample Id#: UBMCBRJ03B | 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:

Completed, hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Same as for BRJD3A

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 12/11/11

Time: 1330 Sampler(s): AD, JT

Field Sample Id#: UBMCBRSD22 Weather: Cold, partly 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:

Complete, hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Duplicate sample is UBMCBRSD24

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 12/11/11

Time: 1420 Sampler(s): MJ. JJ

Field Sample Id#: UBMCBK101 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, coc completed

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC DRSW3P PERSONNEL: AD, TT

DATE: 12/1/11 Gage Reading: —

TIME: 0900 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	4.9	0	0
2	5.0	0.1	0.07
3	5.4	0.3	0.02
4	5.8	0.3	0.72
5	6.2	0.3	0.11
6	6.6	0.3	0.46
7	7.0	0.2	0.73
8	7.4	0.3	0.56
9	7.8	0.2	0.18
10	8.2	0.2	0.64
11	8.6	0.2	0.63
12	9.0	0.1	0.32
13	9.4	0.1	0.19
14	9.8	0.1	0.02
15	10.2	0	0
16			
17			
18			
19			
20			

Portage

SITE: UMBC BRSWY8 PERSONNEL: HO, JT

DATE: 12/6/11 Gage Reading: —

TIME: 1045 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	2.4	0	0
2	2.8	0.1	0
3	3.2	0.2	0
4	3.6	0.1	0
5	4.0	0.2	0.36
6	4.4	0.2	0.21
7	4.8	0.2	0
8	5.2	0.2	0
9	5.6	0.1	0
10	6.0	0.2	0.15
11	6.4	0.2	0.21
12	6.8	0.2	0.38
13	7.2	0.1	0.23
14	7.6	0.2	0.20
15	8.0	0.2	0.08
16	8.4	0	0
17			
18			
19			
20			

Portage

SITE: UMBC BRSW23 PERSONNEL: AP, JJ

DATE: 12/11/14 Gage Reading: —

TIME: 1105 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	5.5	0	0
2	5.8	0.1	0
3	6.1	0.2	0
4	6.4	0.3	0
5	6.7	0.3	0.1
6	7.0	0.3	0.59
7	7.3	0.3	0.29
8	7.6	0.2	0.66
9	7.9	0.2	0.39
10	8.2	0.2	0.29
11	8.5	0.2	0.05
12	8.9	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC BKSW3A PERSONNEL: AR, IJ

DATE: 12/11/15 Gage Reading: —

TIME: 1140 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0	0
2	0.25	0.2	1.01
3	0.5	0	0
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC BRSW3B PERSONNEL: AD, JT

DATE: 12/11/14 Gage Reading: —

TIME: 1155 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0.1	0
2		0.1	0
3		0.1	0
4		0.1	0
5		0.1	0.12
6		0.1	0.31
7	0.9	0	0
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC BKSW22 PERSONNEL: AD, JJ

DATE: 12/11/14 Gage Reading: —

TIME: 1320 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0.1	0
2		0.1	0
3		0.1	0
4		0.1	0
5		0.1	0.18
6		0.1	0.31
7	1.1	0	0
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SITE: UMBC

PERSONNEL: MD, JJ

DATE: 12/11/11

Gage Reading: —

TIME: 1420

Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0.8	0.1	0
2	1.1	0.2	0
3	1.4	0.3	0.25
4	1.7	0.4	0.26
5	2.0	0.5	0.30
6	2.3	0.4	0.15
7	2.6	0.5	0.02
8	2.7	0.5	0
9	2.1	0.5	0
10	3.4	0.5	0
11	3.7	0.3	0
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/14/16

Time: UBMC TOMW05 Sampler(s): AD, JJ

Field Sample Id#: 0955 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)
7.89	4.54	220	10.46	81.0	272.9
7.90	4.55	221	9.95	79.1	272.6
7.91	4.54	220	9.92	76.8	272.3
7.92	4.52	222	9.84	76.2	272.3

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
15.29' 24.3'	24.3'	—	—	x4

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

—

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

—

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/14/11

Time: 11 15 Sampler(s): AD, JT

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 UBMC TDMW66

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)
7.91	4.22	321	1.43	11.0	275.6
7.91	4.23	320	1.41	10.8	275.5
7.91	4.24	319	1.41	10.8	275.5

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
61.97	41.56	—	—	4YL

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

—

Chain of Custody Form Number & Shipping Information:

—

Completed, Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/14/11

Time: 1210 Sampler(s): KB, JJ

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: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.46	4.52	389	7.51	58.3	291.7
7.46	4.63	393	7.46	57.9	291.6
7.46	4.64	396	7.32	57.4	291.4
7.47	4.62	400	7.35	57.2	291.6

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
54.80'	49.53'	—	—	≈ 7L

Transducer Downloaded: N/A

Sample Location (latitude / longitude in *deg/min/sec*):

—

Chain of Custody Form Number & Shipping Information:

Complete, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/14/11

Time: 1345 Sampler(s): AD, JJ

Field Sample Id#: UBMCTOMW01 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)
6.60	5.26	622	3.62	28.3	279.1
6.60	5.32	623	3.52	27.9	278.9
6.61	5.33	624	3.45	27.4	278.8
6.61	5.35	624	3.34	26.5	278.7

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
34.2'	12.50'	—	—	2 gl

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/14/16 AO

Time: 1420 Sampler(s): AO, JT

Field Sample Id#: UBMCTDHW20 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)
7.13	4.81	257	6.10	42.6	221.9
7.13	4.79	257	6.09	42.5	222.0
7.13	4.80	257	6.08	42.5	222.1

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
39.65'	14.12'			23.5L

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/17/14

Time: 1435 Sampler(s): AD JJ

Field Sample Id#: UBMCTDMW25 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+S

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.41	3.48	1278	~~1285.86~~	6.5	295.9
6.41	3.44	1295	0.80	6.1	287.9
6.41	3.44	1296	0.81	6.1	288.0
6.41	3.41	1297	0.81	6.1	287.8

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
20.09'	14.25'	—	—	7 gl

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Completed, hand delivered

Portage

Daily Contractor Quality Control Summary

Date: 12/6/14

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:

12/6/14 AJ

Portage

Daily Contractor Quality Control Summary

Date: 12/14/4

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:

12/14/4 AD

Appendix D

Site Photos

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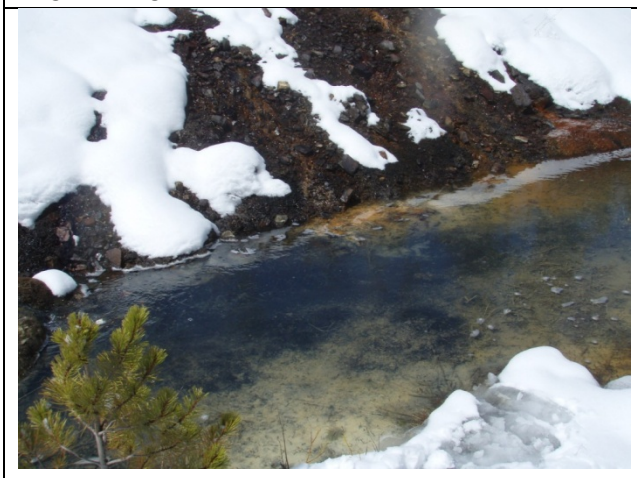
BRSW1 4-29-11



