

---

---

**MONITORING REPORT FOR 2014**  
**CLARK FORK RIVER OPERABLE UNIT**

---

---

*prepared for*

Montana Department of Environmental Quality  
Remediation Division  
Federal Superfund and Construction Bureau  
P.O. Box 200901  
Helena, MT 59620-0901

December 2015

**RESPEC**

---

---

**MONITORING REPORT FOR 2014**  
**CLARK FORK RIVER OPERABLE UNIT**

---

---

*by*

J. Naughton, J. Dunn, G. Ingman, M. Traxler, and E. Weber  
RESPEC | 1535 Liberty Lane, Suite 110D | Missoula, Montana 59808

N. Cook, P. Saffel, B. Liermann, J. Lindstrom, and T. Selch  
Montana Fish, Wildlife & Parks | 3201 Spurgin Road | Missoula, Montana 59804

W. Bollman, S. Sullivan, J. Bowman, and B. L. Kerans  
Rhithron Associates | 33 Fort Missoula Road | Missoula, Montana 59804

*prepared for*

Montana Department of Environmental Quality | Remediation Division  
Federal Superfund and Construction Bureau  
P.O. Box 200901 | Helena, MT 59620-0901

December 2015

## EXECUTIVE SUMMARY

---

This performance monitoring program evaluates the progress of remedial actions in the Clark Fork River Operable Unit (CFROU) of the Milltown Reservoir/Clark Fork River Superfund sites toward meeting performance goals or identified reference values. Environmental media monitored in 2014 included surface water, instream sediment, geomorphology, vegetation, macroinvertebrates, periphyton, and fish. This report summarizes results of data collected for each of these environmental media and evaluates progress toward attainment of performance goals or reference values as of 2014.

Heavy metals originating from historic mining, milling and smelting processes associated with operations in Butte and Anaconda accumulated in the Clark Fork River streambanks and floodplain over a period of at least 100 years. The primary sources of contamination are tailings and contaminated sediments mixed with soils in the streambanks and floodplains, which erode during high streamflow events and enter the river and other surface waters. In addition to erosion, heavy metals are leached from the contaminated sediments and tailings directly into the groundwater and eventually to surface water. These contaminant transport pathways result in impacts to terrestrial and aquatic life along the Clark Fork River as described in the Record of Decision (ROD) for the site.

The Montana Department of Environmental Quality (MDEQ), as lead agency and in consultation with the U.S. Environmental Protection Agency (USEPA) and the National Park Service, oversees, manages, coordinates, designs, and implements remedial actions for the Clark Fork River site. The MDEQ coordinates with the Natural Resource Damage Program (NRDP) of the Montana Department of Justice for implementation and integration of restoration components to supplement the remedial actions. The MDEQ coordinates with the National Park Service to implement remedial actions on the Grant-Kohrs Ranch.

Data collected in 2014 represents the fifth year of monitoring in the CFROU. Remediation activities in the CFROU in 2014 included active tailings removals and floodplain reconstruction in Phases 5 and 6 and revegetation in Phase 1 of Reach A. Reach A of the CFROU, extending from the Warm Springs Creek and Silver Bow Creek confluence downstream to the Little Blackfoot River confluence, has the largest volume of streamside tailings in the CFROU.

Monitoring under this program was first conducted by MDEQ and RESPEC personnel in the spring of 2010, prior to initiation of any remediation actions within the CFROU. Since 2010, some monitoring sites have been added to the monitoring program in Clark Fork River tributaries. In addition, this monitoring program has been coordinated with long-term monitoring by the U.S. Geological Survey (USGS) to complement data collected by the USGS and minimize data duplication by each program. Monitoring methods and quality assurance protocols guiding collection and analysis of the data described in this report are summarized in the project sampling and analysis plan (SAP) and the project quality assurance project plan (QAPP).

The CFROU monitoring network in 2014 included fourteen sites; six mainstem sites and eight tributary sites. Not all sites were sampled for each environmental medium or for each

analyte of each environmental medium (e.g., some surface water sites were only sampled for mercury and methylmercury rather than the full suite of analytes). Monitoring site locations were generally the same in 2014 as in 2013, although sites changed between 2012 and 2013 to provide a more detailed spatial representation of the Clark Fork River mainstem in the upstream most portion of the CFROU where active remediation is occurring. The sample site on the Little Blackfoot River, a tributary to the Clark Fork River mainstem, was relocated during the second quarter of 2014 to minimize hazards from local traffic. This sample site will be permanently relocated. For surface water and instream sediment, the monitoring program primarily monitored concentrations of metal contaminants of concern (i.e., arsenic, cadmium, copper, lead, and zinc). However, for surface water, additional data was collected including nutrient and common ion concentrations, and other field parameters (e.g., acidity). Surface water samples were collected during each calendar quarter with two additional samples collected during the spring snowmelt runoff period. Sediment samples were collected during the first and third quarters. Macroinvertebrate and periphyton samples were collected during the summer (third quarter). Fisheries data, collected by Montana Fish Wildlife and Parks, included trout population abundance at long-term reference sites and *in situ* mortality of confined fish at selected sites.

Streamflows throughout the upper Clark Fork River watershed were at or slightly above the long-term median for the period-of-record at nearly all sites during monitoring periods during 2014. Higher streamflows presumably contributed to slightly higher surface water contaminant of concern (COC) concentrations in 2014 compared to 2013.

Exceedances of performance goals were rare for all COCs in surface water except arsenic and copper. Of 30 samples collected in the mainstem Clark Fork River in 2014 (from five sites during six sample periods), no samples (0%) had zinc concentrations exceeding the performance goal, one sample (3%) had cadmium concentrations exceeding the performance goal, and four (13%) had lead concentrations exceeding the performance goal. However, arsenic commonly exceeded performance goals, particularly in Reach A. Of 24 samples collected in the Clark Fork River in Reach A (four sites during six sample periods), 96% exceeded the dissolved arsenic and 46% exceeded the total recoverable arsenic performance goals. Silver Bow Creek and the Mill-Willow Creek appear to be sources of arsenic to the Clark Fork River as 94% (17 of 18) of the samples from those sites exceeded the dissolved arsenic and 78% (14 of 18) exceeded the total recoverable performance goals in those sites. Total recoverable copper concentration exceeded the state of Montana chronic aquatic life standard (chronic ALS) in the mainstem Clark Fork River sites in 95% of the samples collected in the first and second quarters, but only at Deer Lodge in the third and fourth quarters. These results support the conclusion that copper contamination in the upper Clark Fork River is strongly related to streamflow and contaminant loading occurs primarily in Reach A.

The highest instream sediment COC concentrations in the mainstem of the Clark Fork River were typically observed in the uppermost sample sites in Reach A and the lowest concentrations were typically observed at the downstream-most site at Turah in 2014. Concentrations of arsenic, copper, and zinc exceeded the “probable effect concentration” (PEC; the higher of the two reference values for the CFROU) at all of the Clark Fork River mainstem monitoring



stations during both sample periods in 2014. Among all sites in the CFROU, arsenic most commonly exceeded the PEC (88%) followed by copper (83%), lead (79%), zinc (75%), and cadmium (50%).

Geomorphology data was collected during the third quarter of 2014 in Phase 1 of Reach A in the CFROU. All monitoring metrics for channel dimension (i.e., cross-sectional area, bankfull width, mean bankfull depth, and width to depth ratio), pool density, and residual pool depth were within the specified target ranges. The secondary channel stability performance target was also met because the secondary channel did not carry more than 10% of the streamflow of the main channel when streamflows reached the design bankfull level. Performance targets that were not met included floodplain connectivity and floodplain stability. Failure to meet the performance targets for channel connectivity and floodplain stability was the result of an over-connected river channel and floodplain, which results in increased avulsion risk, rather than the disconnected pre-project channel and floodplain. Performance targets for channel slope, sinuosity, bank erosion rate, and channel migration rate were not scheduled for monitoring in Year 1 (2014) but will be evaluated in Year 5 (2018).

Vegetation monitoring data was collected during the third quarter of 2014 in Phase 1 of Reach A in the CFROU. The only vegetation monitoring metric applicable to Year 1 monitoring was for overall floodplain plant survival which was 87.7%, exceeding the performance target for Year 1 (80%). However, survival was 17.2% lower in the floodplain riparian shrub cover type (primarily consisting of swales) compared to the other floodplain cover types and survival of planted birch trees (*Betula occidentalis*) was particularly low. Low survival in swales may have been caused by the relatively deep swale excavation in combination with prolonged flood inundation which resulted in drowning. Other monitoring metrics with Year 1 performance targets (floodplain total native cover and noxious weed cover) will be monitored in 2015. Some floodplain plant survival monitoring plots will be monitored for plant survival in 2015 in planting units that had not yet been planted at the time of monitoring in 2014.

Overall biotic integrity of the macroinvertebrate community was either “none” or “slight” at all Clark Fork River tributary and mainstem sites; overall biointegrity scores throughout the CFROU ranged from 84.1 to 90.9. For metals sensitivity, index classifications in the mainstem were “none” at all sites except at Gemback Road which was “slight”; metals sensitivity scores in the mainstem ranged from 75.0 to 87.5. Metals sensitivity index classifications in the tributary sites was “moderate” at Racetrack Creek and Warm Springs Creek, “slight” in Silver Bow Creek and the Little Blackfoot River, and “none” in Mill-Willow Creek and Lost Creek; metals sensitivity scores in the tributaries ranged from 56.9 to 88.9. Nutrient sensitivity index classifications were “none” at all CFROU sites, with scores ranging from 81.9 to 100.0.

Periphyton monitoring results revealed that many of the non-diatom algae observed in the CFROU were tolerant to elevated nutrients, acidity, metals, or combinations of those conditions. However, diatom algae dominated the periphyton assemblage at all CFROU sites monitored in 2014 and periphyton samples were scored according to several bioassessment indices. Impairment from sediment was more likely than not (i.e.,  $\geq 51\%$ ) in three tributary sites (Mill-Willow Creek, 93%; the Mill-Willow Bypass, 77%; and Silver Bow Creek, 81%) and four mainstem sites (near Galen, 88%; at Galen Road, 57%; at Gemback Road, 79%; and at Deer

Lodge, 93%). Impairment from metals was more likely than not (i.e.,  $\geq 51\%$ ) in one tributary site (Silver Bow Creek, 74%) and four mainstem sites (near Galen, 74%; at Galen Road, 88%; at Gemback Road, 76%; and at Turah, 94%).

Based on fish population monitoring in the Clark Fork River, brown trout continue to dominate the trout species assemblage in the upper Clark Fork River. This is presumably due, at least in part, to their relatively high tolerance to metals compared to other salmonids. Brown trout populations appear to be moderately increasing since 2011 at monitoring sites in the mid- and upper-reaches of the Clark Fork River. Trout abundance in the Bearmouth reach remained low in 2014, as in prior years, relative to other reaches of the upper Clark Fork River. It is possible that above average discharge in 2011 increased the quality and quantity of brown trout spawning and rearing habitat in the upper Clark Fork River and tributaries, resulting in the modest increase in trout abundance in 2014.

Results of survival monitoring of caged juvenile brown trout indicated that, as in previous survival studies in the upper Clark Fork River, mortality rates varied among sites and among months. Most of the mortality in 2014 in the caged fish occurred in April, July, and August. This bimodal pattern was consistent with results from caged fish studies in 2012 and 2013. Mortality tended to be highest during spring runoff and on the descending limb of the hydrograph as water temperatures increased. Brown trout confined in the cages accumulated both copper and zinc in their tissues at both mainstem Clark Fork River and tributary sites. Tissue burdens of fish immediately after release from the hatchery were low compared to fish sampled from cages in the CFROU. Fish from cages in the mainstem had significantly higher metals burdens compared to fish from tributaries, but the difference was less pronounced for zinc.

## TABLE OF CONTENTS

---

<b>1. 0 INTRODUCTION.....</b>	<b>1</b>
<b>2. 0 SURFACE WATER.....</b>	<b>4</b>
2.1 INTRODUCTION .....	4
2.2 METHODS.....	5
2.2.1 Monitoring Locations .....	5
2.2.1.1 Clark Fork River Mainstem.....	6
2.2.1.2 Tributaries.....	6
2.2.2 Monitoring Schedule .....	9
2.2.3 Monitoring Parameters.....	10
2.2.4 Sample Collection and Analysis .....	10
2.2.5 Data Analysis .....	11
2.2.6 Data Validation .....	12
2.3 RESULTS .....	12
2.3.1 Streamflows .....	12
2.3.2 Field Parameter .....	15
2.3.2.1 Water Temperature .....	15
2.3.2.2 Acidity.....	17
2.3.2.3 Conductivity.....	18
2.3.2.4 Dissolved Oxygen.....	20
2.3.2.5 Turbidity.....	21
2.3.3 Total Suspended Sediment.....	23
2.3.4 Common Ions.....	25
2.3.4.1 Hardness .....	25
2.3.4.2 Alkalinity and Bicarbonate.....	26
2.3.4.3 Sulfate.....	29
2.3.5 Nutrients.....	30
2.3.5.1 Total Nitrogen.....	30
2.3.5.2 Nitrate Plus Nitrite Nitrogen .....	33
2.3.5.3 Total Ammonia .....	35
2.3.5.4 Total Phosphorus.....	35
2.3.6 Contaminants of Concern .....	38
2.3.6.1 Arsenic.....	38
2.3.6.2 Cadmium .....	51
2.3.6.3 Copper.....	61
2.3.6.4 Lead .....	71

2.3.6.5	Zinc .....	81
2.3.7	Other Metals.....	91
2.3.7.1	Mercury .....	91
2.3.7.2	Methylmercury.....	95
2.3.8	Data Validation .....	96
2.4	DISCUSSION.....	97
2.4.1	Streamflows .....	97
2.4.2	Field Parameters.....	97
2.4.2.1	Water Temperature .....	97
2.4.2.2	Acidity.....	98
2.4.2.3	Conductivity .....	98
2.4.2.4	Dissolved Oxygen.....	99
2.4.2.5	Turbidity.....	99
2.4.3	Total Suspended Sediment.....	100
2.4.4	Common Ions .....	100
2.4.5	Nutrients.....	100
2.4.6	Contaminants of Concern .....	101
2.4.7	Other Metals.....	102
2.4.8	Data Validation .....	103
<b>3. 0</b>	<b>SEDIMENT .....</b>	<b>104</b>
3.1	INTRODUCTION .....	104
3.2	METHODS.....	104
3.2.1	Monitoring Locations .....	104
3.2.2	Monitoring Schedule .....	107
3.2.3	Monitoring Parameters.....	107
3.2.4	Sample Collection and Analysis.....	107
3.2.5	Data Analysis .....	108
3.2.6	Data Validation .....	108
3.3	RESULTS .....	109
3.3.1	Sample Size Fraction .....	109
3.3.2	Contaminants of Concern .....	110
3.3.2.1	Arsenic.....	110
3.3.2.2	Cadmium .....	114
3.3.2.3	Copper.....	118
3.3.2.4	Lead .....	122
3.3.2.5	Zinc .....	126
3.3.3	Data Validation .....	129
3.4	DISCUSSION.....	129