BRSW2 4-29-11



BRSW3A 4-30-11



BRSW3B 4-30-11



BRSW22 4-30-11



BRSW23 4-30-11



BRSW38 4-30-11



BRSW48 4-30-11



GW-1a 5-4-11



GW-01c 5-5-11



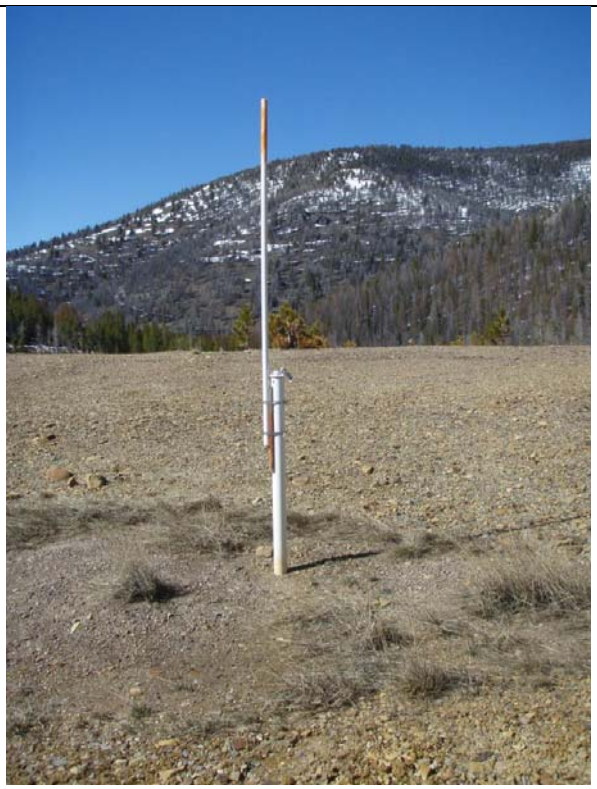
TDMW-5 5-4-11



GW-2a 5-4-11



GW-4s, GW-4d 5-4-11



P-5 5-4-11



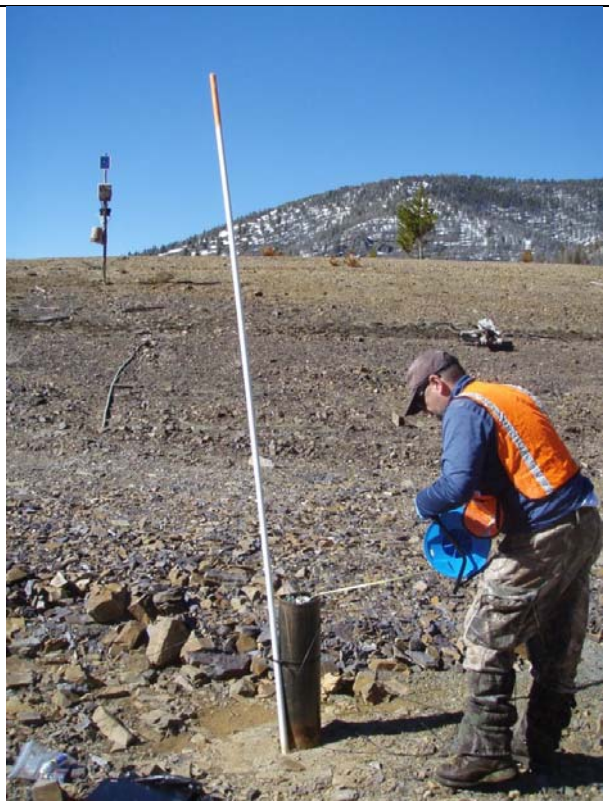
PZ-02bc 5-4-11



PZ-03d , PZ-03s 5-5-11



PZ-09 5-4-11



GW-01a 5-4-11



PZ-11b 5-5-11



Sump N 5-4-11



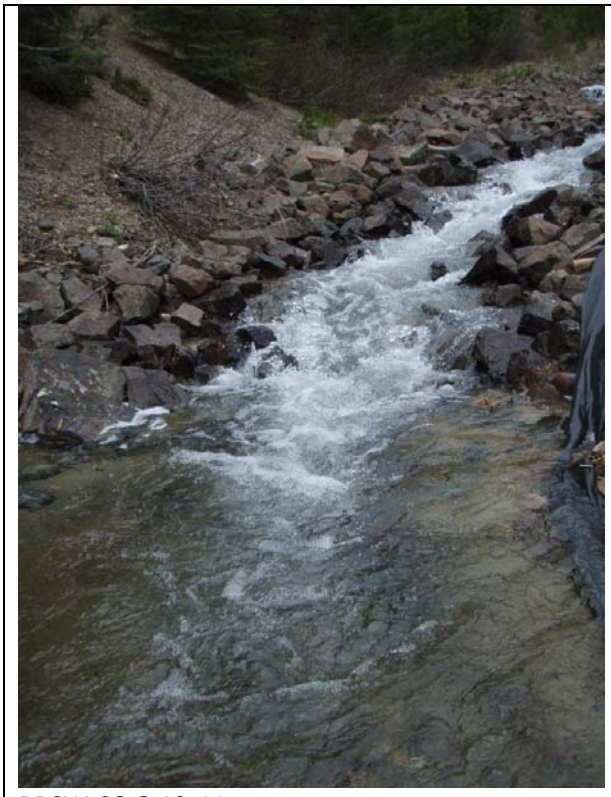
Sump S-a, Sump S-b 5-4-11



TDMW-01 5-5-11



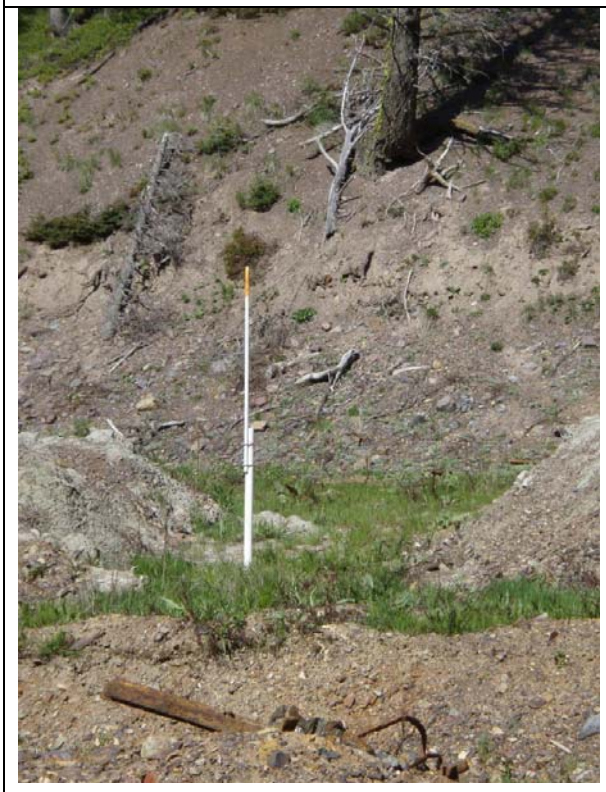
TDMW-3d 5-5-11



BRSW-22 6-13-11



6-13-11



PZ-09 6-13-11



BRSW-1 6-13-11



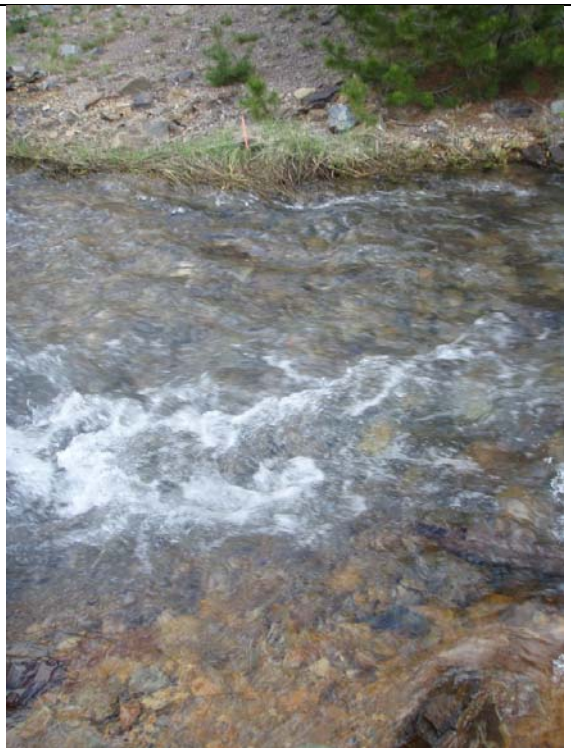
BRSW-2 6-13-11



BRSW-3a 6-14-11



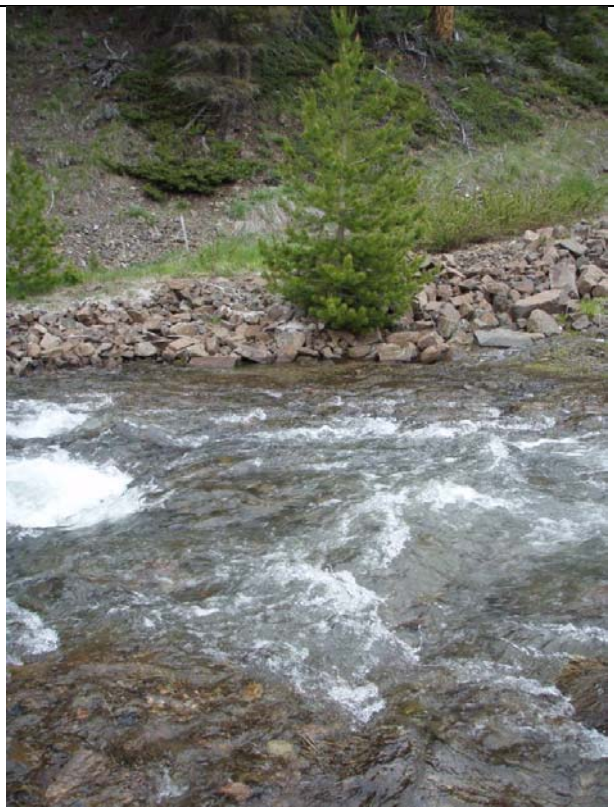
BRSW-3b 6-14-11



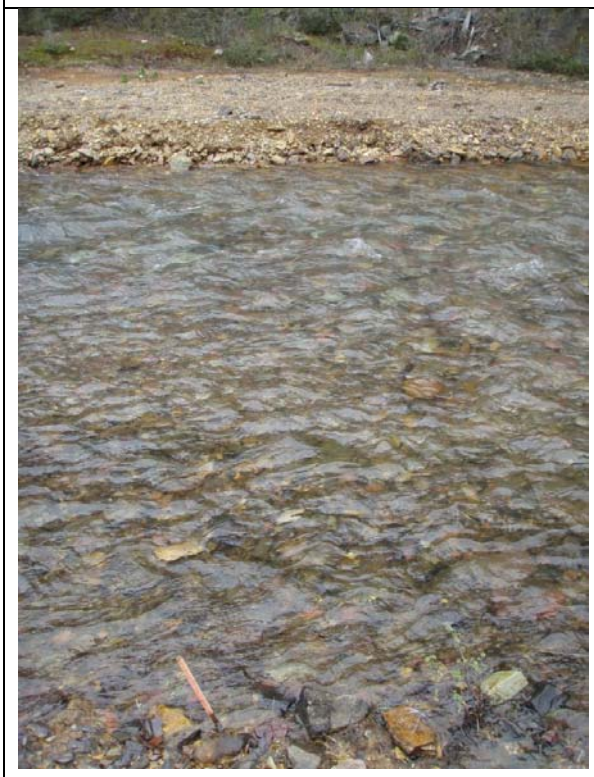
BRSW-23 6-14-11



BRSW-29 6-13-11



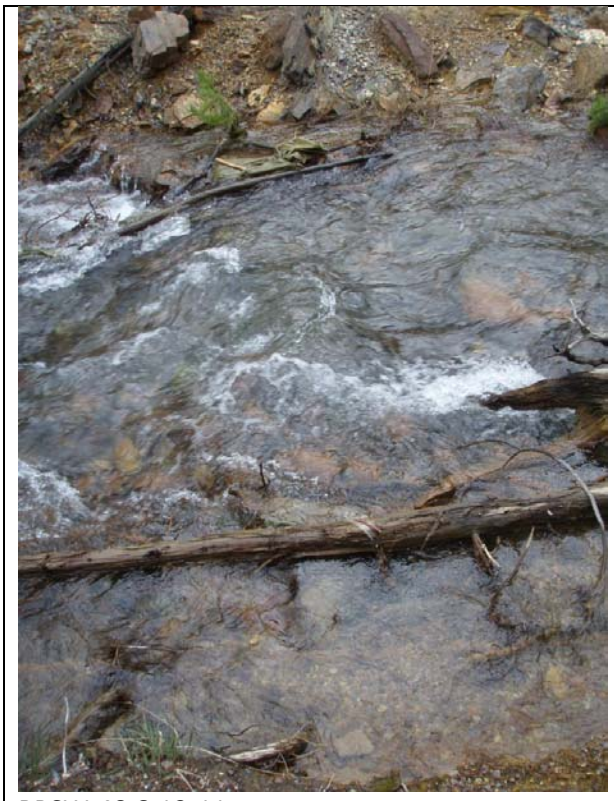
BRSW-34 6-13-11



BRSW-38 6-13-11



BRSW-45 6-13-11



BRSW-48 6-13-11



GW-1a 6-15-11



GW-01c 6-15-11



GW-2 6-15-11



GW-2a 6-15-11



MHTDS-1 6-14-11



MHTDS-2 6-14-11



MHTDS-3 6-14-11



MHTDS-4 6-14-11



MHTDS-5 6-14-11



PZ-3a, PZ-3b 6-15-11



PZ-11b 6-15-11



PZ-02b-c 6-15-11



Sump N 6-15-11



Sump S-a, Sump S-b 6-15-11



TDMW-01 6-16-11



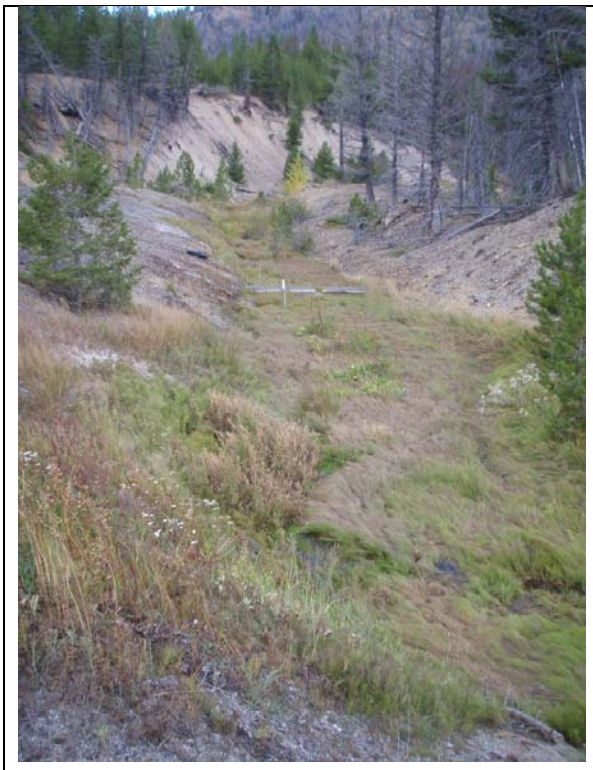
TDMW-5 6-16-11



TDMS-02s, TDMW-02d 6-16-11



TDMW-04s, TDMW-04d 6-16-11



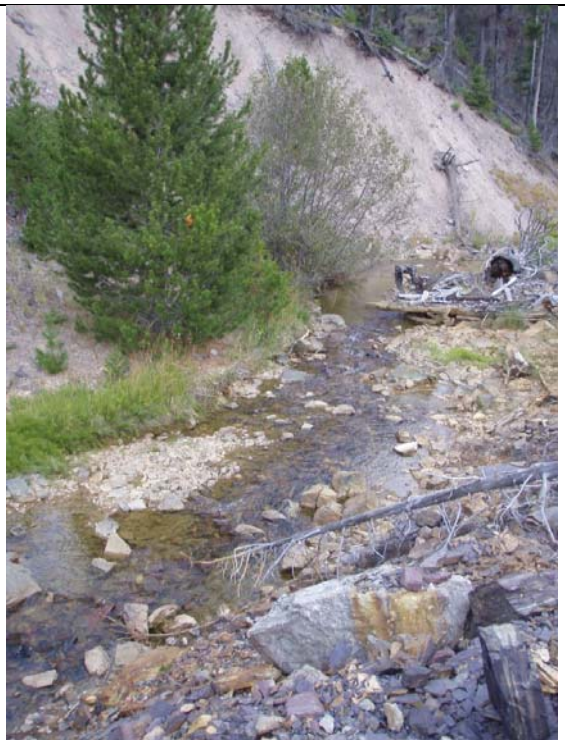
BRSW-3a, BRSW-3b 9-19-11



BRSW-22 9-19-11



BRSW-29 9-20-11



BRSW-48 9-20-11



GW-01a 9-22-11



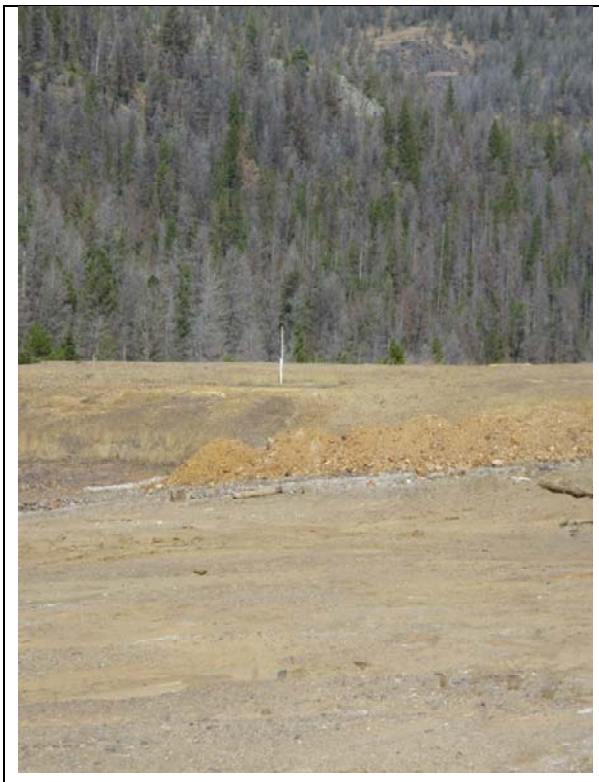
GW-01c 9-22-11



GW-2 9-22-11



GW-2a 9-22-11



P-5 9-22-11



PZ-02b-c 9-22-11



PZ-03a, PZ-03b 9-22-11



PZ-09 9-22-11



PZ-11b 9-22-11



Sump-N 9-22-11



Sump-S-a, Sump-S-b 9-22-11



TDMW-01 9-22-11