3.4.1	Sample Size Fraction .....	129
3.4.2	Contaminants of Concern .....	130
3.4.3	Data Validation .....	130
<b>4. 0</b>	<b>GEOMORPHOLOGY .....</b>	<b>131</b>
4.1	INTRODUCTION .....	131
4.2	METHODS.....	132
4.2.1	Monitoring Locations .....	132
4.2.2	Monitoring Schedule .....	132
4.2.3	Monitoring Parameters.....	132
4.2.4	Sample Collection and Analysis .....	133
4.2.4.1	Channel Cross-Sections.....	133
4.2.4.2	Channel Slope and Sinuosity .....	134
4.2.4.3	Pool Density .....	134
4.2.4.4	Residual Pool Depth .....	134
4.2.4.5	Streambank Erosion and Channel Migration Rate .....	134
4.2.4.6	Floodplain Connectivity .....	134
4.2.4.7	Floodplain Stability .....	135
4.2.4.8	Secondary Channel Stability .....	135
4.2.5	Data Analysis .....	135
4.3	RESULTS .....	135
4.3.1	Channel Cross-Sections .....	135
4.3.2	Slope and Sinuosity.....	138
4.3.3	Pool Density and Residual Pool Depth .....	138
4.3.4	Bank Erosion and Channel Migration Rate.....	142
4.3.5	Floodplain Connectivity.....	144
4.3.6	Floodplain Stability.....	148
4.3.7	Secondary Channel Stability.....	154
4.4	DISCUSSION.....	158
<b>5. 0</b>	<b>VEGETATION .....</b>	<b>159</b>
5.1	INTRODUCTION .....	159
5.2	METHODS.....	159
5.2.1	Monitoring Locations .....	160
5.2.1.1	Streambank Monitoring.....	160
5.2.1.2	Floodplain Monitoring.....	165
5.2.2	Monitoring Schedule .....	165
5.2.3	Monitoring Parameters.....	166
5.2.3.1	Performance Targets .....	166
5.2.3.2	Other Factors .....	166

5.2.4	Sample Collection and Analysis .....	167
5.2.4.1	Streambank Monitoring .....	167
5.2.4.2	Floodplain Monitoring .....	167
5.2.5	Data Analysis .....	168
5.3	RESULTS .....	168
5.3.1	Streambank Monitoring .....	168
5.3.2	Floodplain Monitoring .....	176
5.3.3	Noxious Weeds.....	186
5.3.4	Browse Intensity .....	186
5.4	DISCUSSION.....	188
<b>6.0</b>	<b>PERIPHYTON.....</b>	<b>190</b>
6.1	INTRODUCTION .....	190
6.2	METHODS.....	190
6.2.1	Sampling .....	190
6.2.2	Laboratory Analysis.....	191
6.2.2.1	Non-Diatom Algae .....	191
6.2.2.2	Diatom Algae.....	192
6.2.3	Data Analysis .....	192
6.2.3.1	Non-Diatom Algae .....	192
6.2.3.2	Diatom Bioassessment Indices .....	193
6.2.3.3	Ecological Interpretations .....	194
6.3	RESULTS .....	195
6.3.1	Non-Diatom Algae.....	195
6.3.2	Diatom Bioassessment Indices.....	197
6.3.2.1	Diatom Increaser Taxa.....	197
6.3.2.2	Sediment Increaser Taxa .....	197
6.3.2.3	Metals Increaser Taxa.....	197
6.3.2.4	Nutrient Increaser Taxa .....	198
6.3.2.5	Diatom Association Metrics for Montana Mountain Streams.....	199
6.3.2.6	Additional Diatom Association Metrics .....	202
6.3.3	Ecological Interpretations of Periphyton Assemblages.....	204
6.3.3.1	Non-Diatom Algae .....	204
6.3.3.2	Diatom Algae.....	206
6.3.3.3	Site Specific Narratives.....	207
<b>7.0</b>	<b>MACROINVERTEBRATES .....</b>	<b>215</b>
7.1	INTRODUCTION .....	215
7.2	METHODS.....	216
7.2.1	Sampling .....	216

7.2.2	Laboratory Analysis.....	216
7.2.3	Quality Assurance Systems.....	217
7.2.4	Data Analysis .....	217
7.2.5	Ecological Interpretations: Approach .....	218
7.3	RESULTS .....	219
7.3.1	Bioassessment .....	219
7.3.1.1	Overall Biointegrity Index .....	220
7.3.1.2	Metals Subset.....	220
7.3.1.3	Organic and Nutrient Subset.....	222
7.3.2	Ecological Interpretation of Aquatic Invertebrate Assemblages .....	224
7.3.2.1	Mill-Willow Creek at Frontage Road (MCWC-MWB).....	224
7.3.2.2	Warm Springs Creek near mouth (WSC-SBC).....	224
7.3.2.3	Silver Bow Creek at Warm Springs (SS-25) .....	225
7.3.2.4	Clark Fork near Galen (CFR-03A) .....	225
7.3.2.5	Clark Fork at Galen Road (CFR-07D).....	226
7.3.2.6	Clark Fork at Gemback Road (CFR-11F) .....	226
7.3.2.7	Clark Fork at Turah (CFR-116A).....	227
7.3.2.8	Lost Creek at Frontage Road (LC-7.5) .....	227
7.3.2.9	Racetrack Creek at Frontage Road (RTC-1.5).....	228
7.3.2.10	Little Blackfoot River at Beck Hill Road (LBR-CFR) .....	228
7.4	CONCLUSIONS.....	229
<b>8.0</b>	<b>FISH .....</b>	<b>231</b>
8.1	INTRODUCTION .....	231
8.1.1	Objectives.....	232
8.2	METHODS.....	232
8.2.1	Population Monitoring .....	232
8.2.2	Cage Construction.....	233
8.2.3	Study Sites.....	234
8.2.4	Cage Deployment .....	235
8.2.5	Mortality Monitoring .....	237
8.2.6	Growth and Condition.....	238
8.2.7	Tissue Metals Burdens .....	239
8.2.8	Water Contaminants.....	240
8.2.9	Discharge and Water Temperature .....	240
8.2.10	Water Quality .....	241
8.3	RESULTS .....	241
8.3.1	Trout Population Monitoring .....	241
8.3.2	Cage Fish Mortality, Discharge, and Water Temperature .....	250

8.3.2.1 Pond 2 .....	251
8.3.2.2 Silver Bow .....	251
8.3.2.3 Warm Springs .....	251
8.3.2.4 Perkins Lane .....	252
8.3.2.5 Galen.....	252
8.3.2.6 Racetrack.....	252
8.3.2.7 Deer Lodge .....	252
8.3.2.8 Upstream of the Little Blackfoot River.....	253
8.3.2.9 Lower Little Blackfoot River (Tributary).....	253
8.3.2.10 Flint Creek (Tributary).....	253
8.3.2.11 Bearmouth .....	253
8.3.2.12 Clinton Spring (Handling Control) .....	253
8.3.3 Growth and Condition.....	261
8.3.4 Tissue Metals Burdens .....	265
8.3.5 Comparisons .....	273
8.3.5.1 Tributary vs. Mainstem.....	273
8.3.5.2 Upstream Construction versus Downstream Construction .....	274
8.3.5.3 Annual Comparisons .....	274
8.3.6 Water Contaminants.....	282
8.3.7 Water Quality .....	289
8.3.7.1 pH.....	289
8.3.7.2 Specific Conductivity .....	289
8.3.7.3 Luminescent Dissolved Oxygen.....	289
8.3.7.4 Total Ammonia .....	289
8.4 DISCUSSION.....	292
8.4.1 Trout Population Monitoring .....	292
8.4.2 Survival.....	292
8.4.3 Tissue Burdens.....	293
8.4.4 Water Contaminants.....	294
8.4.5 Conclusion.....	295
8.5 ACKNOWLEDGEMENTS .....	296
<b>9.0 REFERENCES .....</b>	<b>297</b>



## LIST OF APPENDICES

---

Appendix A	Quality Assurance and Quality Control Review and Summary for Surface Water and Instream Sediment
Appendix B	Analytical Laboratory Results
Appendix C	Surface Water Data
Appendix D	Instream Sediment Data
Appendix E	Diatom Association Metrics
Appendix F	Periphyton Data: Non-diatom Algae
Appendix G	Periphyton Data: Diatom Algae
Appendix H	Macroinvertebrate Data
Appendix I	Macroinvertebrate Bioindex Scores
Appendix J	Macroinvertebrate Quality Assurance and Quality Control Procedures
Appendix K	Published Electrofishing Data from Lindstrom [2011]
Appendix L	Combined Results of U.S. Geological Survey and Montana Department of Environmental Quality Surface Water Monitoring for Contaminants of Concern in the Clark Fork River Operable Unit, 2014

## LIST OF TABLES

---

TABLE	PAGE
Table 2-1. Remediation performance goals for surface water in the Clark Fork River Operable Unit [USEPA, 2004].	5
Table 2-2. Surface water sampling locations in the Clark Fork River Operable Unit, 2014. Streamflows were measured at all sites which did not have a co-located USGS streamflow gauge.	9
Table 2-3. Sampling parameters and analytes for surface water monitoring of the Clark Fork River Operable Unit, 2014.	10
Table 2-4. Analytes and methods for surface water samples in the Clark Fork River Operable Unit, 2014. All samples were analyzed by Energy Laboratories in Helena, Montana.	11
Table 2-5. Total nitrogen concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	31
Table 2-6. Nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	33
Table 2-7. Total ammonia concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	35
Table 2-8. Total phosphorus concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	36
Table 2-9. Dissolved arsenic concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	39
Table 2-10. Total recoverable arsenic concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	40
Table 2-11. Total recoverable cadmium concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	52
Table 2-12. Total recoverable copper concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	62
Table 2-13. Total recoverable lead concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	72
Table 2-14. Total recoverable zinc concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	82
Table 2-15. Total mercury concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.	91
Table 2-16. Methylmercury concentrations (ng/L) at Clark Fork River Operable Unit monitoring stations, 2014.	95
Table 3-1. Reference values for contaminant of concern (COC) concentrations (expressed as dry weight concentrations [DW]) in instream sediments within the Clark Fork	

River Operable Unit. The threshold effect concentration (TEC) and probable effect concentration (PEC) were described in MacDonald et al. [2000].	104
Table 3-2. Instream sediment sampling locations in the Clark Fork River Operable Unit, 2014.	105
Table 3-3. Sediment analysis methods for determination of metals concentrations in the Clark Fork River Operable Unit, 2014.	108
Table 3-4. Proportion of each sample collected in the Clark Fork River Operable Unit composed of fine fraction (<0.065 mm) sediment particles, 2014.	109
Table 3-5. Total arsenic concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.	113
Table 3-6. Total cadmium concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.	117
Table 3-7. Total copper concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.	121
Table 3-8. Total lead concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.	125
Table 3-9. Total zinc concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.	129
Table 4-1. Performance targets for geomorphic monitoring metrics in Phase 1 of the Clark Fork River Operable Unit following remediation [Source: Sacry et al., 2012].	133
Table 4-2. Cross-section monitoring results for geomorphic monitoring in Phase 1 of the Clark Fork River Operable Unit, 2014.	136
Table 4-3. Residual pool depths in Phase 1 of the Clark Fork River Operable Unit, 2014.	140
Table 5-1. Performance targets for vegetation monitoring metrics in Phase 1 of the Clark Fork River Operable Unit following remediation [Source: Sacry et al., 2012].	166
Table 5-2. Cover (%) and height (in) of woody vegetation in streambank cover monitoring plots in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014.	172
Table 5-3. Occurrence of plant species in streambank cover monitoring plots ( $n = 147$ ) in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. Noxious species classifications from MDA [2015].	176
Table 5-4. Survival of planted shrubs and trees by planting unit in Phase 1, Reach A of the Clark Fork Operable Unit, 2014.	180
Table 5-5. Survival of planted shrubs and trees by cover type and species in Phase 1, Reach A of the Clark Fork Operable Unit, 2014.	181
Table 5-6. Occurrence of plant species in floodplain survival monitoring plots in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. Noxious species classifications from MDA [2015].	183
Table 5-7. Browse intensity and plant survival in floodplain survival monitoring plots in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014.	187

Table 5-8. Browse intensity by species in floodplain plant survival monitoring plots in Phase 1 of Reach A in the Clark Fork River Operable Unit, 2014. ....	187
Table 6-1. Periphyton sampling locations in the Clark Fork River Operable Unit, 2014....	191
Table 6-2. Number of major non-diatom algae genera, by algal division, present at Clark Fork River Operable Unit monitoring sites, 2014.....	196
Table 6-3. Diatom association metrics and biological integrity and impairment ratings for Clark Fork River Operable Unit monitoring sites, 2014 (after Bahls [1993]).....	201
Table 7-1. Macroinvertebrate sampling sites in the Clark Fork River basin, August 7-8, 2014.....	216
Table 7-2. Mean macroinvertebrate bioassessment scores and impairment classifications: McGuire's indices for general biointegrity, nutrient/organic impairment, and metals impairment. Scores are mean values over four replicate samples, and are expressed as the percent of maximum score. Clark Fork River basin, August 7-8, 2014. ....	223
Table 7-3. Clark Fork River basin sites and probable stressors as suggested by the composition of macroinvertebrate assemblages. Clark Fork River basin, August 7-8, 2014.....	230
Table 8-1. Electrofishing data collected on the Upper Clark Fork River at the pH Shack Section from 2011-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout.....	244
Table 8-2. Electrofishing data collected on the Upper Clark Fork River at the Below Sager Lane Section from 2011-2014. Population estimates and capture efficiencies are for Brown Trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval.....	245
Table 8-3. Electrofishing data collected on the Upper Clark Fork River at the Williams-Tavanner Section from 2011-2014. Population estimates and capture efficiencies are for Brown Trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval.....	246
Table 8-4. Electrofishing data collected on the Upper Clark Fork River at the Phosphate Section from 2011-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout.....	247
Table 8-5. Electrofishing data collected on the Upper Clark Fork River at the Flint Creek Mouth Section from 2009-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout. Brook x Bull represents a phenotypic hybrid between an eastern Brook and Bull trout.....	248
Table 8-6. Electrofishing data collected on the Upper Clark Fork River at the Bearmouth Section from 2009-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the	

population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout.....	249
Table 8-7. Electrofishing data collected on the Upper Clark Fork River at the Jens CPUE section. ....	250
Table 8-8. Electrofishing data collected on the Upper Clark Fork River at the Above Deer Lodge CPUE section. ....	250
Table 8-9. Survival, net number of fish added during the survival study period (April 14 – July 31) and fish remaining in cages one and two on July 31. Results of $\chi^2$ tests (df = 1 for all tests) between survival at mainstem treatment sites and mean survival at two tributary control sites are also presented. Statistically significant <i>p</i> -values are in bold.....	260
Table 8-10. Bonferroni-corrected <i>p</i> - values from pairwise <i>t</i> -tests of whole body copper tissue burdens between 12 sites in the Upper Clark Fork River Drainage. Values <0.05 are in bold. ....	268
Table 8-11. Bonferroni-corrected <i>p</i> -values from pairwise <i>t</i> -tests of whole body zinc tissue burdens between 12 sites in the Upper Clark Fork River Drainage. Values <0.05 are in bold.....	269
Table 8-12. Mean annual survival at in caged fish studies conducted in the Upper Clark Fork Drainage, 2011-2014.....	282

## LIST OF FIGURES

---

FIGURE	PAGE
Figure 1-1. Remedial reaches of the Clark Fork River Operable Unit [Source: USEPA, 2004]. .....	2
Figure 1-2. Remedial phases of Reach A in the Clark Fork River Operable Unit [Source: Bartkowiak et al., 2011]. .....	3
Figure 2-1. Surface water sampling locations in the Clark Fork River Operable Unit, 2014.....	8
Figure 2-2. Hydrograph for Silver Bow Creek at Warm Springs, 2014.....	13
Figure 2-3. Hydrograph for Clark Fork River near Galen, 2014. ....	13
Figure 2-4. Hydrograph for Clark Fork River at Deer Lodge, 2014. ....	14
Figure 2-5. Hydrograph for Clark Fork River near Drummond, 2014. ....	14
Figure 2-6. Hydrograph for Clark Fork River at Turah Bridge, 2014.....	15
Figure 2-7. Surface water temperatures at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	16
Figure 2-8. Surface water temperatures at tributary sampling sites in the Clark Fork River Operable Unit, 2014. ....	16
Figure 2-9. Surface water pH at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	17
Figure 2-10. Surface water pH at tributary sampling sites in the Clark Fork River Operable Unit, 2014. ....	18
Figure 2-11. Conductivity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.....	19
Figure 2-12. Conductivity at tributary sampling sites in the Clark Fork River Operable Unit, 2014.....	19
Figure 2-13. Dissolved oxygen concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	20
Figure 2-14. Dissolved oxygen concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. ....	21
Figure 2-15. Turbidity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.....	22
Figure 2-16. Turbidity at tributary sampling sites in the Clark Fork River Operable Unit, 2014.....	22
Figure 2-17. Total suspended sediment concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	24