TDMW-2s, TDMW-2d 9-22-11



TDMW-3s, TDMW-3d 9-22-11



TDMW-4s, TDMW-4d 9-22-11



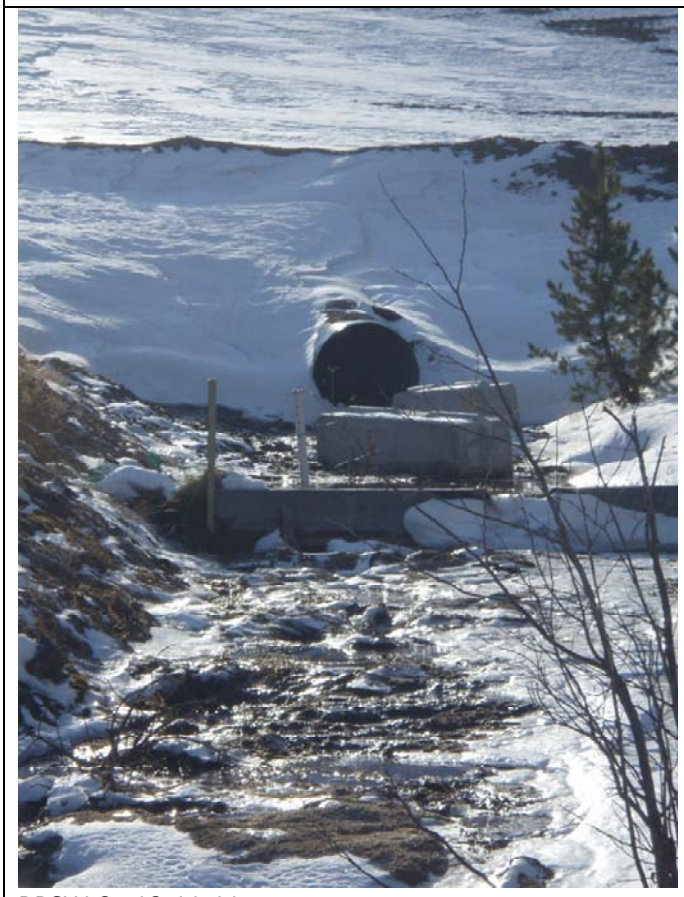
TDMW-5 9-22-11



BRSW-1 12-11-11



BRSW-2 12-11-11



BRSW-3a 12-11-11



BRSW-3b 12-11-11



BRSW-22 12-11-11



BRSW-23 12-11-11



BRSW-38 12-11-11



BRSW-48 12-11-11



GW-2a 12-13-11



P-5 12-14-11



PZ-02b-c 12-13-11



PZ-09 12-13-11



Sump-Sa, Sump-Sb 12-13-11



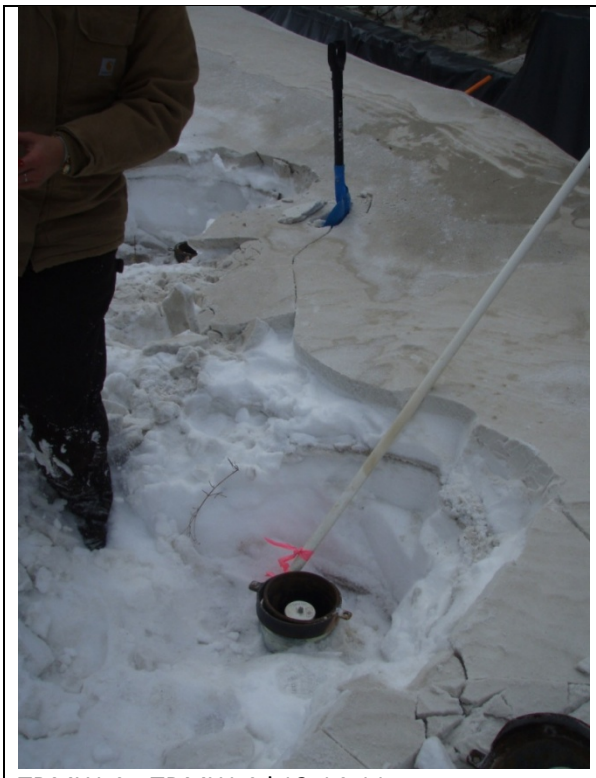
TDMW-1 12-14-11



TDWM-2s, TDMW-2d 12-14-11



TDMW-3s, TDMW-3d 12-14-11



TDMW-4s, TDMW-4d 12-14-11



TDMW-5 12-14-11

Appendix E

Data Logger Graphical Output

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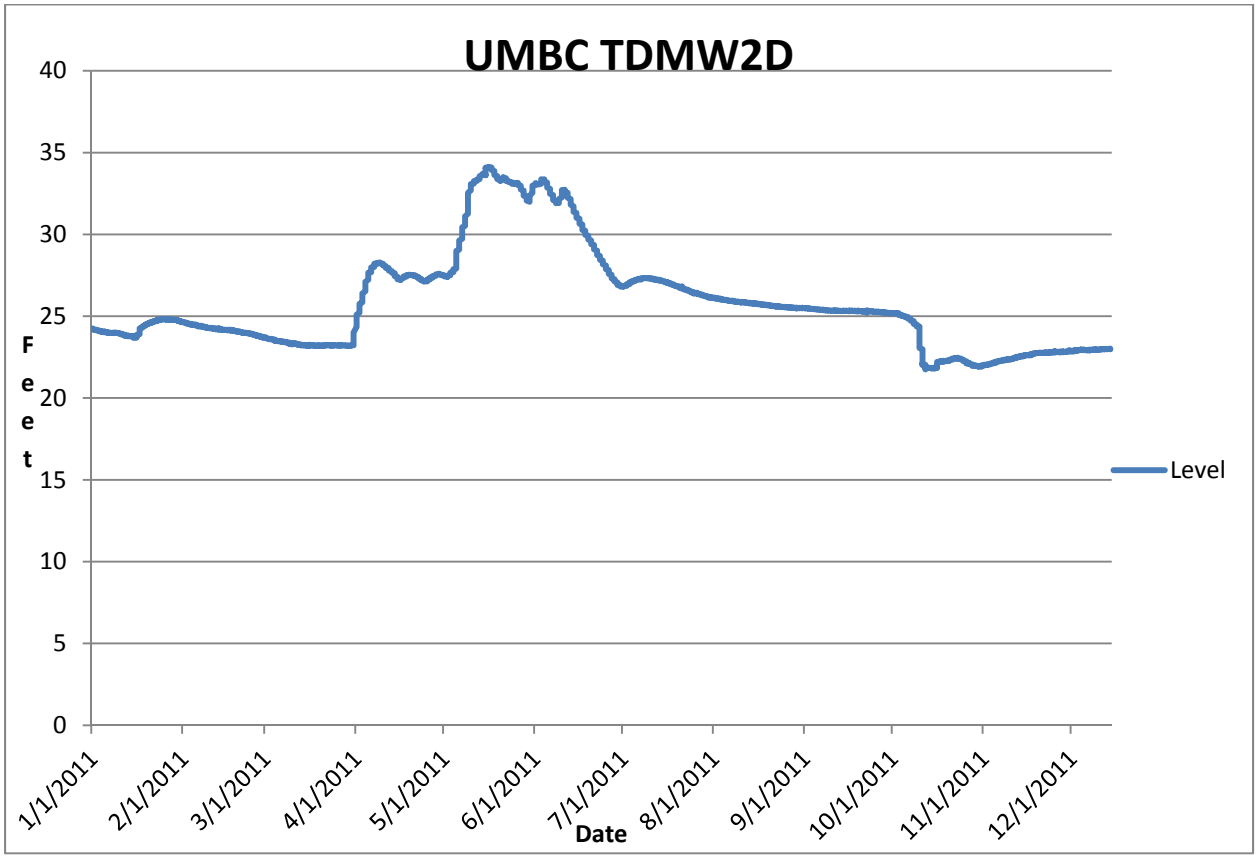
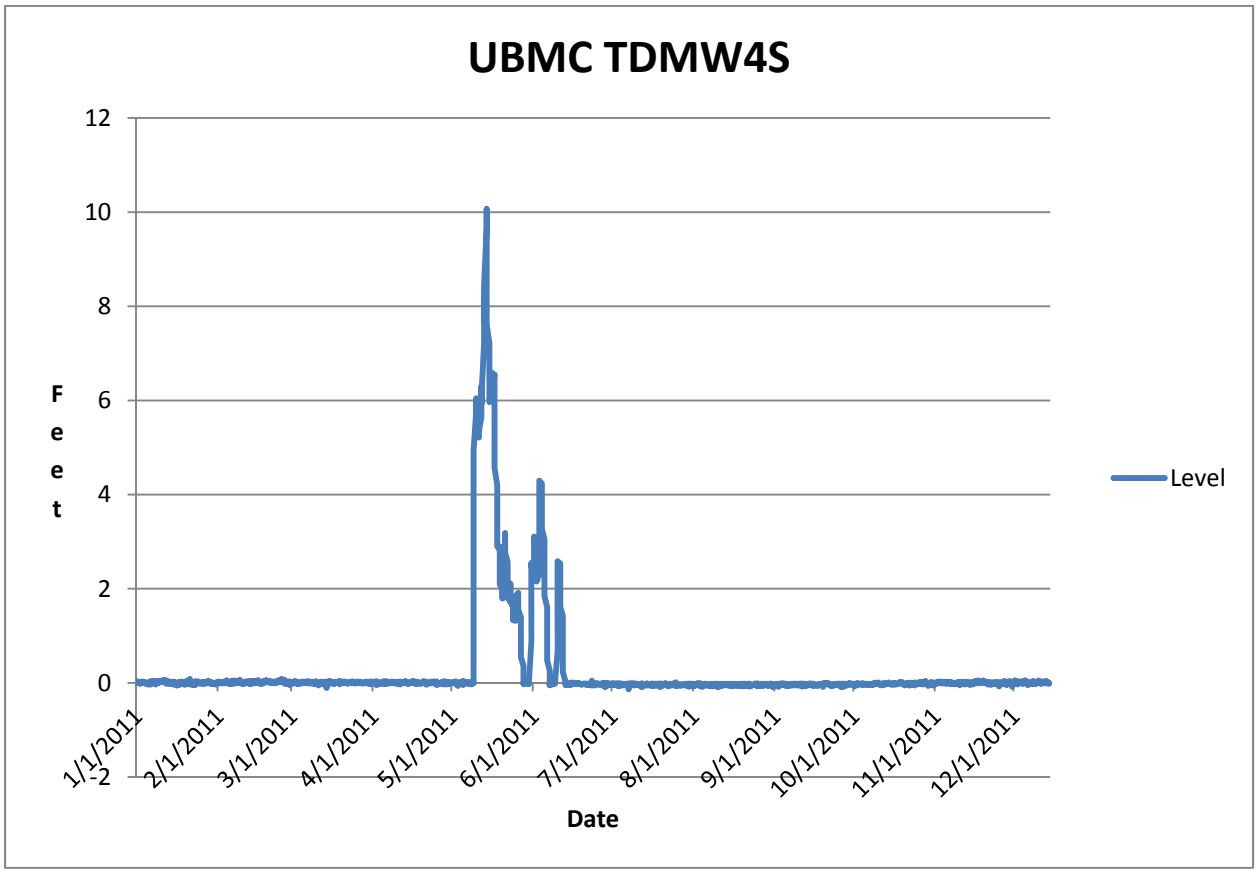
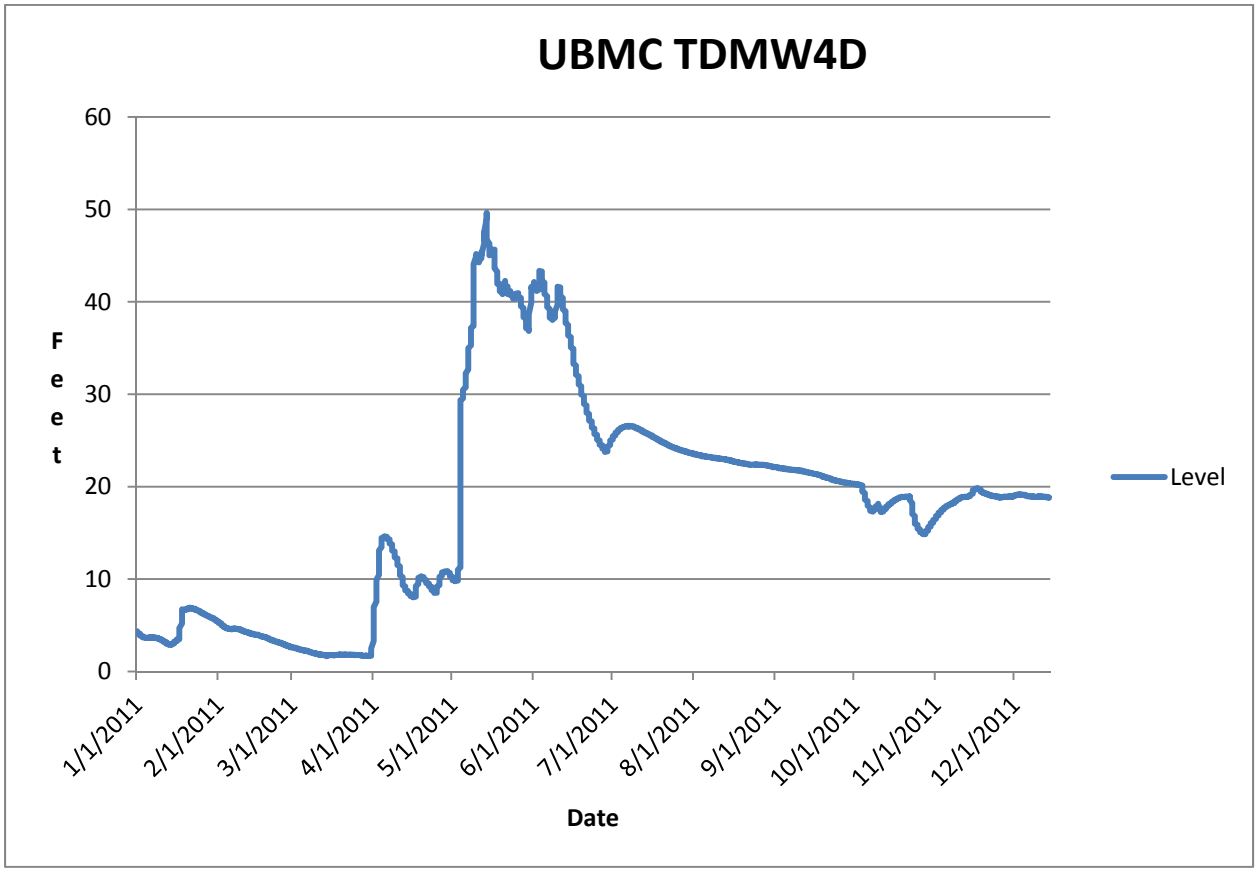
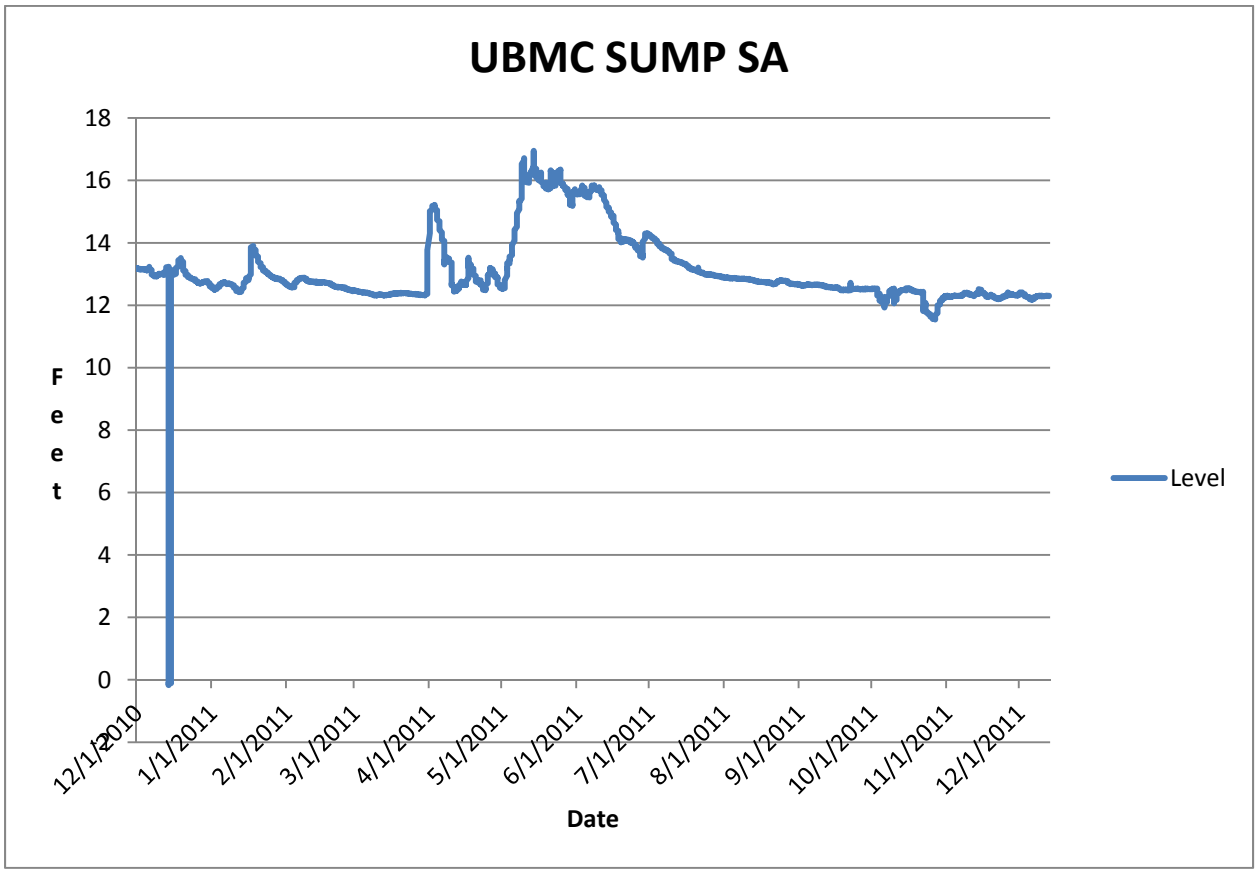
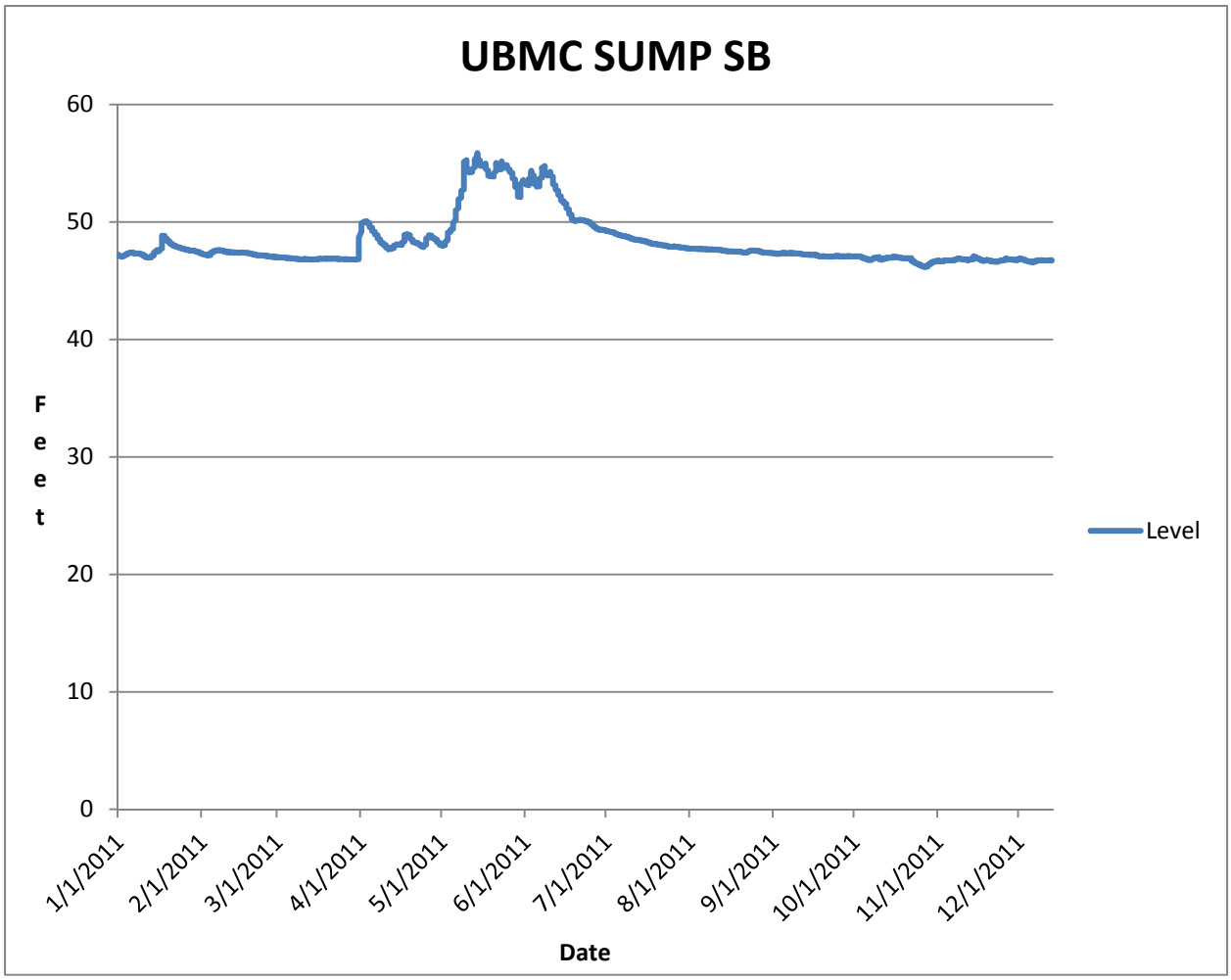
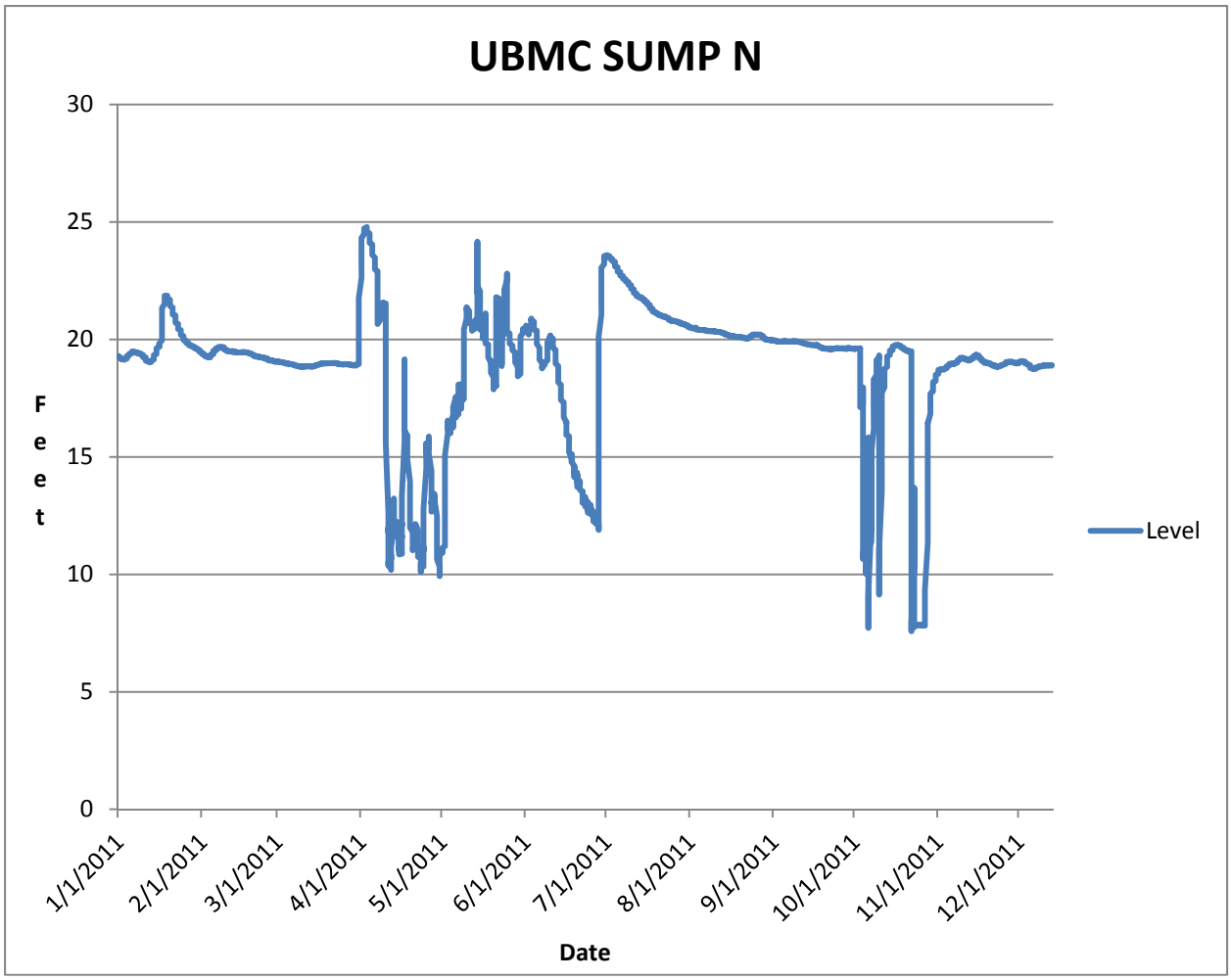