Figure 2-18. Total suspended sediment concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate values below the analytical reporting limit. ....	24
Figure 2-19. Water hardness at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	25
Figure 2-20. Water hardness at tributary sampling sites in the Clark Fork River Operable Unit, 2014. ....	26
Figure 2-21. Alkalinity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	27
Figure 2-22. Alkalinity at tributary sampling sites in the Clark Fork River Operable Unit, 2014. ....	27
Figure 2-23. Bicarbonate alkalinity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	28
Figure 2-24. Bicarbonate alkalinity at tributary sampling sites in the Clark Fork River Operable Unit, 2014. ....	28
Figure 2-25. Sulfate concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. ....	29
Figure 2-26. Sulfate concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. ....	30
Figure 2-27. Total nitrogen concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b]. ....	32
Figure 2-28. Total nitrogen concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b]. ....	32
Figure 2-29. Nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2014. ....	34
Figure 2-30. Nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2014. ....	34
Figure 2-31. Total phosphorus concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b]. ....	37
Figure 2-32. Total phosphorus concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b]. ....	37
Figure 2-33. Total recoverable and dissolved arsenic (As) concentrations at mainstem sampling sites in the Clark Fork River Operable Unit (CFROU), 2014. Applicable water quality standards are the acute and chronic aquatic life standards (ALS) [MDEQ, 2012b] and the arsenic performance goals from the CFROU Record of Decision (ROD) [USEPA, 2004]. The ROD performance goals are 0.010 mg/L for dissolved and 0.018 mg/L for total recoverable arsenic [USEPA, 2004]. ....	41
Figure 2-34. Total recoverable (TR) and dissolved (Diss) arsenic concentrations at Clark Fork River tributary sites, 2014. Applicable water quality standards are the acute	

and chronic aquatic life standards (ALS) [MDEQ, 2012b] and the arsenic performance goals from the CFROU Record of Decision (ROD) [USEPA, 2004]. The ROD performance goals are 0.010 mg/L for dissolved and 0.018 mg/L for total recoverable arsenic [USEPA, 2004].....	42
Figure 2-35. Total recoverable arsenic (As) compliance ratios for the Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004]. .....	43
Figure 2-36. Total recoverable arsenic (As) compliance ratios for the Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for the dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004]. .....	44
Figure 2-37. Total recoverable arsenic (As) compliance ratios for the Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for the dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004]. .....	45
Figure 2-38. Total recoverable arsenic (As) compliance ratios for the Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for the dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004]. .....	46
Figure 2-39. Dissolved arsenic compliance ratios for the Clark Fork River mainstem sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for dissolved arsenic (Diss As) concentration [USEPA, 2004]. .....	47
Figure 2-40. Total recoverable arsenic compliance ratios for the Clark Fork River mainstem sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for total recoverable arsenic (TR As) concentration [USEPA, 2004]. .....	48
Figure 2-41. Dissolved arsenic compliance ratios for the Clark Fork River tributary sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for dissolved arsenic (Diss As) concentration [USEPA, 2004]. .....	49
Figure 2-42. Total recoverable arsenic compliance ratios for the Clark Fork River tributary sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for total recoverable arsenic (TR As) concentration [USEPA, 2004]. .....	50
Figure 2-43. Total recoverable (TR) and dissolved (Diss) cadmium concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b]. .....	53
Figure 2-44. Total recoverable (TR) and dissolved (Diss) cadmium concentrations at Clark Fork River tributary sampling sites, 2014. No bars indicate concentrations	



below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].....	54
Figure 2-45. Total recoverable cadmium (Cd) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	55
Figure 2-46. Total recoverable cadmium (Cd) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	56
Figure 2-47. Total recoverable cadmium (Cd) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	57
Figure 2-48. Total recoverable cadmium (Cd) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	58
Figure 2-49. Total recoverable (TR) cadmium (Cd) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].....	59
Figure 2-50. Total recoverable (TR) cadmium (Cd) compliance ratio in Clark Fork River (CFR) tributary sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b]. .....	60
Figure 2-51. Total recoverable (TR) and dissolved (Diss) copper concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].....	63
Figure 2-52. Total recoverable (TR) and dissolved (Diss) copper concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].....	64
Figure 2-53. Total recoverable copper (Cu) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	65
Figure 2-54. Total recoverable copper (Cu) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	66
Figure 2-55. Total recoverable copper (Cu) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	67
Figure 2-56. Total recoverable copper (Cu) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].....	68
Figure 2-57. Total recoverable (TR) copper (Cu) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].....	69

Figure 2-58. Total recoverable (TR) copper (Cu) compliance ratio in Clark Fork River (CFR) tributary sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b]. .....	70
Figure 2-59. Total recoverable (total recoverable) and dissolved (Diss) lead concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b]. ....	73
Figure 2-60. Total recoverable (TR) and dissolved (Diss) lead concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b]. .....	74
Figure 2-61. Total recoverable lead (Pb) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b]. .....	75
Figure 2-62. Total recoverable lead (Pb) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b]. .....	76
Figure 2-63. Total recoverable lead (Pb) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b]. .....	77
Figure 2-64. Total recoverable lead (Pb) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b]. .....	78
Figure 2-65. Total recoverable (TR) lead (Pb) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b]. .....	79
Figure 2-66. Total recoverable (TR) lead (Pb) compliance ratio in Clark Fork River (CFR) tributary sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b]. .....	80
Figure 2-67. Total recoverable (TR) and dissolved (Diss) zinc concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b]. .....	83
Figure 2-68. Total recoverable (TR) and dissolved (Diss) zinc concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b]. .....	84
Figure 2-69. Total recoverable zinc (Zn) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b]. .....	85

Figure 2-70. Total recoverable zinc (Zn) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b]. .....	86
Figure 2-71. Total recoverable zinc (Zn) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b]. .....	87
Figure 2-72. Total recoverable zinc (Zn) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b]. .....	88
Figure 2-73. Total recoverable (TR) zinc (Zn) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic and acute aquatic life standard (ALS) [MDEQ, 2012b].....	89
Figure 2-74. Total recoverable (TR) zinc (Zn) compliance ratio in Clark Fork River (CFR) tributary sites, 2013. Compliance ratio is based on the chronic and acute aquatic life standard (ALS) [MDEQ, 2012b].....	90
Figure 2-75. Total mercury (Hg) concentrations at sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b]. .....	92
Figure 2-76. Total mercury (Hg) compliance ratios for Flint Creek near mouth site, 2012-2014. Compliance ratios are based on the chronic aquatic life standard and the human health surface water standard, or the drinking water standard (DW) [MDEQ, 2012b]. .....	93
Figure 2-77. Total mercury (Hg) compliance ratios for Clark Fork River near Drummond site, 2012-2014. Compliance ratios are based on the chronic aquatic life standard and the human health surface water standard, or the drinking water standard (DW) [MDEQ, 2012b]. .....	94
Figure 2-78. Methylmercury concentrations at sampling sites in the Clark Fork River Operable Unit, 2014. ....	96
Figure 3-1. Instream sediment sampling locations in the Clark Fork River Operable Unit, 2014.....	106
Figure 3-2. Total arsenic concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].....	111
Figure 3-3. Total arsenic concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].....	112
Figure 3-4. Total cadmium concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].....	115
Figure 3-5. Total cadmium concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].....	116

Figure 3-6. Total copper concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].	119
Figure 3-7. Total copper concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].	120
Figure 3-8. Total lead concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].	123
Figure 3-9. Total lead concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].	124
Figure 3-10. Total zinc concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].	127
Figure 3-11. Total zinc concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].	128
Figure 4-1. Channel cross-sections for geomorphic monitoring in Phase 1 of the Clark Fork River Operable Unit, 2014.	137
Figure 4-2. Pools identified in Phase 1 of the Clark Fork River Operable Unit, 2014.	139
Figure 4-3. Pool depth in the Clark Fork River Operable Unit, 2014. Pool lengths are approximated.	141
Figure 4-4. Streambank treatments and channel monitoring cross-sections in the Clark Fork River Operable Unit, 2014.	143
Figure 4-5. Location of nearest USGS streamflow gage (USGS 12323800) to Phase 1 project area in the Clark Fork River Operable Unit, 2014.	145
Figure 4-6. Streamflow in the Clark Fork River near the Phase 1 project site during the spring snowmelt runoff period of 2014 [Source: USGS, 2015b].	146
Figure 4-7. Inundated area of the Phase 1 floodplain of the Clark Fork River on May 28, 2014. Streamflow in the Clark Fork River at Galen (USGS 12323800) during the survey was 508 cfs compared to a bankfull design streamflow of 522 cfs.	147
Figure 4-8. Overflow channels which developed in Phase 1 of the Clark Fork River Operable Unit in 2014 during the spring snowmelt runoff period.	149
Figure 4-9. View of Overflow Channel 1 inlet on August 20, 2014 (upper panel) and on May 28, 2014 (lower panel) in Phase 1 of the Clark Fork River Operable Unit. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014 and 508 cfs on May 28, 2014.	150
Figure 4-10. View of Overflow Channel 2 inlet (upper panel) and facing down the channel from the inlet (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014.	151

Figure 4-11. Views of Overflow Channel 1 facing up the channel from the outlet (upper panel) and at the outlet (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014. ....	152
Figure 4-12. View of Overflow Channel 2 facing up the channel from the outlet (upper panel) and at the outlet (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014. ....	153
Figure 4-13. Views of designed secondary channel inlet in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014. ....	155
Figure 4-14. View of designed secondary channel elevation at inlet in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014. ....	156
Figure 4-15. View of designed secondary channel where the channel passes through browse protection fence (upper panel) and after passing through the fence (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014. ....	157
Figure 5-1. Single vegetated soil lift streambank treatment in Phase 1 of the Clark Fork River Operable Unit. ....	161
Figure 5-2. Double vegetated soil lift streambank treatment in Phase 1 of the Clark Fork River Operable Unit. ....	162
Figure 5-3. Brush trench streambank treatment in Phase 1 of the Clark Fork River Operable Unit. ....	163
Figure 5-4. Preserve vegetation streambank treatment in Phase 1 of the Clark Fork River Operable Unit. ....	164
Figure 5-5. Streambank cover monitoring plot locations for single and double vegetated soil lift streambank treatments in Phase 1 of the Clark Fork River Operable Unit [Source: Sacry et al., 2012]. ....	164
Figure 5-6. As-built streambank treatments at the south end of Phase 1 of the Clark Fork River Operable Unit, 2014 [Source: Sacry et al., 2014]. ....	170
Figure 5-7. As-built streambank treatments at the north end of Phase 1 of the Clark Fork River Operable Unit, 2014 [Source: Sacry et al., 2014]. ....	171
Figure 5-8. Cover (%) of woody vegetation in two types of vegetated soil lift treatments in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. Red triangles represent the group means. For reference, dashed line represents Year 5 performance target; however, monitoring in 2014 represents Year 1 conditions. ....	173
Figure 5-9. Example double vegetated soil lift streambank treatments with relatively low (2%; upper panel) and relatively high (40%; lower panel) woody canopy cover in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. ....	174
Figure 5-10. Example brush trench streambank treatment in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. ....	175

Figure 5-11. Floodplain plant survival monitoring plots in the northern half of Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. ....	178
Figure 5-12. Floodplain plant survival monitoring plots in the southern half of Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. ....	179
Figure 5-13. Inundated floodplain plant survival monitoring plot (S-116) in floodplain riparian shrub planting unit in Phase 1 of Reach A of the Clark Fork River Operable Unit, August 2014. ....	182
Figure 6-1. Total percent abundance and probability of impairment for diatom sediment increaser taxa bioassessment index [Teply, 2010a] at Clark Fork River Operable Unit sites in 2014. ....	197
Figure 6-2. Total percent abundance and probability of impairment for diatom metals increaser taxa bioassessment index [Teply and Bahls, 2005] at Clark Fork River Operable Unit sites in 2014. ....	198
Figure 6-3. Total percent abundance and probability of impairment for diatom nutrient increaser taxa bioassessment index [Teply and Bahls, 2005] at Clark Fork River Operable Unit sites in 2014. ....	199
Figure 6-4. Variation in diatom trophic state tolerance among Clark Fork River Operable Unit monitoring sites, 2014; percent abundance of taxa tolerant to inorganic nutrients (after Van Dam et al., 1994). ....	203
Figure 6-5. Variation in diatom nitrogen metabolism among Clark Fork River Operable Unit monitoring sites, 2014; percent abundance of taxa tolerant of organic nitrogen (after Van Dam et al., 1994). ....	204
Figure 6-6. Variation in diatom oxygen demand among Clark Fork River Operable Unit monitoring sites, 2014; percent abundance of taxa intolerant to elevated biochemical oxygen demand (BOD) and hypoxia (after Van Dam et al., 1994). ....	204
Figure 7-1. Variability among replicates: mean scores, maximum and minimum scores, and 95% confidence intervals for McGuire's overall biointegrity index. Clark Fork River basin, August 7-8, 2014. ....	220
Figure 7-2. Variability among replicates: mean scores, maximum and minimum scores, and 95% confidence intervals for McGuire's metals pollution metric subset. Clark Fork River basin, August 7-8, 2014. ....	221
Figure 7-3. Variability among replicates: mean scores, maximum and minimum scores, and 95% confidence intervals for McGuire's organic/nutrient pollution metric subset. Clark Fork River basin, August 7-8, 2014. ....	222
Figure 8-1. Dimensions of the cages constructed for the study. ....	234
Figure 8-2. Distribution of the twelve study sites in the Upper Clark Fork River drainage. Tributary control sites are shown in bold and the handling control is underlined ....	235
Figure 8-3. Representation of cage deployment (arrangement of cages differed by site, and cages often drifted together). ....	236
Figure 8-4. Clark Fork River Brown Trout population estimates from 2008-2014 by sample reach. Sample reaches are displayed downstream to upstream, left to right then top to bottom. Please note that x-axis and y-axis values are not the same for every sample reach. ....	242

Figure 8-5. Average Brown Trout population estimates and 95% confidence intervals for the six monitoring sections in the upper Clark Fork River by river mile. All years of available estimates were averaged for each section. Number of years with estimates varied among (see Figure 8-4 for years averaged for each). Station abbreviations are Bearmouth (BM), Flint Creek Mouth (FCM), Phosphate (PE), Williams-Tavener (W-T), Below Sager Lane (BSL), pH Shack (pHS).....	243
Figure 8-6. Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line) for 2014 in Silver Bow Creek at the Pond 2 outlet site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	254
Figure 8-7. Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in Silver Bow Creek, Warm Springs, MT. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	254
Figure 8-8. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in Warm Springs Creek at Warm Springs, MT. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	255
Figure 8-9. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in the Clark Fork River at the Perkins Lane site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	255
Figure 8-10. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line) in the Clark Fork River at the Galen site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	256
Figure 8-11. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line) in the Clark Fork River at the Racetrack site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	256
Figure 8-12. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in the Clark Fork River at the Deer Lodge site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	257
Figure 8-13. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in the Clark Fork River at the site upstream of the Little Blackfoot River. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout .....	257