UMBC TDMW2D
40
35
30
25
20
15
10
5
0
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level

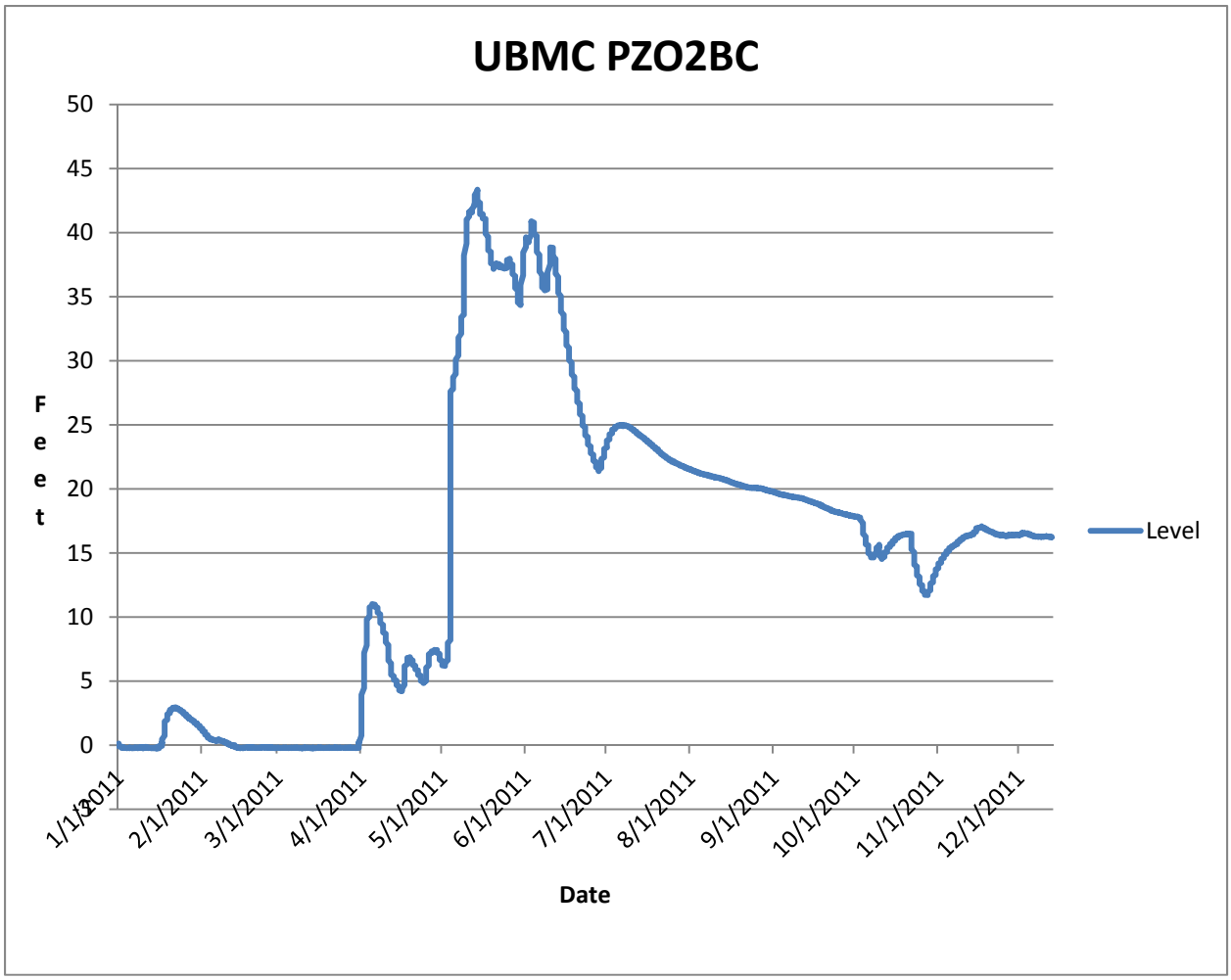

UBMC TDMW4S
12
10
8
6
4
2
0
-2
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level