Figure 8-14. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 at the tributary site in Little Blackfoot River. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	258
Figure 8-15. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 at the tributary site in Flint Creek. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.....	258
Figure 8-16. Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line) and mean daily discharge (blue line) for 2014 in the Clark Fork River at the Bearmouth site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout. ....	259
Figure 8-17. Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line) for 2014 at the control site in the spring channel near Clinton, Montana. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.....	259
Figure 8-18. Cumulative brown trout survival from April 14th to July 31st, 2014. Tributary sites are shown in bold and the handling control is underlined. Red dots denote sites with survival that was significantly lower than the average of the two tributary control sites. No sites had significantly higher survival than control sites in 2014. ....	261
Figure 8-19. Mean change in length (a) and mean relative weight (b) by site for live fish at the end of the 2014 caged fish study. Error bars are 95% confidence intervals.....	263
Figure 8-20. Mean relative weight (Wr) for live (white bars) and dead (grey bars) fish by site and month for the 2014 caged fish study. Error bars are 95% confidence intervals.....	264
Figure 8-21. Observed mean final weight of live fish versus weights predicted by the temperature based model of Elliot et al. [1995] for twelve caged fish sites in the Upper Clark Fork River drainage, 2014. Site abbreviations are Pond 2 (P2), Silver Bow (SB), Warm Springs (WS), Perkins Lane (PL), Galen (GN), Racetrack (RT), Deer Lodge (DL), Upstream of the Little Blackfoot (UL), Little Blackfoot (LB), Flint Creek (FC), Bearmouth (BM), and Clinton Spring (CS). The red line represents the 1:1 line. ....	265
Figure 8-22. Mean whole body concentrations of copper (a) and zinc (b) at twelve study sites in the 2014 Upper Clark Fork River Drainage caged fish study. Error bars are 95% confidence intervals. ....	267
Figure 8-23. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Pond 2, Silver Bow, and Warm Springs caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals.....	270
Figure 8-24. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Perkins Lane, Silver Galen, and Racetrack caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals. ....	271



Figure 8-25. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Deer Lodge, Upstream Lil Black, and Lil Black caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals.....	272
Figure 8-26. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Flint, Bearmouth, and Spring caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals.....	273
Figure 8-27. Comparisons between copper and zinc tissue burdens in Brown Trout collected immediately from the hatchery, from cages in tributary sites, and cages in mainstem sites. Error bars are 95% confidence intervals.....	275
Figure 8-28. Comparisons between tissue metals burdens of fish from tributary (white bars) and mainstem (grey bars) sites. Error bars are 95 % confidence intervals .....	276
Figure 8-29. Comparisons between tissue metals burdens of fish from sites upstream of construction and downstream of construction. Error bars are 95 % confidence intervals.....	277
Figure 8-30. Annual mean whole body Brown Trout copper tissue burdens for fish collected at the end of the season from fish cages at mainstem sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis. ....	278
Figure 8-31. Annual mean whole body Brown Trout copper tissue burdens for fish collected at the end of the season from fish cages in tributary sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis. ....	279
Figure 8-32. Annual mean whole body Brown Trout zinc tissue burdens for fish collected at the end of the season from fish cages at mainstem sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis. ....	280
Figure 8-33. Annual mean whole body Brown Trout zinc tissue burdens for fish collected at the end of the season from fish cages at tributary sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis. ....	281
Figure 8-34. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable arsenic at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured arsenic concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots.	

Compliance ratio values <1 indicate arsenic levels below the aquatic life standard while values >1 indicate levels above the standard. ....	284
Figure 8-35. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable cadmium at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured cadmium concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate cadmium levels below the aquatic life standard while values >1 indicate levels above the standard. ....	285
Figure 8-36. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable copper at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured copper concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate copper levels below the aquatic life standard while values >1 indicate levels above the standard. ....	286
Figure 8-37. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable lead at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured lead concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate lead levels below the aquatic life standard while values >1 indicate levels above the standard. ....	287
Figure 8-38. Compliance ratios for total recoverable zinc at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured zinc concentration by the Aquatic Life Standard value [MDEQ, 2012b]. The acute and chronic standards for zinc are identical. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate zinc levels below the aquatic life standard while values >1 indicate levels above the standard. ....	288
Figure 8-39. Mean daily water pH at sites with probes deployed in 2014. Lines represent Hydrolab data and circles represent handheld multiprobe data. ....	290
Figure 8-40. Mean daily specific conductivity at sites with probes deployed in 2014. Lines represent Hydrolab data and circles represent handheld multiprobe data. ....	291
Figure 8-41. Mean daily luminescent dissolved oxygen at sites with probes deployed in 2014. Lines represent Hydrolab data and circles represent handheld multiprobe data. The red dashed horizontal line denotes the freshwater ALS one day minimum. ....	291

## 1.0 INTRODUCTION

---

The Record of Decision (ROD) for the Clark Fork River Operable Unit (CFROU) identified a 120-mile section of the Clark Fork River as a distinct Superfund operable unit [USEPA, 2004]. The CFROU extends from the Silver Bow Creek and Warm Springs Creek confluence to the former Milltown Reservoir site at the Clark Fork River and Blackfoot River confluence [Figure 1-1]. Historic mining, milling, and smelting activities in Butte and Anaconda resulted in heavy metal (cadmium, copper, lead, and zinc) and arsenic contamination in the floodplain soils and streambanks of the CFROU [Bartkowiak et al., 2011]. Sources of metal contaminants of concern (COCs) in the CFROU are tailings mixed with soil within the historic 100-year floodplain (primary source), contaminated surface water and shallow groundwater, contaminated instream sediments, and contaminants in irrigation ditches adjacent to the CFROU [USEPA, 2004]. In 2008, a consent decree was negotiated between the state of Montana, the U.S. Government, and the Atlantic Richfield Company for cleanup of the CFROU [Montana v. AR, 2008; U.S.A. v. AR, 2008]. The consent decree established that the state of Montana, through the Montana Department of Environmental Quality (MDEQ), would serve as lead agency to develop and implement the remedial design, remedial action, and operation and maintenance of the remedy for the CFROU [Montana v. AR, 2008; U.S.A. v. AR, 2008].

Remediation in the CFROU began in 2011 with the removal of approximately 10,000 cubic yards of contaminated soils in the “Trestle Area” in the town of Deer Lodge, Montana [Bartkowiak et al., 2012]. Remediation activities were conducted in Phase 1 of Reach A [Figure 1-2] throughout 2013 and the cleanup was mostly completed by the end of the year [Bartkowiak et al., 2013]. Approximately 330,000 cubic yards of contaminated materials were removed from the floodplain and streambanks of Phase 1 (1.6 river miles) and approximately 189,000 cubic yards of clean soil and vegetative material were used to reconstruct and revegetate the floodplain and streambanks [Bartkowiak et al., 2013]. In 2014, remediation began in Phases 5 and 6 of Reach A [Figure 1-2]. According to the remedial design for Phases 5 and 6 (4.5 river miles), 533,000 cubic yards of contaminated material will be removed, 244,00 cubic yards of clean fill material will be imported for reconstruction, and remediation will last until fall of 2015 [Bartkowiak et al., 2014]. In 2014, preliminary design plans were also underway for remediation of Phases 2, 7, 15, and 16 [MDEQ, 2014a].

Specific remediation standards were established in the CFROU ROD for surface water, groundwater, and vegetation but not for other environmental media [USEPA, 2004]. In lieu of specific standards, reference values have been adopted by MDEQ for instream sediment, geomorphology, periphyton, macroinvertebrates, and fish. The MDEQ has established this monitoring program to assess the effectiveness of contaminant removal from remediation on attainment of remediation standards or reference values. Data is collected to describe abiotic (surface water, instream sediment, river geomorphology) and biotic (terrestrial vegetation, periphyton, aquatic macroinvertebrate, and fish) conditions in the CFROU to evaluate if remediation standards or reference values are met and evaluate if conditions are improving over time. Data collected in 2014 represents the fifth year of data collected for this monitoring program, which began in 2010.

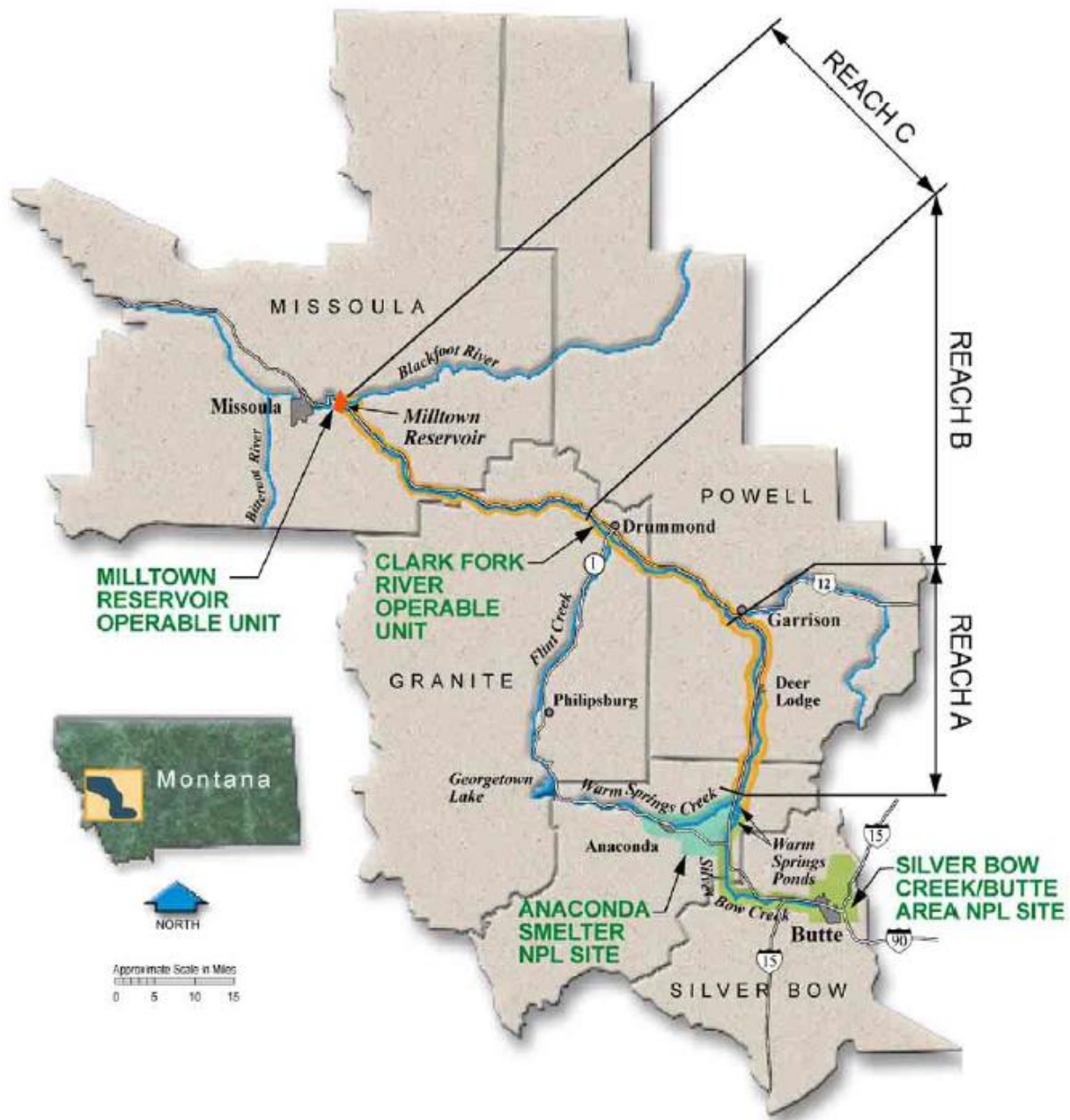
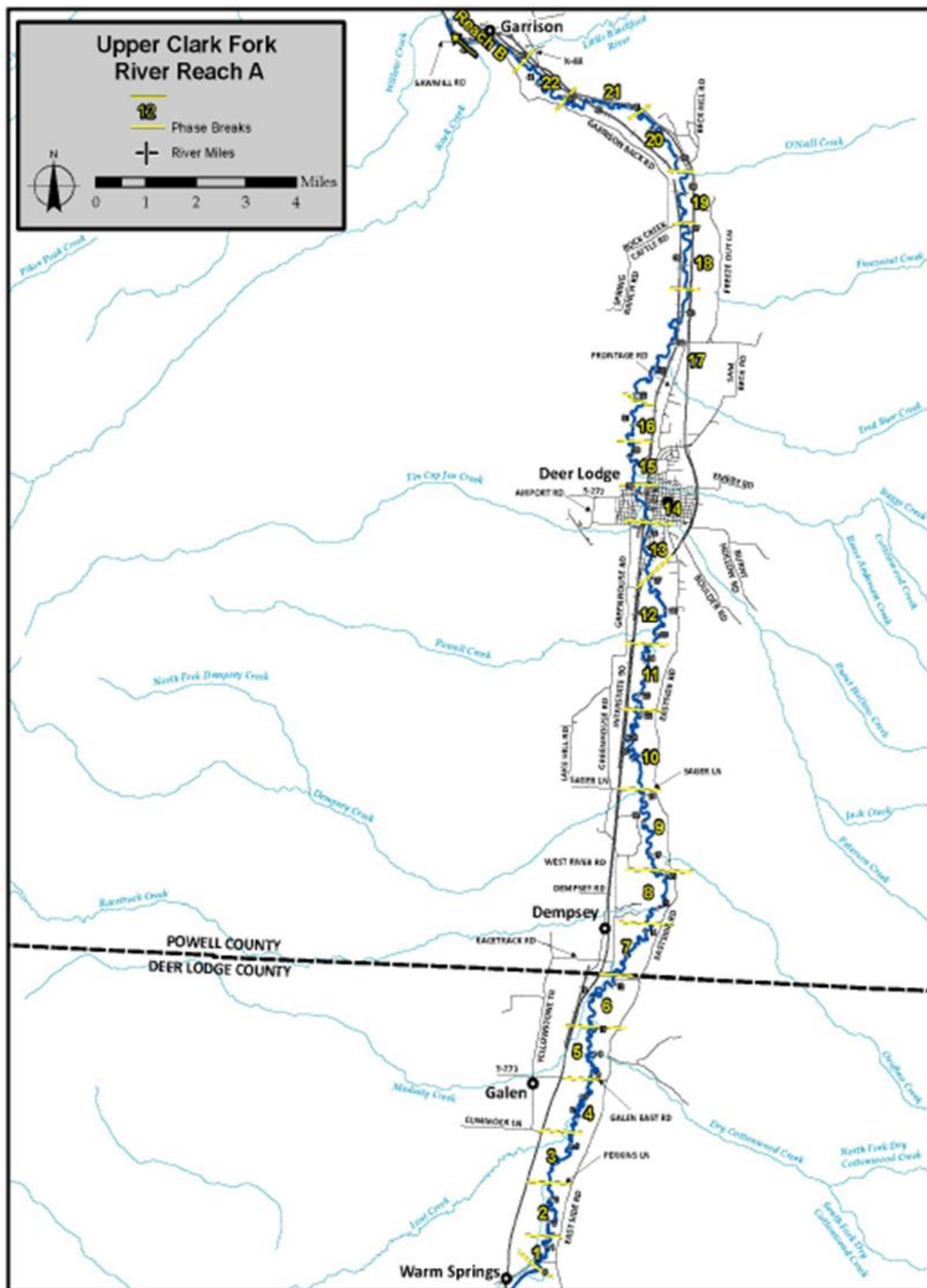


Figure 1-1. Remedial reaches of the Clark Fork River Operable Unit [Source: USEPA, 2004].



## 2.0 SURFACE WATER

---

### 2.1 INTRODUCTION

---

Performance goals were established in the CFROU ROD for surface water [USEPA, 2004]. The goal for surface water quality is for concentrations of all metal contaminants of concern (COCs) to be below the concentrations identified in the CFROU ROD [Table 2-1]. The remedy for the Clark Fork River is expected to achieve these goals through the removal of contaminated floodplain soils (i.e., “slickens”), *in situ* (i.e., on site) treatment of floodplain soils with relatively low COC concentrations, and streambank stabilization. Additional removals of contaminated floodplain materials, proposed as part of remediation, may reduce arsenic concentrations as well. When the remediation activities are completed, surface water quality in the Clark Fork River is expected to fully support the growth and propagation of coldwater fishes (e.g., salmonids) and associated aquatic life. Surface waters will be monitored at specific locations along the Clark Fork River. Performance goals must be met at each location in order for the remedial actions to be considered successful.