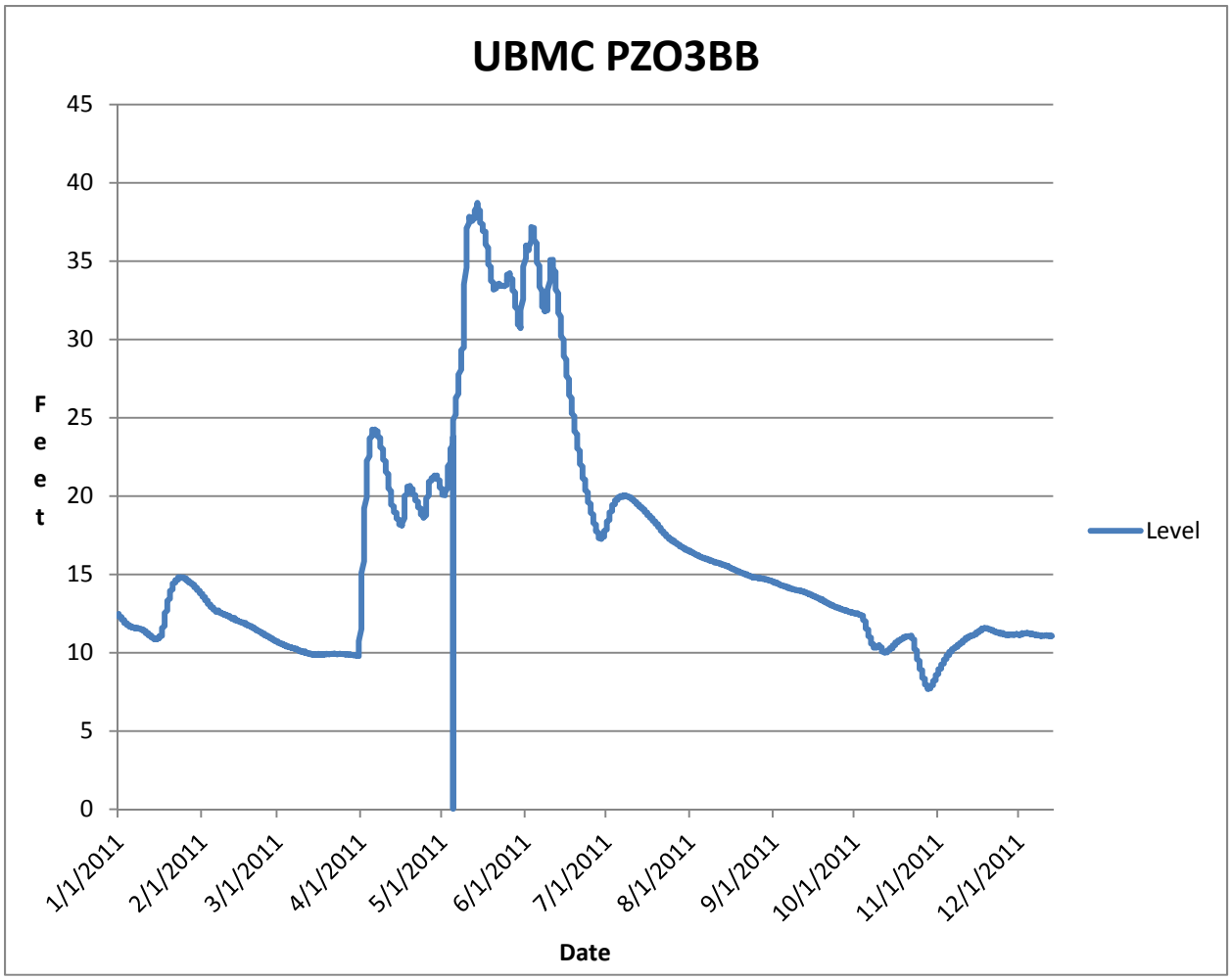

UBMC TDMW4D
60
50
40
30
20
10
0
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC SUMP SA
18
16
14
12
10
8
6
4
2
0
Feet
12/1/2010
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC SUMP SB
60
50
40
30
20
10
0
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC SUMP N
30
25
20
15
10
5
0
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC PZO2BC
50
45
40
35
30
25
20
15
10
5
0
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC PZO3BB
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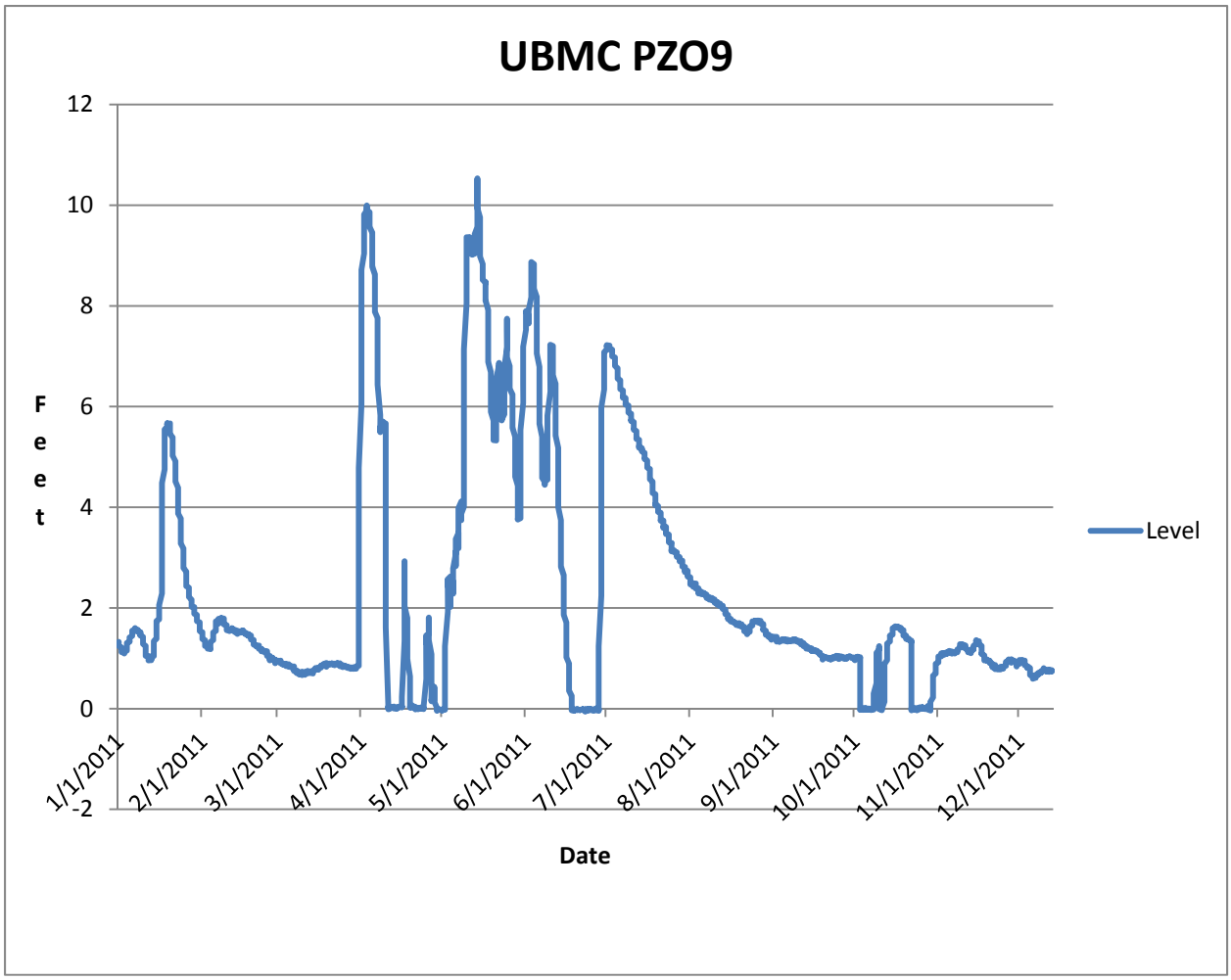
40
35
30
25
20
15
10
5
0
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC PZO9
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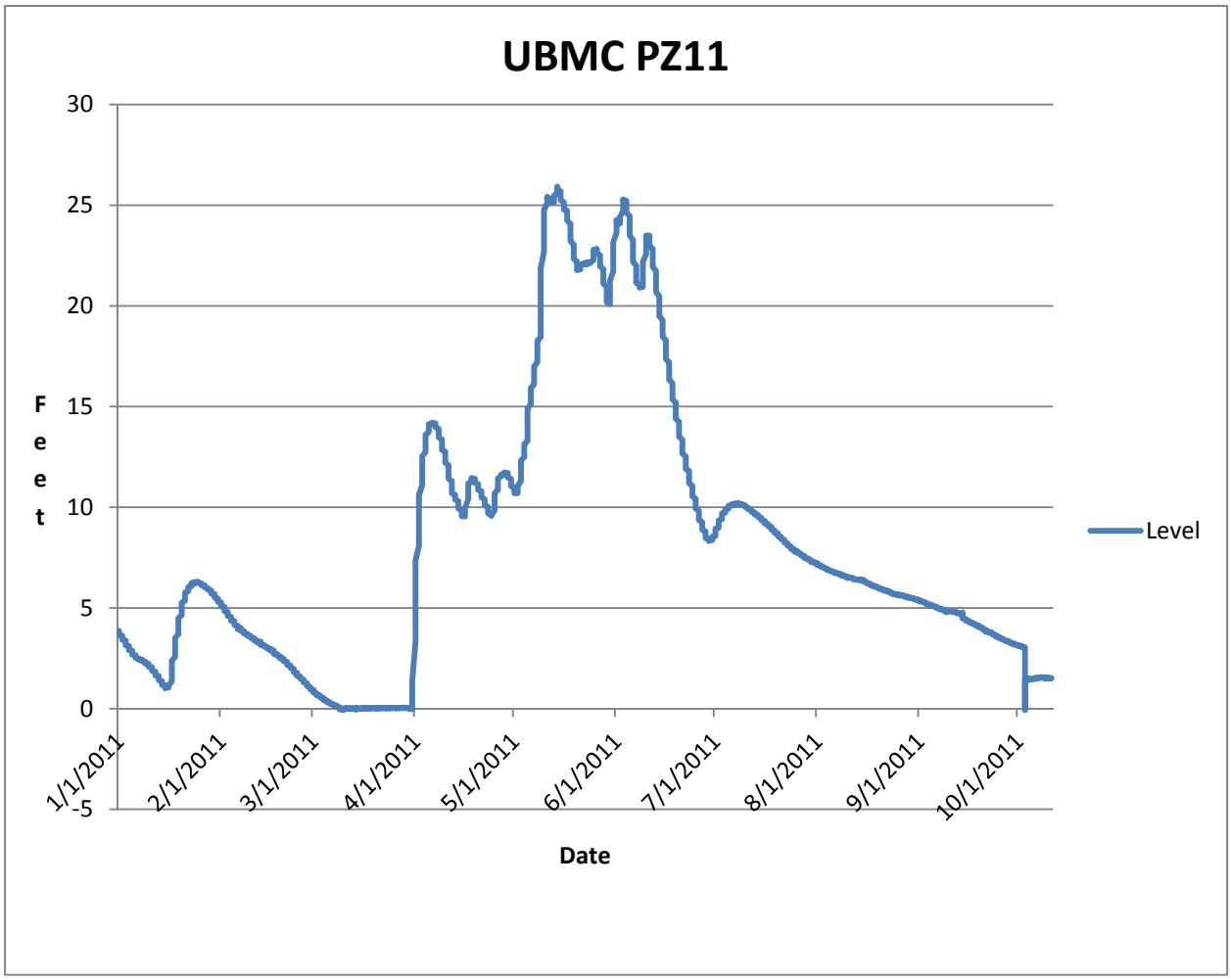
10
8
6
4
2
0
-2
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level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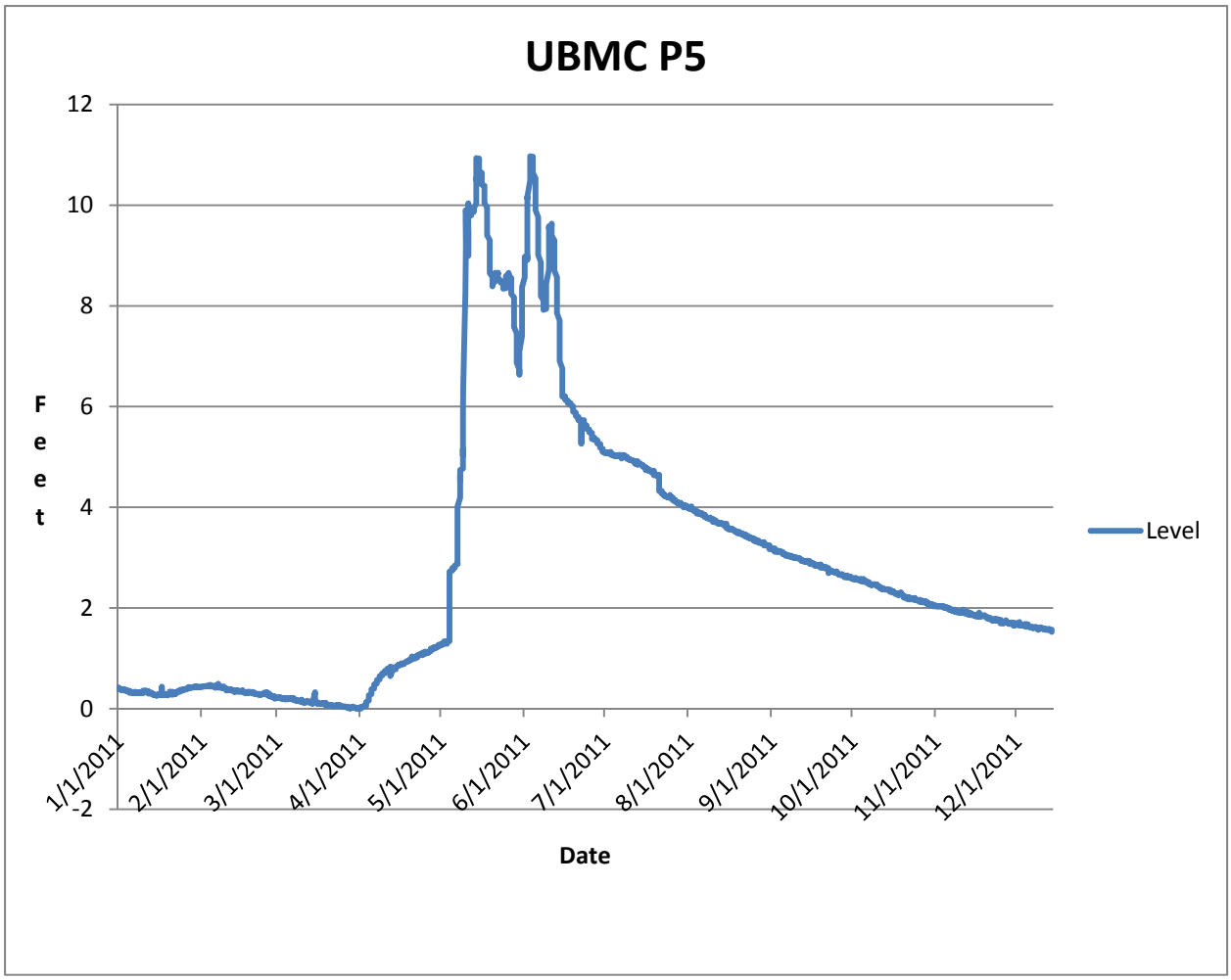
25
20
15
10
5
0
-5
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
Date
Level