This report evaluates progress toward attainment of surface water performance goals as defined in the CFROU ROD [Table 2-1]. Water chemistry data were collected in 2014 to evaluate COC concentrations in order to make direct comparisons to relevant performance standards. In addition to COC concentrations, data are collected to describe other water quality characteristics which influence the toxicity of metal contaminants or otherwise influence the ecology of the Clark Fork River. Other water quality characteristics described include total suspended sediments, common ion, and nutrient concentrations and other physical properties of water (e.g., acidity).



**Table 2-1. Remediation performance goals for surface water in the Clark Fork River Operable Unit [USEPA, 2004].**

Contaminant of Concern	Performance Standard		
	Aquatic Life Standard <sup>1</sup>		Human Health or Drinking Water Standard (µg/L)
	Chronic (µg/L)	Acute (µg/L)	
Arsenic	150	340	10/18 <sup>2</sup>
Cadmium	0.25	2	5
Copper <sup>3</sup>	9	13	1,300
Lead	3.2	81	15
Zinc	119	119	2,000

## 2.2 METHODS

The purpose of the surface water monitoring program is to collect data describing the temporal and spatial variation of metal and nutrient concentrations, and other physical properties of surface water in the CFROU. These data provide a long-term record of environmental conditions in the CFROU. As of 2014, five years of CFROU surface water data (2010-2014) have been collected under this monitoring program. This long-term record provides a dataset to evaluate the effect of remediation on environmental conditions in the CFROU over time. Changes to the surface water monitoring program have occurred over time and a record of these changes is provided in the project sampling and analysis plan (SAP) [Naughton et al., 2014].

### 2.2.1 Monitoring Locations

Surface water was monitored at 14 CFROU sites in 2014 [Figure 2-1]. The monitoring network included six sites in the Clark Fork River mainstem and eight sites in tributary streams [Table 2-2]. The monitoring site locations in 2014 were the same as the monitoring site locations in 2013. However, monitoring sites changed between 2012 and 2013 to provide a more detailed spatial representation of the Clark Fork River mainstem in Reach A [Figure 2-1]. Additionally, some sites were removed from the monitoring network to avoid duplication of water quality sampling efforts by the U.S. Geological Survey (USGS).

<sup>1</sup> The aquatic life standards for cadmium, copper, lead, and zinc vary in relation to water hardness. The values displayed in this table correspond to a water hardness of 100 mg/L.

<sup>2</sup> The performance standard includes both the federal maximum contaminant level (MCL; 10 µg/L; dissolved concentration) and the state of Montana standard (18 µg/L; total recoverable concentration).

<sup>3</sup> Based on the federal ambient water quality criteria (USEPA 1986; dissolved concentration).

### **2.2.1.1 Clark Fork River Mainstem**

Each of the mainstem sample site locations were selected for a specific monitoring objective. The four mainstem Clark Fork River monitoring sites in Reach A (CFR-03A, CFR-07D, CFR-11F, CFR-27H) were included to provide a detailed spatial representation of conditions in Reach A [Figure 2-1]. The Reach C site (CFR-116A) represents conditions in Reach C at the downstream end of the Clark Fork River in the CFROU [Figure 2-1]. Currently, no remedial actions are planned for Reach C. One mainstem site is located downstream from the Flint Creek tributary (CFR-84F) [Figure 2-1]. Site CFR-84F is intended to assess the influence of Flint Creek inflows, which typically has elevated mercury concentrations [Langer et al., 2012; Ingman et al., 2014] on water quality in the mainstem.

### **2.2.1.2 Tributaries**

Tributary site locations were selected to assess the significance of COC or nutrient loading from sources outside the CFROU. Each tributary has one sample site located near the tributary confluence with the Clark Fork River, with the exception of Mill-Willow Creek, which has two sites [Figure 2-1].

#### **2.2.1.2.1 Mill-Willow Creek**

Mill-Willow Creek is a tributary to Silver Bow Creek and flows into Silver Bow Creek immediately downstream from the Warm Springs Pond outfall [Figure 2-1]. The Warm Springs Pond system captures the Silver Bow Creek streamflow and routes the water through a lime treatment facility and a series of tailings ponds designed to precipitate heavy metals [see: [www.cfrtac.org](http://www.cfrtac.org)]. Historically, Mill and Willow Creeks confluenced with Silver Bow Creek upstream from the Warm Springs Ponds. However, because contaminant levels in Mill and Willow Creeks were low relative to Silver Bow Creek, streamflows from Mill and Willow Creek were routed around the Warm Springs Pond system through a designed channel commonly referred to as the “Mill-Willow Bypass”. The Mill-Willow Bypass was remediated between 1990 and 1995 to remove tailings and contaminated soils along the stream channel and floodplain and to reduce toxic discharges to Silver Bow Creek and the upper Clark Fork River [see: [www.cfrtac.org](http://www.cfrtac.org)].

Two sample sites are located in Mill-Willow Creek: MCWC-MWB and MWB-SBC [Figure 2-1]. MCWC-MWB is located at the upstream end of the Mill-Willow Bypass to demonstrate background water quality conditions in Mill-Willow Creek. MWB-SBC is located near the Silver Bow Creek confluence. Increases in contaminant concentrations between MCWC-MWB and MWB-SBC suggest that contaminant loading is occurring in the Mill-Willow Bypass reach of Mill-Willow Creek.

#### **2.2.1.2.2 Warm Springs Creek**

The Clark Fork River mainstem begins at the confluence of Silver Bow Creek and Warm Springs Creek [Figure 2-1]. Warm Springs Creek is a major tributary to the Clark Fork River in Reach A. Warm Springs Creek typically has relatively low nutrient concentrations and



relatively cool streamflows. Water chemistry in Warm Springs Creek is monitored at site WSC-SBC [Figure 2-1].

#### **2.2.1.2.3 Silver Bow Creek**

The Silver Bow Creek sample site (SS-25), located immediately upstream from the Silver Bow Creek and Warm Springs Creek confluence, monitors water chemistry in Silver Bow Creek immediately downstream from the Warm Springs Ponds discharge and the Mill-Willow Bypass confluence [Figure 2-1].

#### **2.2.1.2.4 Lost Creek and Racetrack Creek**

Lost Creek and Racetrack Creek originate in the Flint Creek Range on the west side of the Deer Lodge valley [Figure 2-1]. Major portions of both watersheds are used for cattle grazing and agriculture and streamflows are heavily diverted for irrigation. Surface water monitoring in Lost Creek and Racetrack Creek was discontinued in 2013 because these tributaries had relatively low COC concentrations [Ingman et al., 2013]. Water chemistry in Lost Creek is monitored by the USGS [Dodge et al., 2014]. Instream sediments and biological monitoring were conducted at these sites in 2014. Monitoring in Lost Creek occurs at LC-7.5 and in Racetrack Creek at RTC-1.5 [Figure 2-1].

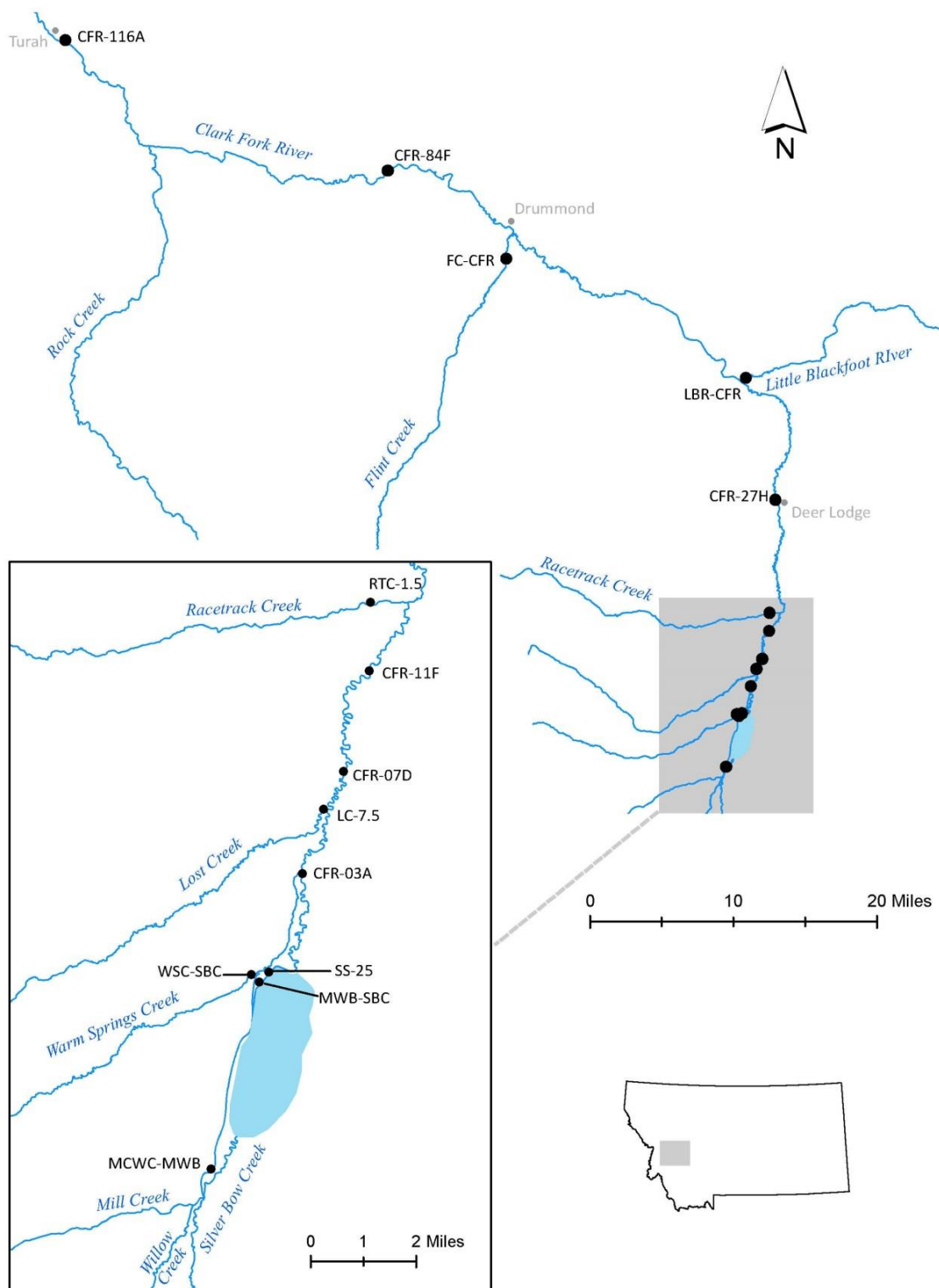
#### **2.2.1.2.5 Little Blackfoot River**

The Little Blackfoot River is a major tributary to the Clark Fork River. The Little Blackfoot River and Clark Fork River confluence is located at the boundary between CFROU Reach A and Reach B [Figure 2-1]. Water quality and quantity in the Little Blackfoot River may be influenced by a variety of land uses including agriculture and irrigation in lower portions of the watershed and abandoned mining in headwater portions of the watershed [Montana Engineer's Office, 1959; Lyden, 1987; Ingman, 2002; MDEQ and USEPA, 2011; 2014c].

Water chemistry, instream sediment and aquatic biota in the Little Blackfoot River are monitored in the Little Blackfoot River. For the first three sample periods of 2014, water quality in the Little Blackfoot River was monitored at site LBR-CFR [Figure 2-1]. However, the site was moved upstream approximately four miles for the last three sample periods of 2014 to minimize safety hazards from road traffic during high streamflow periods when sampling from the road bridge at LBR-CFR is necessary [Table 2-2].

#### **2.2.1.2.6 Flint Creek**

Flint Creek enters the Clark Fork River near the boundary between Reach B and Reach C [Figure 2-1]. Flint Creek is a major source of mercury to the Clark Fork River [Langer et al., 2012; Ingman et al., 2014]. Site FC-CFR monitors water chemistry in Flint Creek [Figure 2-1].



**Figure 2-1. Surface water sampling locations in the Clark Fork River Operable Unit, 2014.**

**Table 2-2. Surface water sampling locations in the Clark Fork River Operable Unit, 2014. Streamflows were measured at all sites which did not have a co-located USGS streamflow gauge.**

Site ID	Site Location	Co-located USGS Streamflow Gauge	Location (GPS coordinates, NAD 83)	
			Latitude	Longitude
Mainstem Sites				
CFR-03A	Clark Fork River near Galen	12323800	46.20877	-112.76740
CFR-07D	Clark Fork River at Galen Road	none	46.23725	-112.75302
CFR-11F	Clark Fork River at Gemback Road	none	46.26520	-112.74430
CFR-27H	Clark Fork River at Deer Lodge	12324200	46.39796	-112.74283
CFR-84F	Clark Fork River near Drummond	12331800	46.71204	-113.33137
CFR-116A	Clark Fork River at Turah	12334550	46.82646	-113.81424
Tributary Sites				
SS-25	Silver Bow Creek at Warms Springs	12323750	46.18123	-112.77917
MCWC-MWB	Mill-Willow Creek at Frontage Road	none	46.12649	-112.79876
MWB-SBC	Mill-Willow Bypass near mouth	none	46.17839	-112.78270
WSC-SBC	Warms Springs Creek near mouth	12323770	46.18041	-112.78592
LC-7.5 <sup>4</sup>	Lost Creek near mouth	12323850	46.21862	-112.77384
RTC-1.5 <sup>5</sup>	Racetrack Creek near mouth	none	46.28395	-112.74921
LBR-CFR <sup>6</sup>	Little Blackfoot River near Garrison	12324590	46.51964	-112.79312
FC-CFR	Flint Creek near mouth	12331500	46.62891	-113.15151

## 2.2.2 Monitoring Schedule

At least one monitoring event occurred during each calendar quarter of 2014. Each quarterly monitoring event occurred near the end of each quarter. The first monitoring event (Q1) occurred in the late winter, prior to spring runoff, from March 18-19. Three monitoring events were conducted in the second quarter (Q2) to capture the rising (Q2-Rising), peak (Q2-Peak), and falling (Q2-Falling) portions of the spring runoff hydrograph. The Q2 monitoring events were conducted on May 13-14 (Q2-Rising), June 10-11 (Q2-Peak), and June 24-25 (Q2-Falling).

<sup>4</sup> In 2013, LC-7 (GPS Location: 46.22665, -112.76017) was replaced LC-7.5. Site LC-7 was replaced because it appeared to be located within the Clark Fork River floodplain.

<sup>5</sup> In 2013, RTC-1 (GPS Location: 46.28406, -112.74484) was replaced by RTC-1.5. Site RTC-1 was replaced because it appeared to be located within the Clark Fork River floodplain.

<sup>6</sup> Site LBR-CFR was replaced by site LBR-CFR-02 (GPS Location: 46.53710, -112.72443) on June 24, 2014.

The late summer (Q3) monitoring event was scheduled during low streamflow conditions on September 16-17. The late fall (Q4) monitoring event occurred on December 1-2.

### 2.2.3 Monitoring Parameters

Surface water samples were analyzed for the parameters and analytes listed in Table 2-3. Parameters and analytes were the same at all sites with the exception of FC-CFR and CFR-83F. At site FC-CFR, mercury and methylmercury concentrations were analyzed in addition to all other analytes. At site CFR-84F, a surface water sample was collected but only analyzed for mercury and methylmercury concentrations.

Eight of the 14 monitoring stations in the MDEQ Clark Fork River monitoring network were co-located with active USGS streamflow gauging stations [Table 2-2]. USGS streamflow records were accessed and included in this report. Streamflows at monitoring stations without co-located USGS gauges were measured manually.

**Table 2-3. Sampling parameters and analytes for surface water monitoring of the Clark Fork River Operable Unit, 2014.**

Parameter	Analytes
Metal concentrations (total recoverable and dissolved) <sup>7</sup>	Arsenic, cadmium, copper, lead, zinc, mercury, methylmercury
Nutrient concentrations	Nitrogen (total nitrogen, nitrate plus nitrite, ammonia), phosphorus (total), and carbon (dissolved organic; DOC)
Common ion concentrations (total)	Sulfate, alkalinity, bicarbonate
Field parameters	Total suspended sediment (TSS) concentration, hardness, water temperature, pH, specific conductivity, dissolved oxygen (DO) concentrations, turbidity

### 2.2.4 Sample Collection and Analysis

Sample collection, analysis, and quality assurance procedures were described in the quality assurance project plan [DeArment et al., 2013]. Methods generally followed standard operating procedures (SOPs) developed for the Clark Fork River [AR, 1992]. Field sampling procedures were in accordance with MDEQ [2012a] and followed “clean hands/dirty hands” procedures to minimize sample contamination as described in USGS [2006]<sup>8</sup>. Composited surface water samples were collected using width-depth integration according to methods described in USGS [2006]. When streamflows were high and samples could not be collected by wading, samples were collected with the aid of a crane mounted D-95 sampler operated from road bridges. Field parameters (water temperature, pH, dissolved oxygen concentration, and conductivity) were

<sup>7</sup> At CFR-84F, no nutrient or metal concentrations were be measured except mercury and methylmercury. At FC-CFR, mercury and methylmercury were measured in addition to all other analytes.

<sup>8</sup> We deviated from the USGS [2006] protocols to minimize sample contamination (Section 4.0.2) in two regards. First, we did not collect samples sequentially in the order of least to greatest potential for contamination. Second, samples were processed outside the sampling vehicles, rather than within an enclosed space.

measured during each monitoring event with a field multimeter (YSI Professional Plus). Turbidity was measured with a field turbidity meter (Hach Model 2100P Portable Turbidimeter). Streamflows were measured using a portable electromagnetic streamflow meter (Marsh-McBirney Flo-Mate 2000). Calibration methods for field meters, data recording and handling methods, and quality assurance and quality control procedures are described in the quality assurance project plan [DeArment et al., 2013]. Samples were analyzed by Energy Laboratories (Helena, Montana). Requested laboratory analysis procedures for each analyte are presented in Table 2-4.

**Table 2-4. Analytes and methods for surface water samples in the Clark Fork River Operable Unit, 2014. All samples were analyzed by Energy Laboratories in Helena, Montana.**

Parameter	Category	Method
Arsenic (dissolved and total recoverable)	Contaminants of Concern	E200.8
Cadmium (dissolved and total recoverable)		E200.8
Copper (dissolved and total recoverable)		E200.8
Lead (dissolved and total recoverable)		E200.8
Mercury (dissolved and total recoverable)		E245.1
Methylmercury		E1630
Zinc (dissolved and total recoverable)		E200.8
Calcium	Common ions and suspended sediment	E200.7
Magnesium		E200.7
Sulfate		E300.0
Total Alkalinity, as CaCO <sub>3</sub>		A2320 B
Bicarbonate Alkalinity, as HCO <sub>3</sub>		A2320 B
Hardness, as CaCO <sub>3</sub>		A2340 B
Total Suspended Sediment		A2540 D
Carbon (dissolved organic)	Nutrients	A53310 C
Nitrogen, Ammonia		E350.1
Nitrogen, Nitrate plus Nitrite		E353.2
Nitrogen, Total		A4500 N-C
Phosphorus, Total		E365.1

### 2.2.5 Data Analysis

Data analysis included description of spatial trends and temporal (quarterly and annual) trends in analyte (metals and nutrients) concentrations and physical properties. Attainment of performance goals was assessed by comparing analyte concentrations at specific sites to remedial performance goals. Assessment of nutrient monitoring results also included comparisons of total nitrogen and total phosphorus concentrations to numeric water quality standards for the Clark Fork River (ARM 17.30.631).

Evaluation of some performance goals from data collected in this report requires an assumption that the measured analyte concentrations are consistent over time. For example, the chronic aquatic life standard (ALS) is typically based on 96-hour mean concentrations [MDEQ, 2012b]. Similarly, the acute ALS are typically based on a 1-hour mean concentration [MDEQ, 2012b]. However, in this monitoring program analyte concentrations are measured at a specific point in time and mean concentrations over time are not available. Therefore, all assessments of ALS exceedances assume that the measured concentration was representative of the required mean concentration.

Compliance ratios were computed by dividing each total recoverable arsenic concentration during the MDEQ monitoring period in the CFROU 2010-2014 by the respective performance goal or applicable water quality standard. Compliance ratio results are presented as line graphs on a semi-logarithmic scale ranging from 0.01 to 100, with a value of 1.0 corresponding to 100% of the performance goal or water quality standard. Values exceeding 1.0 represent exceedances of the performance goal or water quality standard.

## **2.2.6 Data Validation**

---

Data quality objectives (DQOs) were established in the CFROU monitoring project quality assurance project plan (QAPP) for data “representativeness”, “comparability”, “completeness”, “sensitivity”, “precision”, “bias”, and “accuracy” [DeArment et al., 2013]. Methods for field and laboratory quality assurance and quality control (QA/QC) procedures are also described in detail in the project QAPP. A completed QA/QC checklist, summary tables of field duplicate and field blank results, and assessments of data quality objectives are included in Appendix A.

## **2.3 RESULTS**

---

### **2.3.1 Streamflows**

---

Streamflows in the upper Clark Fork River watershed were normal or above normal at all sites during almost all monitoring periods in 2014. Streamflows during the Q1 monitoring event were near normal for those dates based on long-term USGS streamflow gauging station records. Streamflows had recently receded following elevated streamflows during the first week of March in association with an abrupt melt of low elevation heavy snowpack. The three Q2 monitoring events were intended to target the rising limb of the spring runoff hydrograph, near peak streamflow, and the falling limb of the runoff hydrograph. The three sampling events were performed on May 13-14, June 10-11, and June 24-25, 2014. Streamflows during the Q2 monitoring events varied from slightly above normal to near normal for those dates. The intended peak flow event on June 10-11 missed the spring runoff maximum streamflow by approximately two weeks (May 28). Streamflows during the Q3 monitoring event were above normal for mid-September, while streamflows during the Q4 monitoring event were normal or slightly above normal.

Streamflows at the CFROU monitoring stations during the 2014 calendar year are depicted in hydrographs for USGS gauging stations Silver Bow Creek at Warm Springs (USGS

12323750) [Figure 2-2], Clark Fork River near Galen (USGS 12323800) [Figure 2-3], at Deer Lodge (USGS 12324200) [Figure 2-4], near Drummond (USGS 12331800) [Figure 2-5], and at the Turah Bridge (USGS 12334550) [Figure 2-6].

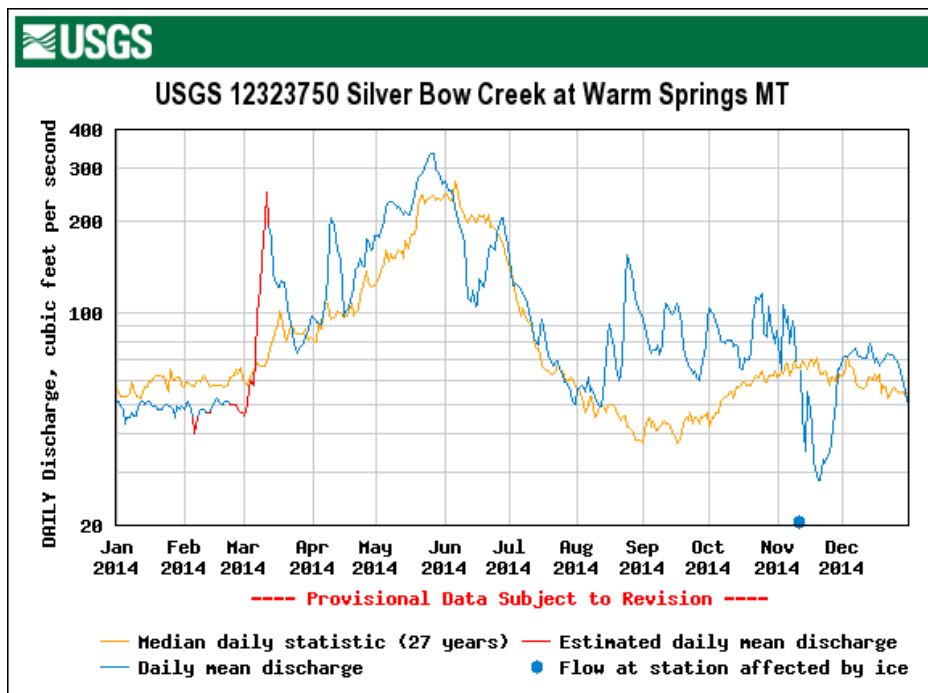


Figure 2-2. Hydrograph for Silver Bow Creek at Warm Springs, 2014.

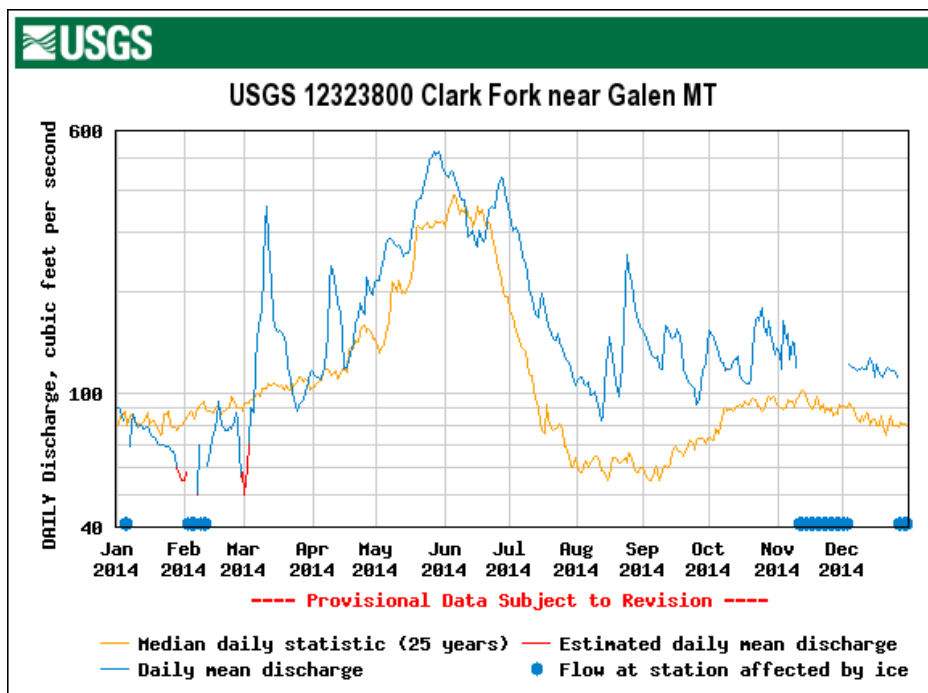


Figure 2-3. Hydrograph for Clark Fork River near Galen, 2014.

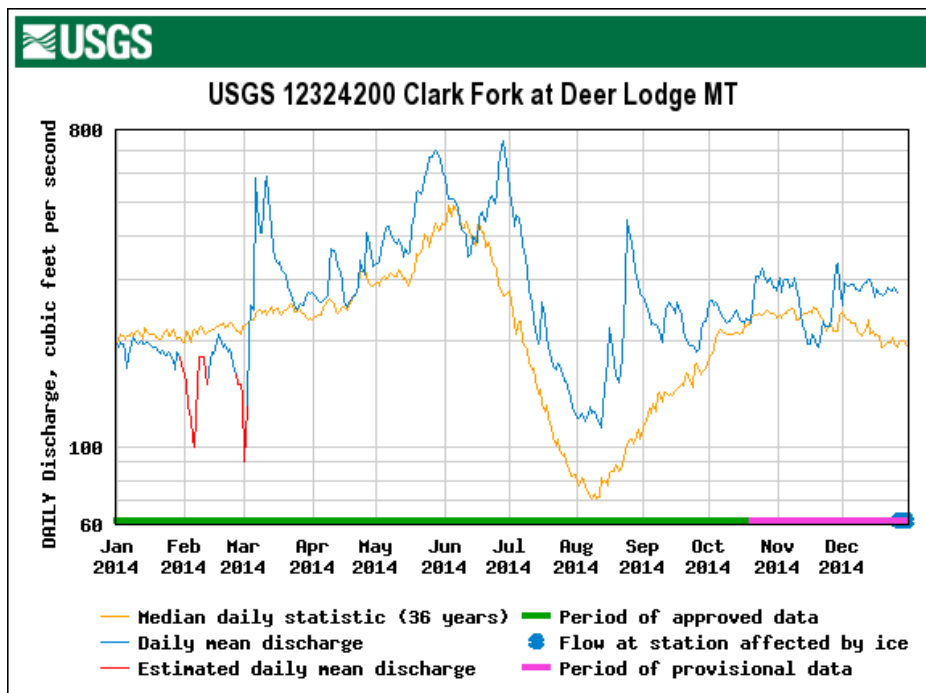


Figure 2-4. Hydrograph for Clark Fork River at Deer Lodge, 2014.

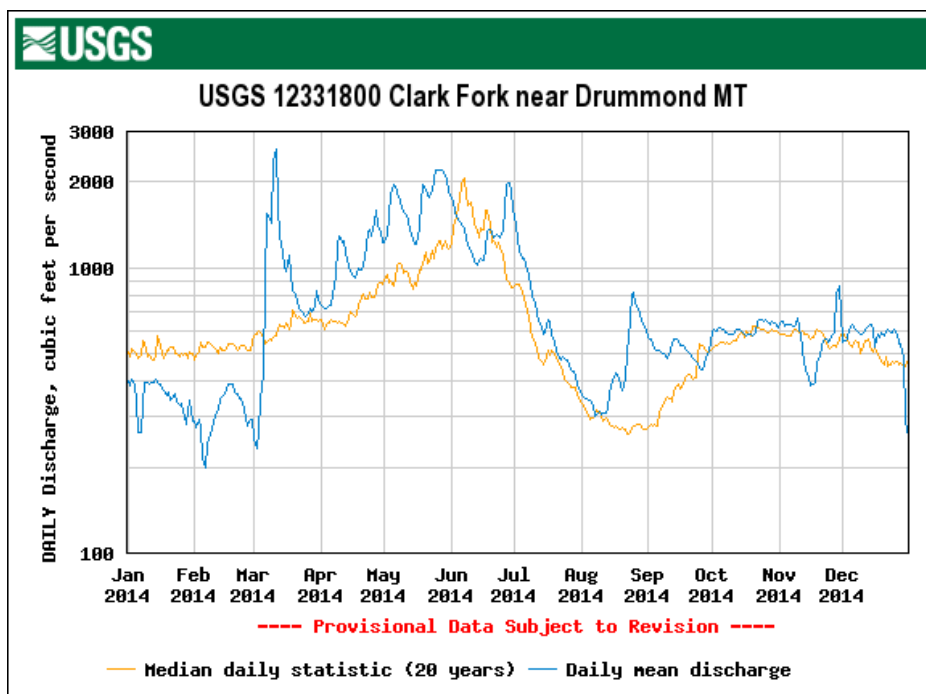


Figure 2-5. Hydrograph for Clark Fork River near Drummond, 2014.