UBMC P5
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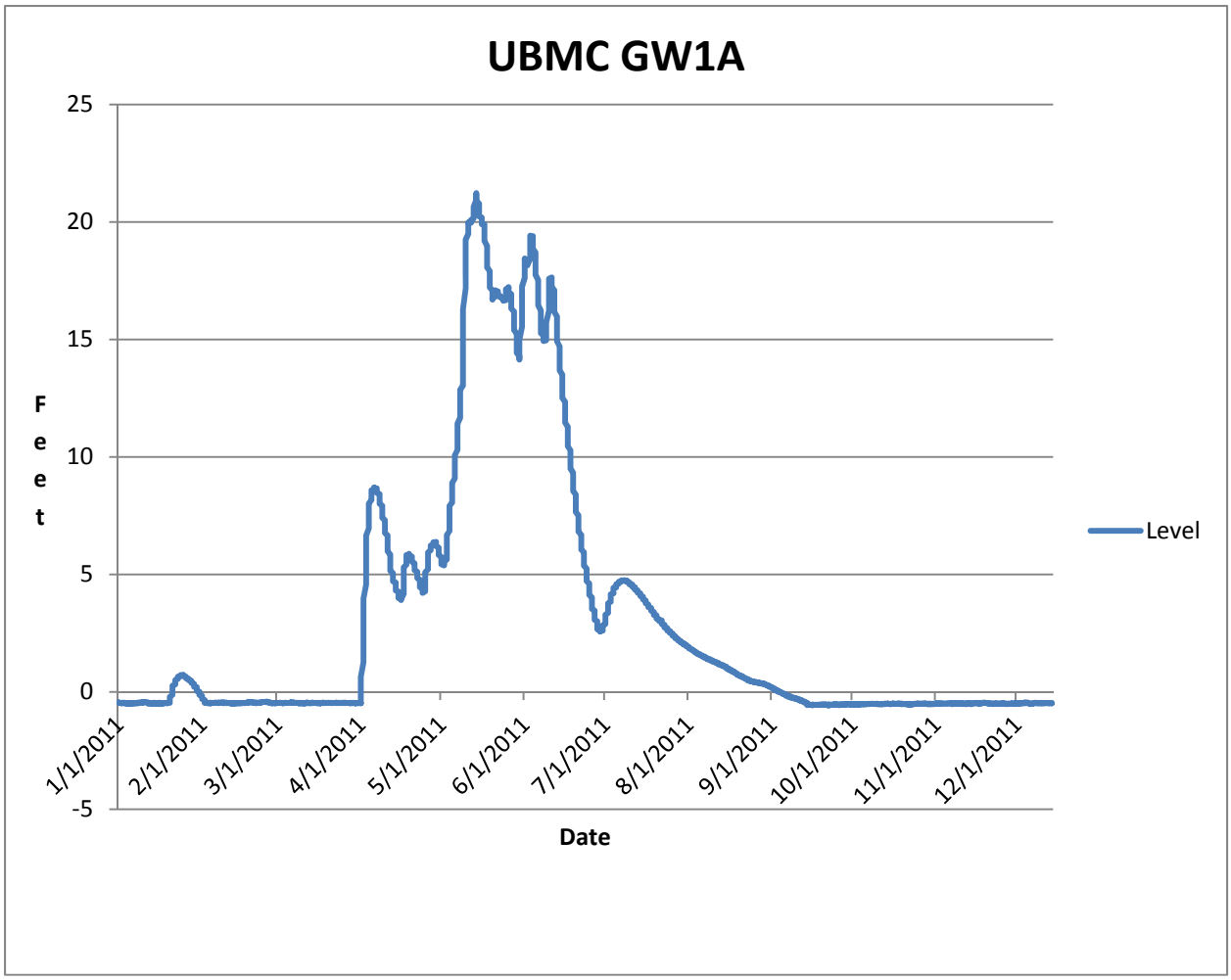
10
8
6
4
2
0
-2
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC GW1A
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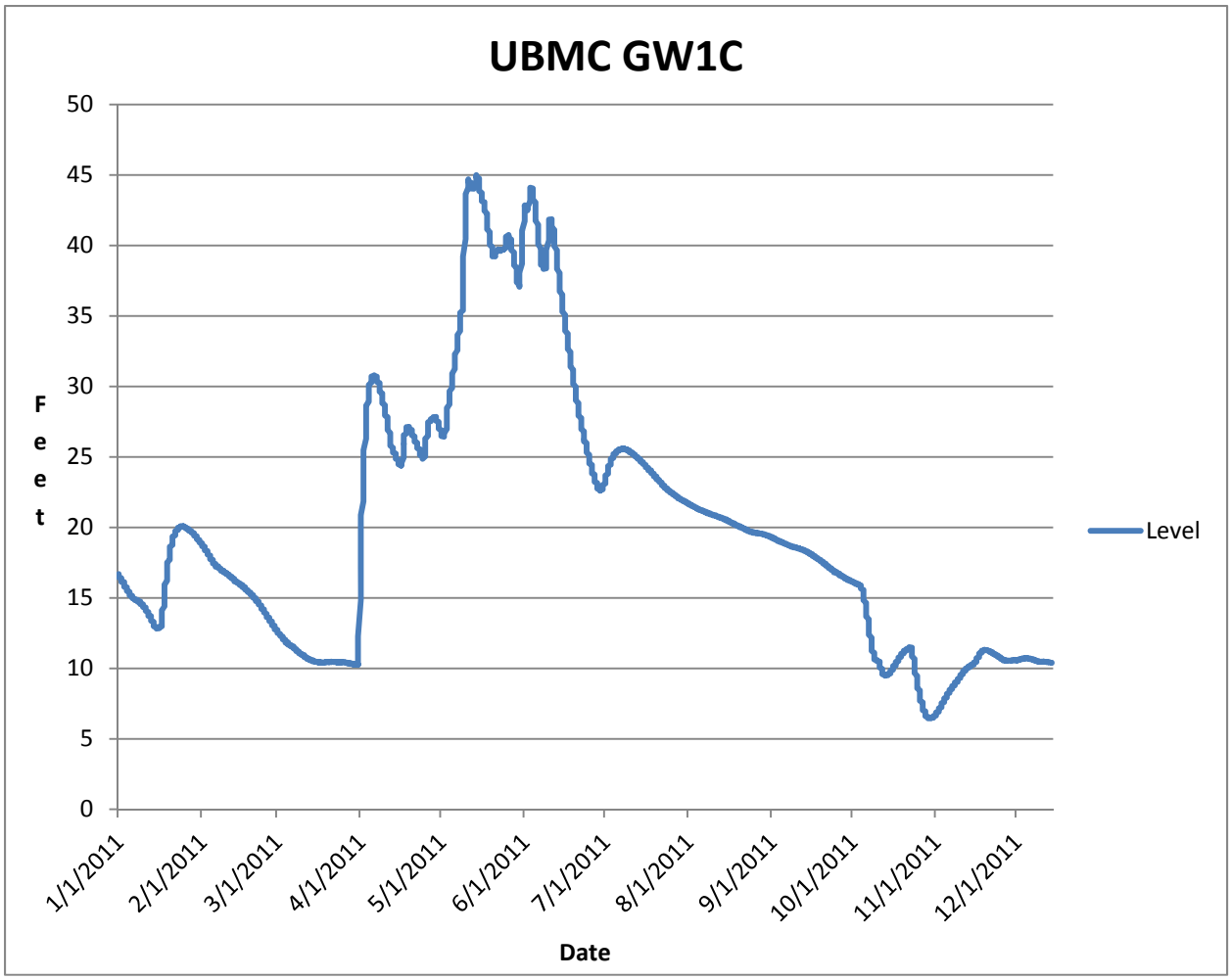
20
15
10
5
0
-5
Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC GW1C
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45
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35
30
25
20
15
10
5
0
Feet
1/1/2011
2/1/2011
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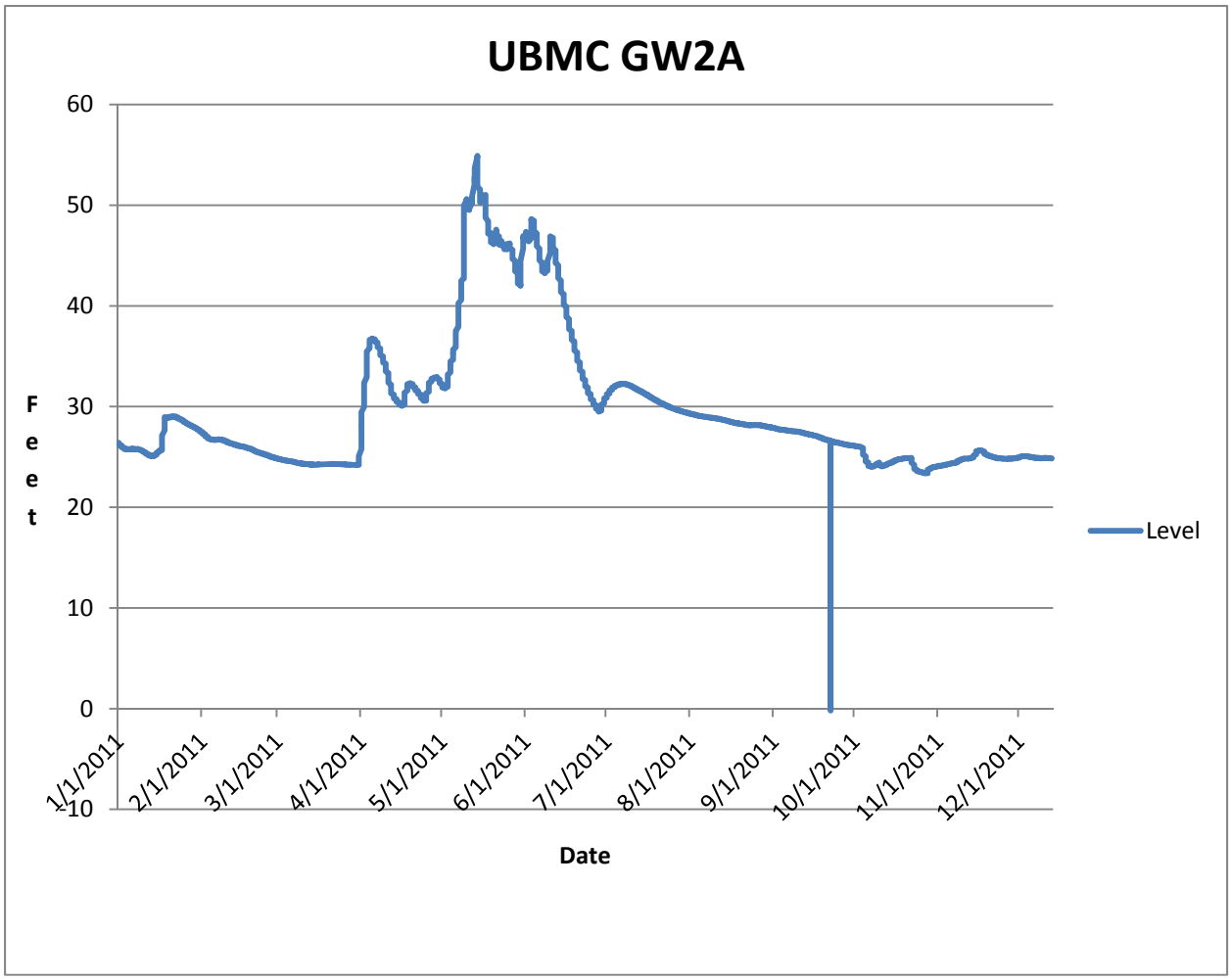
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level