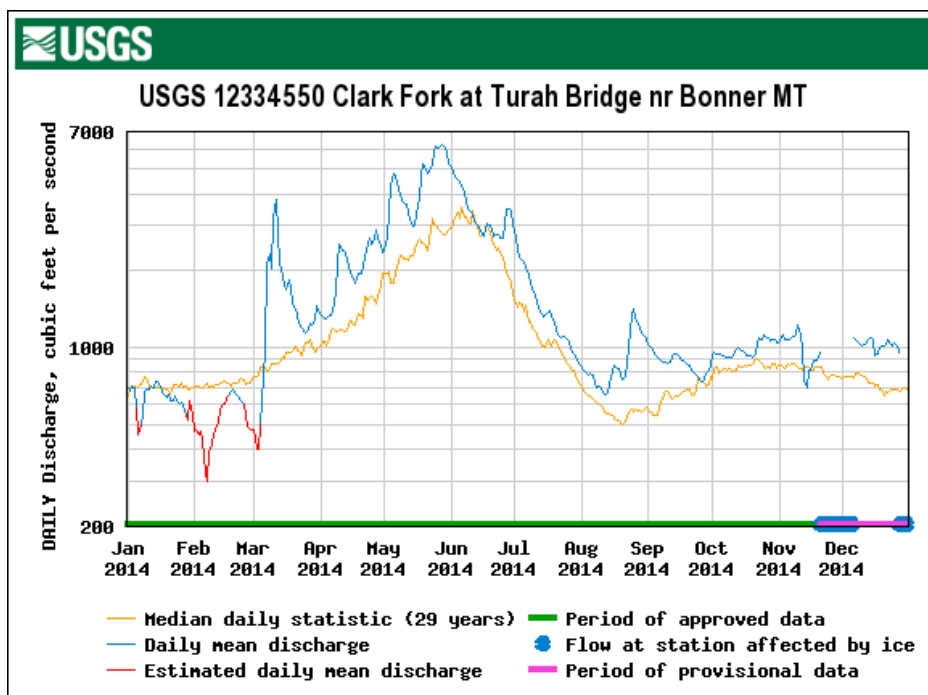


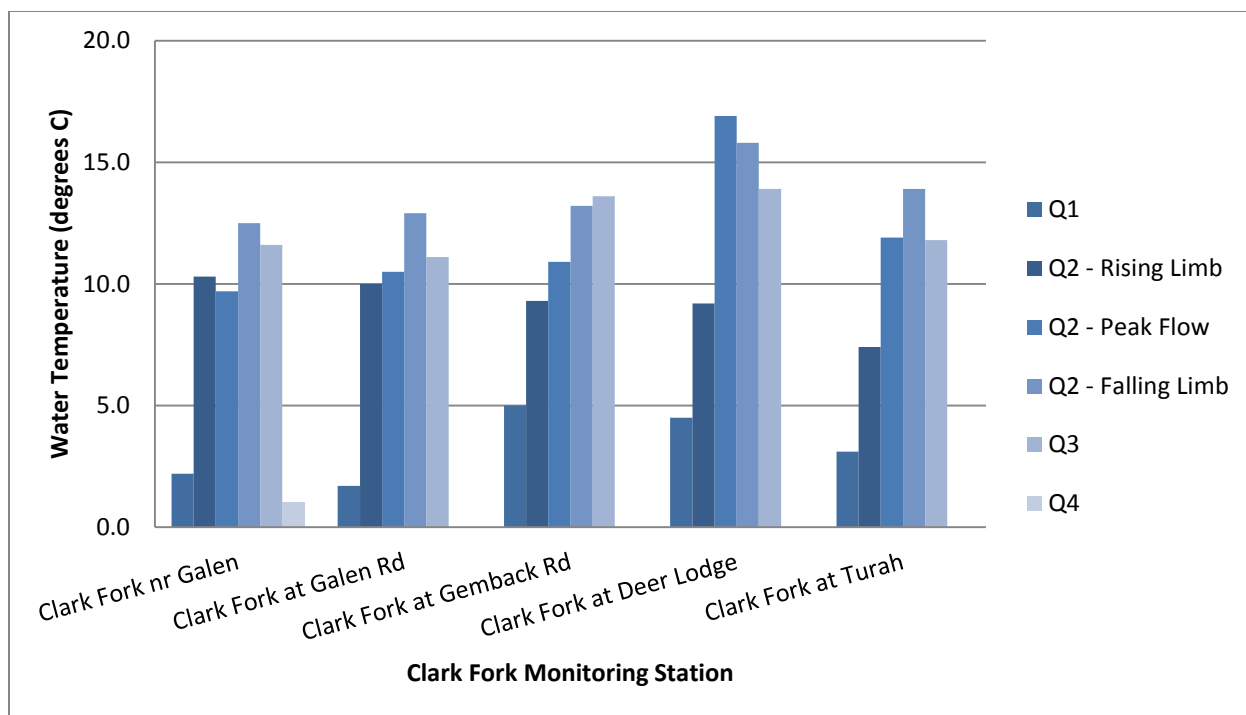
Figure 2-6. Hydrograph for Clark Fork River at Turah Bridge, 2014.

## 2.3.2 Field Parameter

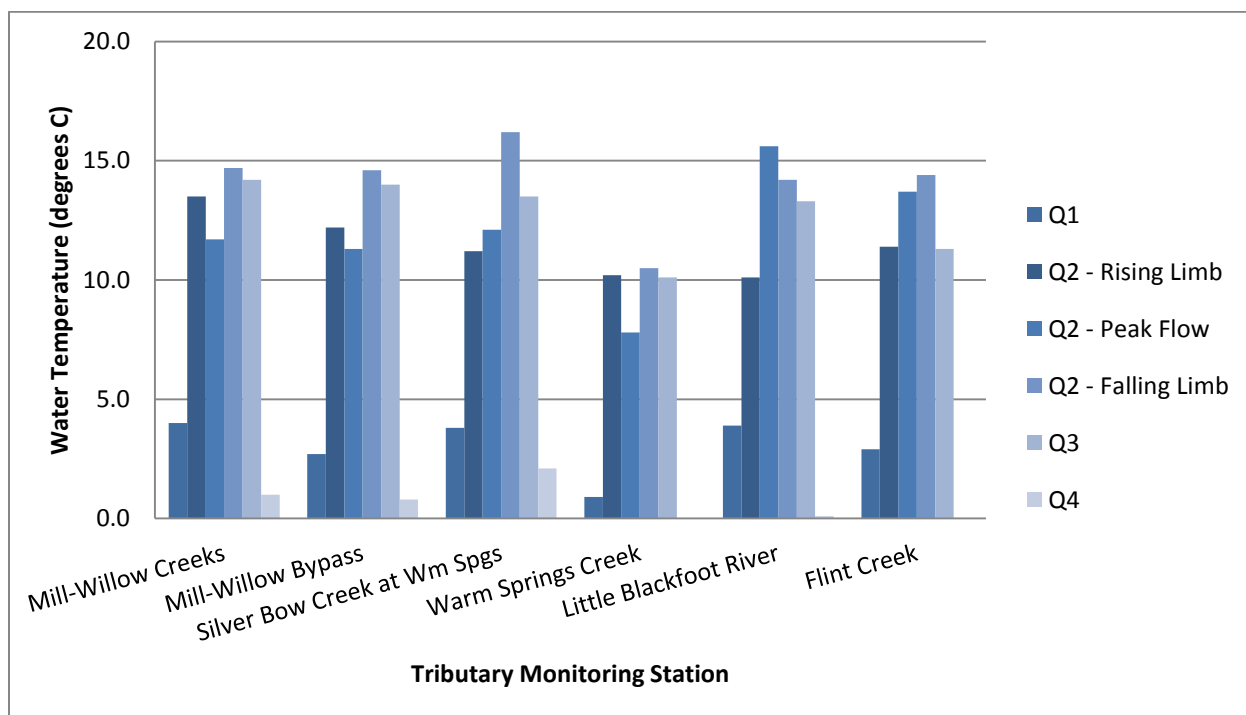
### 2.3.2.1 Water Temperature

Water temperatures at CFROU sites in 2014 indicated modest seasonal and spatial variation that was generally within the preferred range of cold water organisms such as trout [Figure 2-7; Figure 2-8]. Maximum water temperatures at most of the CFROU monitoring stations during the six monitoring events in 2014 were observed during the Q2-Falling monitoring event, when temperatures at some sites slightly exceeded the 12–14 C optimal temperature range for trout. The exceptions were the Clark Fork River at Deer Lodge and the Little Blackfoot River near mouth, which had the highest water temperature during the Q2-Peak monitoring event. The maximum water temperature (16.9 C) was measured at the Clark Fork River at Deer Lodge site. The lowest water temperatures were measured during Q4 and ranged from 0-2.1 C.

There was no clear spatial trend in water temperature at the mainstem Clark Fork River sites in 2014. Water temperature differences between sites during any single monitoring event were generally small and were somewhat affected by the time of day monitoring was conducted at any given station. Water temperatures at CFROU mainstem monitoring stations during 2014 monitoring events were generally within the range of temperatures recorded during the 2010-2013 monitoring years. The tributary monitoring site on Warm Springs Creek near its mouth showed the lowest and least variable water temperatures of all sites during the six 2014 monitoring events.



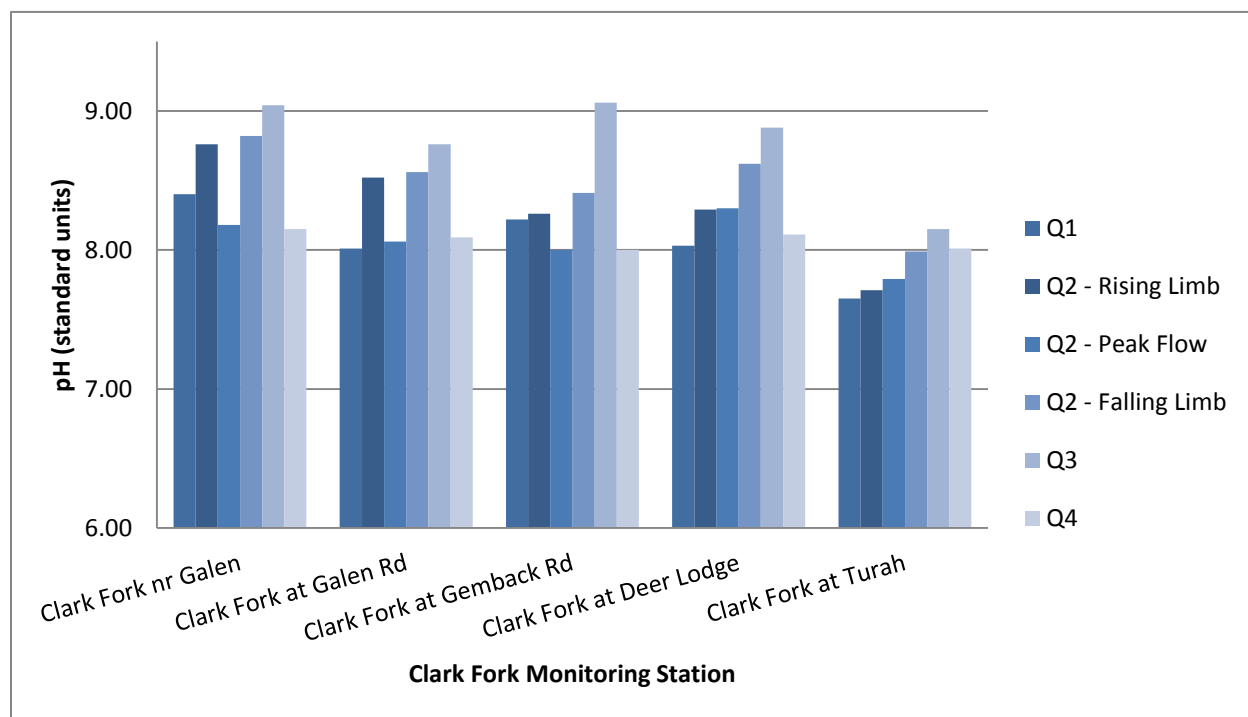
**Figure 2-7. Surface water temperatures at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



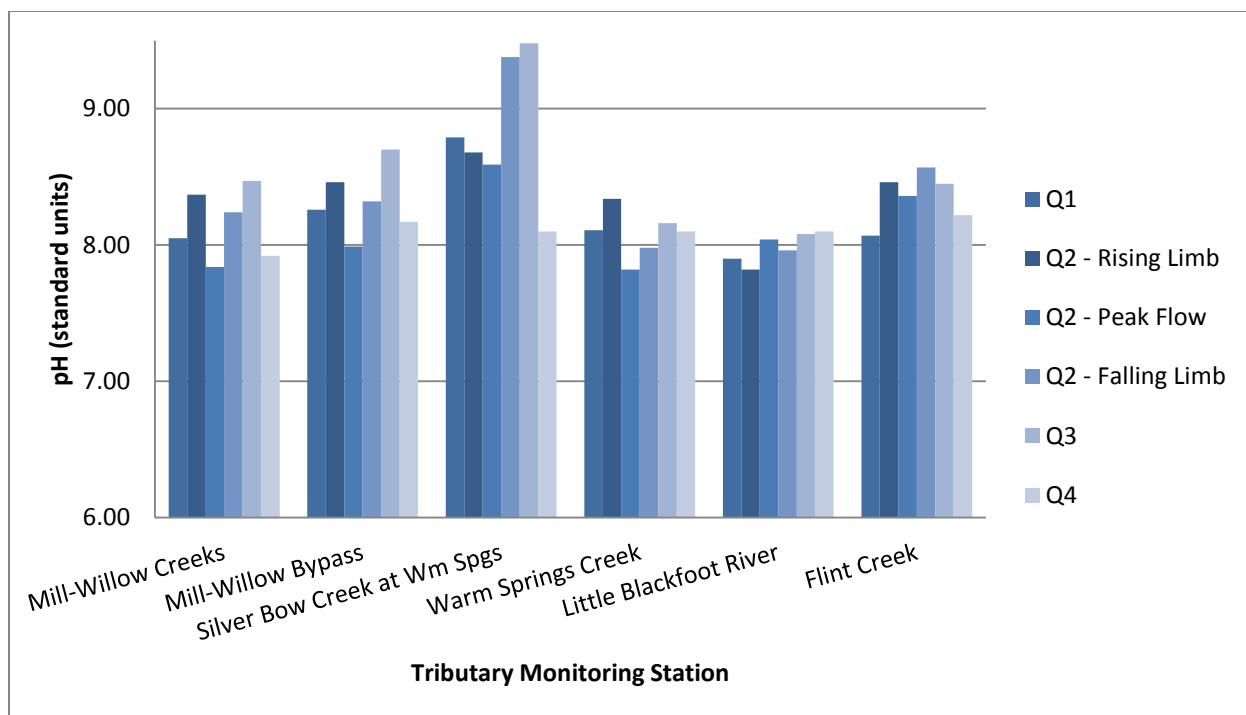
**Figure 2-8. Surface water temperatures at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**

### 2.3.2.2 Acidity

In 2014, pH in the upper Clark Fork River mainstem monitoring stations ranged from 7.65-9.06 [Figure 2-9]. Tributary monitoring stations had a slightly greater pH range: 7.82-9.48 [Figure 2-10]. Two measurements each from Clark Fork River and Silver Bow Creek stations had pH values outside the optimal range for the protection of aquatic life (6.5-9.0). These included the Clark Fork River near Galen in Q3 (9.04), the Clark Fork River at Gemback Road in Q3 (9.06), and Silver Bow Creek at Warm Springs in each of Q2-Falling and Q3 (9.38 and 9.48, respectively). There was no readily apparent seasonal pattern in pH in 2014, although highest pH values tended to be measured in Q3. Spatially, the highest pH values tended to occur in the upstream sites including Silver Bow Creek and the Clark Fork River near Galen sites. Lime additions to Silver Bow Creek at the Warm Springs Pond inflow were likely a contributing cause of the higher pH levels in lower Silver Bow Creek and the upper Clark Fork River stations. The pH levels at several CFROU monitoring stations in 2014 were higher than any of the previous measurements observed from 2010-2013. These sites included Silver Bow Creek at Warm Springs, and the Clark Fork River near Galen, at Galen Road, at Gemback Road, and at Deer Lodge.