UBMC GW2A
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50
40
30
20
10
0
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Feet
1/1/2011
2/1/2011
3/1/2011
4/1/2011
5/1/2011
6/1/2011
7/1/2011
8/1/2011
9/1/2011
10/1/2011
11/1/2011
12/1/2011
Date
Level

Appendix F

Certifications

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Certificate of Analysis / QC Results

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX 77536
281/479-2569

Packaged Product: 1460
BUFFER REFERENCE pH 4.0/RED

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON FILE	YES		YES
PH OF PRODUCT/SOLUTION	4.008 PH	3.998 - 4.018	4.002
Actual Temp	25.0 DEG C	24.9 - 25.1	25.0
pH Traceable to N.I.S.T. SRM'S	YES NIST PH		YES
APPEARANCE AND COLOR	CLEAR RED LIQUID APPEARANCE		PASS
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		M-1,T-I
PH NIST TRACEABLE TO SRM 189	YES SRM189		YES
PH NIST TRACEABLE TO SRM 185	YES SRM185		YES
PH NIST TRACEABLE TO SRM 187	YES SRM187		YES

Lot # 00908132
Made 09/08/10

RM: 1461 BUFFER REFERENCE pH 4.0/CLEAR
Lot: 0083027

RM: A4247 AMARANTH, RED #2 DYE CI#16185
Lot: 010408

RM: 1460-4LC BUFFER REFERENCE pH 4.0/RED (4LC)
Lot: 0021551

RM: 1460-4LC BUFFER REFERENCE pH 4.0/RED (4LC)
Lot: 0021551

RM: 1460-20L BUFFER REFERENCE pH 4.0/RED (20LC)
Lot: 0061860

RM: 1460-4LC BUFFER REFERENCE pH 4.0/RED (4LC)
Lot: 0021551

RM: 1460-4LC BUFFER REFERENCE pH 4.0/RED (4LC)
Lot: 0112920

Certificate of Analysis / QC Results

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX 77536
281/479-2569

This is to certify that the product listed above has been prepared according to the agreed-upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot numbers is maintained. The lot number and description of each raw material used to prepare this product are listed above. Certificates of Analysis for these individual raw materials are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed upon, all chemicals used in the preparation of this product are Reagent ACS grade.

Sherman Nelson
Quality Manager

Certificate of Analysis / QC Results

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX 77536
281/479-2569

Packaged Product: 6950
CONDUCTIVITY STANDARD 1,000 uMHOS

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON FILE	YES		YES
Actual Conductivity @25øC	1000.0	999.0 - 1001.0	1000.0
Traceable to N.I.S.T. SRM 3191 -	YES		YES
APPEARANCE AND COLOR	CLEAR WATER WHITE LIQUID		PASS
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		T-71,M-47
EXPIRATION DATE	MM/DD/YY MM\DD\YYYY		10/30/11

Lot # 0100808
Made 10/08/10

RM: 9765 WATER DEIONIZED REAGENT GRADE
Lot: DAILY

RM: P3550 POTASSIUM CHLORIDE REAGENT ACS CRYSTAL
Lot: 018112

This is to certify that the product listed above has been prepared according to the agreed-upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot numbers is maintained. The lot number and description of each raw material used to prepare this product are listed above. Certificates of Analysis for these individual raw materials are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed upon, all chemicals used in the preparation of this product are Reagent ACS grade.

Sherman Nelson
Quality Manager

Certificate of Analysis / QC Results

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX 77536
281/479-2569

Packaged Product: 1525
BUFFER REFERENCE pH 10.0/BLUE

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON FILE	YES		YES
PH OF PRODUCT/SOLUTION	10.000 PH	9.990 - 10.010	10.001
Actual Temp	25.0 DEG C	24.9 - 25.1	25.0
N.I.S.T. Traceable to SRM 185	YES		YES
N.I.S.T. TRACEABLE TO SRM 187	YES		YES
APPEARANCE AND COLOR	CLEAR BLUE LIQUID APPEARANCE		PASS
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		T-IV,M-39

Lot # 0122799
Made 12/27/10

RM: 1526 BUFFER REFERENCE pH 10.0/CLEAR
Lot: 0122057

RM: B7113 BROMOTHYMOL BLUE SODIUM SALT
Lot: 820416

RM: 1525-10L BUFFER REFERENCE pH 10.0/BLUE (10LC)
Lot: 0101363

This is to certify that the product listed above has been prepared according to the agreed-upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot numbers is maintained. The lot number and description of each raw material used to prepare this product are listed above. Certificates of Analysis for these individual raw materials are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed upon, all chemicals used in the preparation of this product are Reagent ACS grade.

Sherman Nelson
Quality Manager

Certificate of Analysis / QC Results

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX 77536
281/479-2569

Packaged Product: 7800
REDOX BUFFER +229 mV /APHA 2580B (ZOBELL'S SOLUTION)

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON FILE	YES		YES
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		M-46,M-39,T-GH1
APPEARANCE AND COLOR	CLEAR YELLOW APPEARANCE		PASS

Lot # 1011119
Made 01/11/11

RM: 9765 WATER DEIONIZED REAGENT GRADE
Lot: DAILY

RM: P3550 POTASSIUM CHLORIDE REAGENT ACS CRYSTAL
Lot: 035001

RM: P3810 POTASSIUM FERRICYANIDE ACS CRYSTAL
Lot: 733310

RM: P3843 POTASSIUM FERROCYANIDE REAGENT ACS
Lot: 035605

This is to certify that the product listed above has been prepared according to the agreed-upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot numbers is maintained. The lot number and description of each raw material used to prepare this product are listed above. Certificates of Analysis for these individual raw materials are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed upon, all chemicals used in the preparation of this product are Reagent ACS grade.

Sherman Nelson
Quality Manager

Certificate of Analysis / QC Results

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX 77536
281/479-2569

Packaged Product: 1500
BUFFER REFERENCE pH 7.0/YELLOW

Test	Target/UOM	Range	Result
PH OF PRODUCT/SOLUTION	7.000 PH	6.990 - 7.010	6.993
Actual Temp	25.0 DEG C	24.0 - 26.0	25.0
pH Traceable to N.I.S.T. SRM'S	YES NIST PH		YES
APPEARANCE AND COLOR	CLEAR YELLOW LIQUID APPEARANCE		PASS
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		T-IV,M-39,M-35

Lot # 1011190
Made 01/11/11

RM: 1501 BUFFER REFERENCE pH 7.0/CLEAR
Lot: 1010509

RM: T4954 THYMOL BLUE SODIUM SALT REAGENT ACS
Lot: 123410

RM: 1500-4LC BUFFER REFERENCE pH 7.0/YELLOW (4LC)
Lot: 0111542

This is to certify that the product listed above has been prepared according to the agreed-upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot numbers is maintained. The lot number and description of each raw material used to prepare this product are listed above. Certificates of Analysis for these individual raw materials are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed upon, all chemicals used in the preparation of this product are Reagent ACS grade.

Sherman Nelson
Quality Manager

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

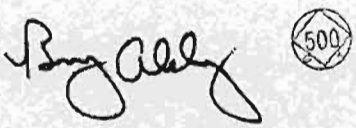
The Quality System of TRS-Environmental is registered by UL DQS Certificate Number 10000112 to the Quality Management System Standard ISO 9001:2008.

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

MDEQ Purge Water Flowchart

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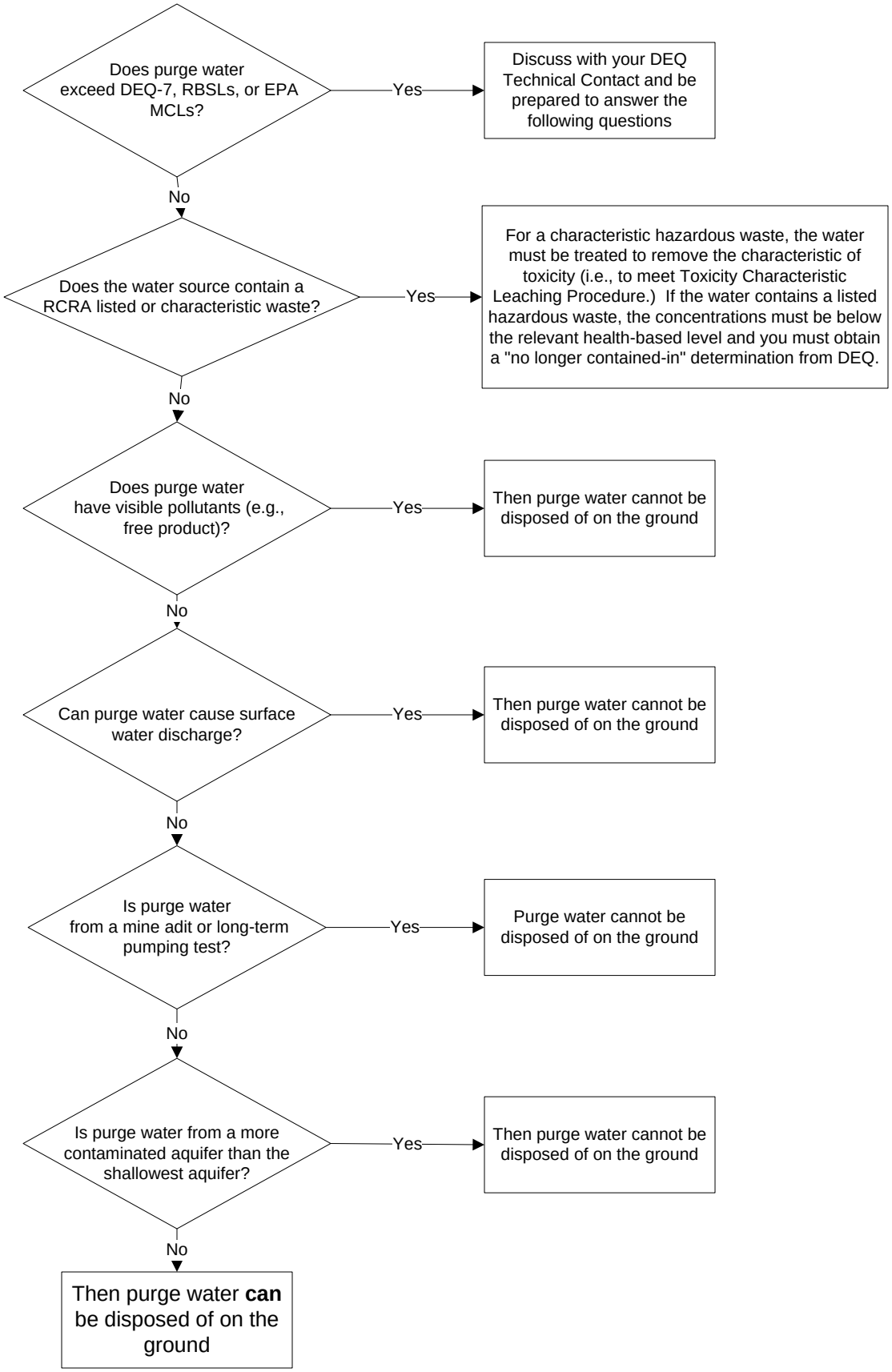
PURGE WATER DISPOSAL FLOWCHART
(Untreated)
2/22/11



*** More detailed requirements can be found at: http://www.deq.mt.gov/LUST/TechGuidDocs/techguid10.pdf**

Appendix H

Electronic Copies

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