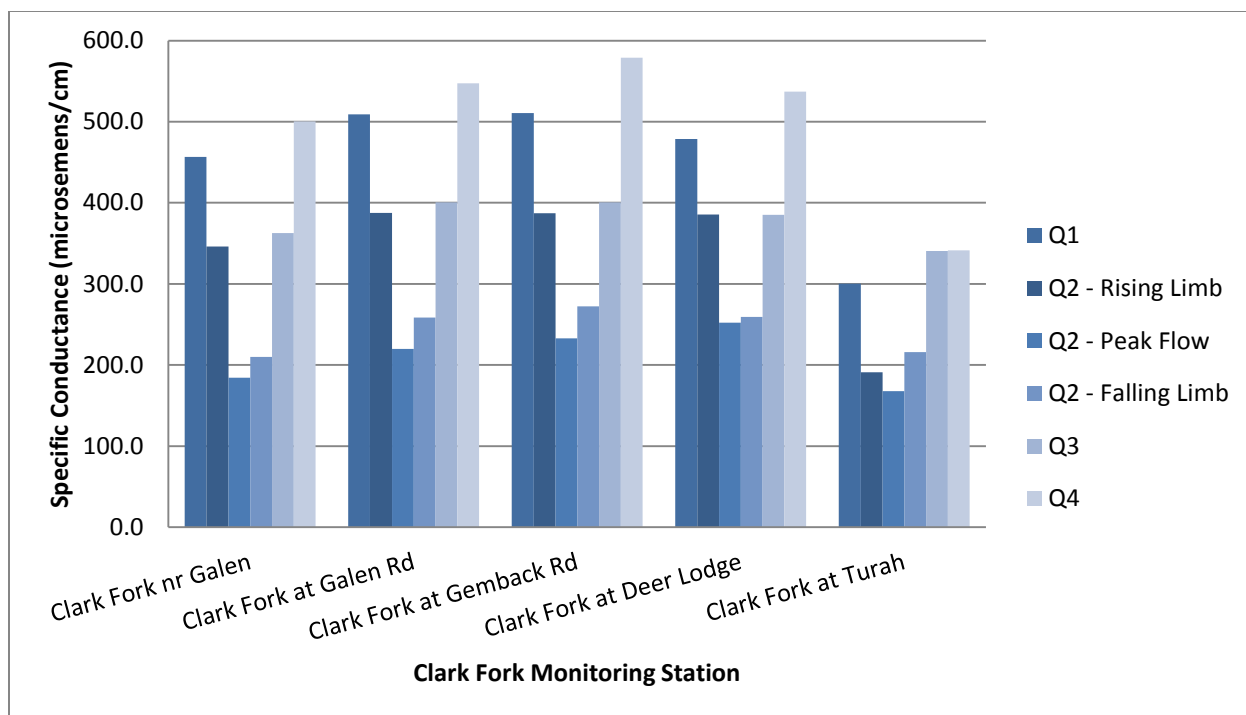
**Figure 2-9. Surface water pH at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



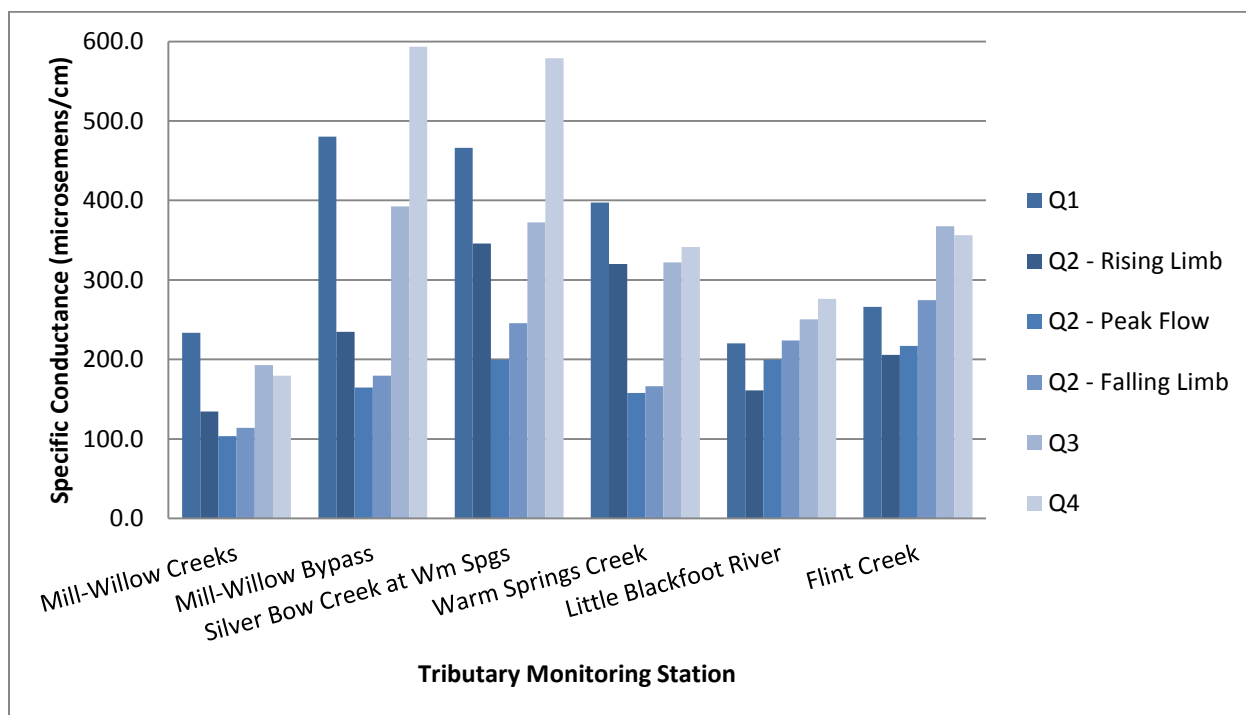
**Figure 2-10. Surface water pH at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**

### 2.3.2.3 Conductivity

The highest conductivities at most of the CFROU monitoring sites occurred in Q1 and Q4 when streamflows were lowest. The lowest conductivities occurred during the Q2 monitoring events. Conductivity in the mainstem Clark Fork River tended to progressively increase from the headwaters station near Galen downstream to Gemback Road, then stabilize or decrease slightly at the Deer Lodge station. In the mainstem, conductivity was always lowest at Turah, downstream from the Rock Creek confluence. Conductivity at CFROU stations in 2014 ranged from 103.6-593.5  $\mu\text{S}/\text{cm}$  [Figure 2-11]. Conductivity increased substantially between the Mill-Willow Creek and Mill-Willow Bypass sites, particularly in Q1, Q3, and Q4 [Figure 2-12]. The lowest conductivity occurred in Mill-Willow Creek at the Frontage Road during the Q2-Peak monitoring event. The highest conductivity occurred in the Mill-Willow Bypass in Q4. The conductivity range at CFROU monitoring stations in 2014 (103.6-593.5) was slightly greater than in 2013 (111-560  $\mu\text{S}/\text{cm}$ ), 2010 (176-466  $\mu\text{S}/\text{cm}$ ), 2011 (113-439  $\mu\text{S}/\text{cm}$ ), and 2012 (138-456  $\mu\text{S}/\text{cm}$ ).



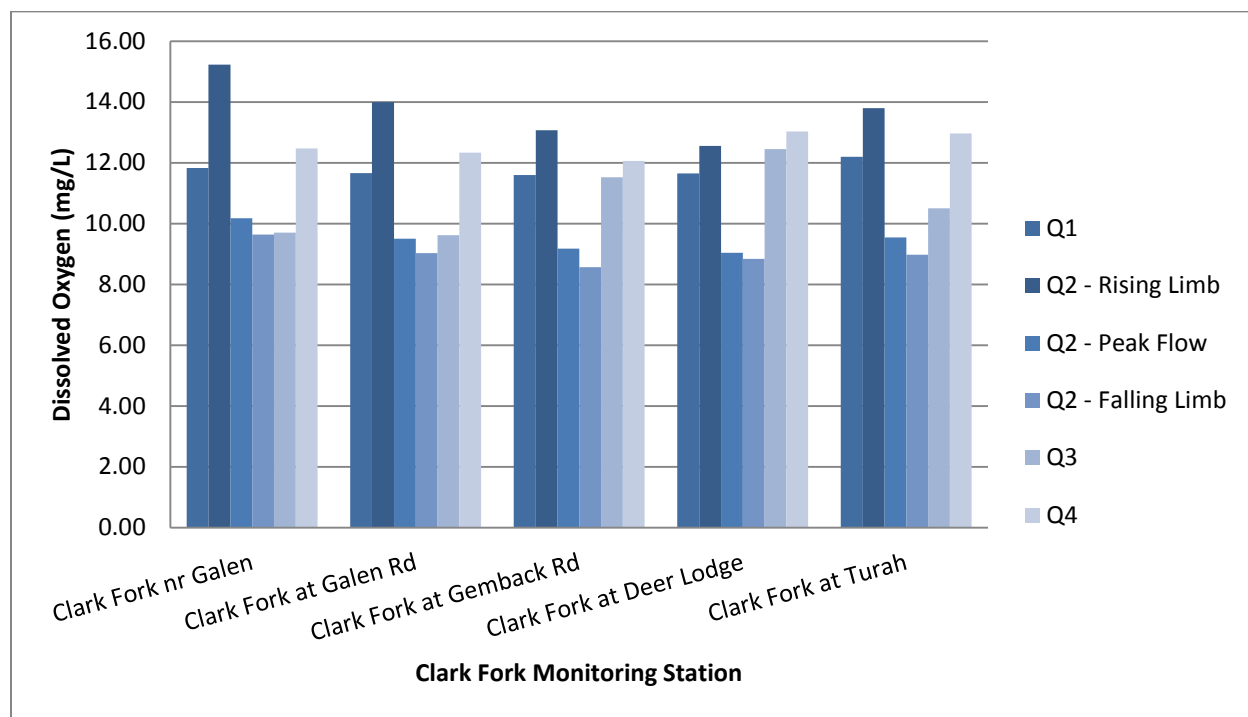
**Figure 2-11. Conductivity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



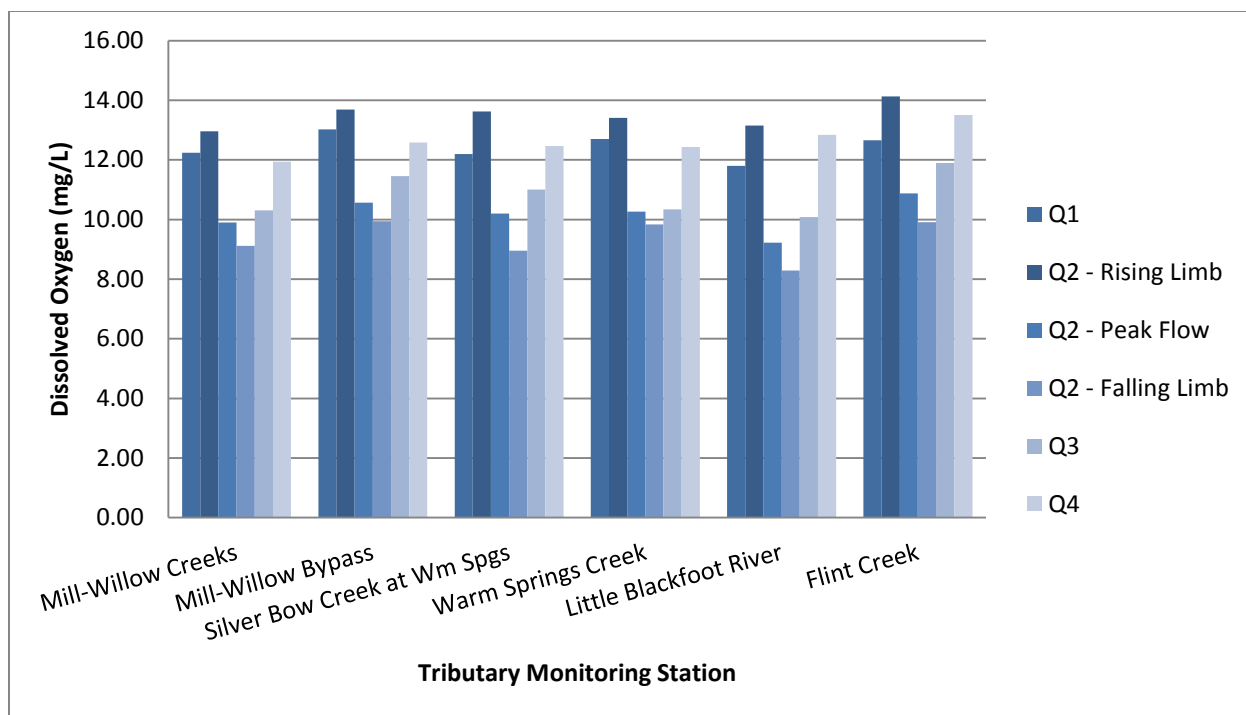
**Figure 2-12. Conductivity at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**

### 2.3.2.4 Dissolved Oxygen

Dissolved oxygen concentrations in the upper Clark Fork River in 2014 ranged from 8.29-15.23 mg/L. The lowest dissolved oxygen concentration was observed in the Little Blackfoot River near its mouth in Q2-Falling and the maximum concentration was observed in the Clark Fork River near Galen in Q2-Rising [Figure 2-13; Figure 2-14]. None of the 2014 dissolved oxygen measurements indicated water quality or water use limitations associated with inadequate oxygen concentrations. There were no clear spatial trends in dissolved oxygen concentration in 2014. The highest dissolved oxygen concentrations at nearly all monitoring stations were observed during Q2-Rising. The observed range of dissolved oxygen concentrations at Clark Fork River mainstem sites in 2014 (8.29-15.23) was slightly higher than in 2010 (8.69-15.03 mg/L), 2011 (8.60-14.85 mg/L), 2012 (8.49-14.05 mg/L), and 2013 (8.45-15.20 mg/L).



**Figure 2-13. Dissolved oxygen concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



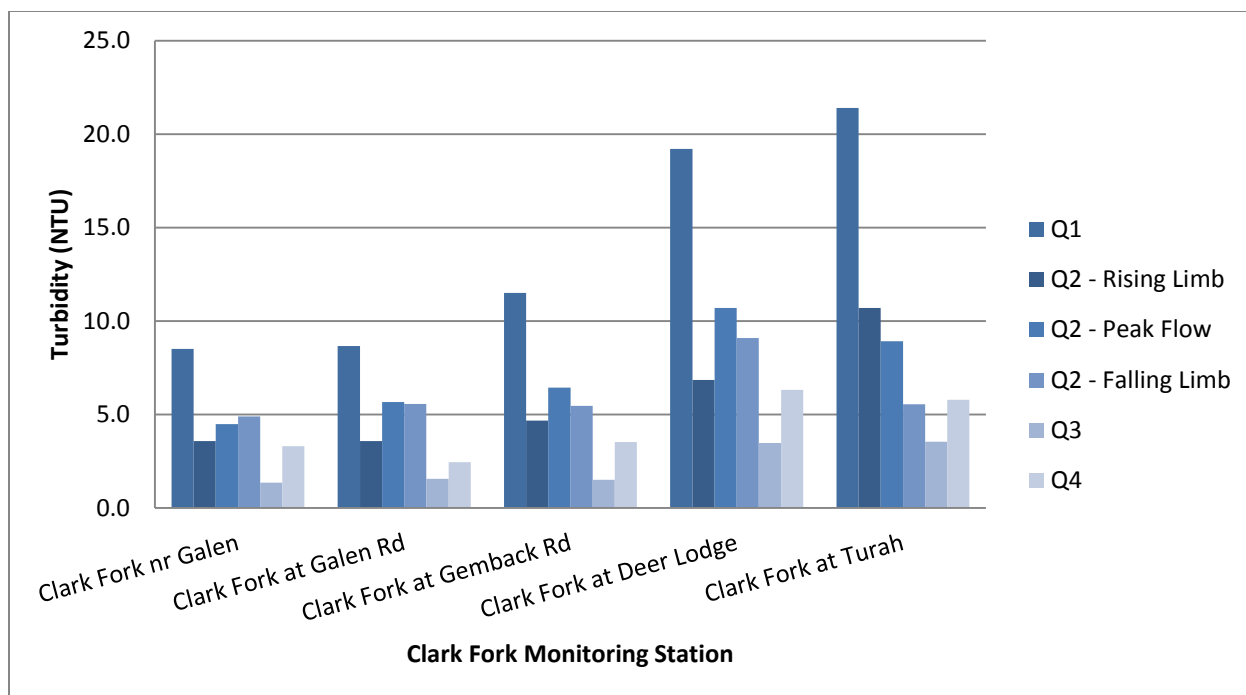
**Figure 2-14. Dissolved oxygen concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**

### 2.3.2.5 Turbidity

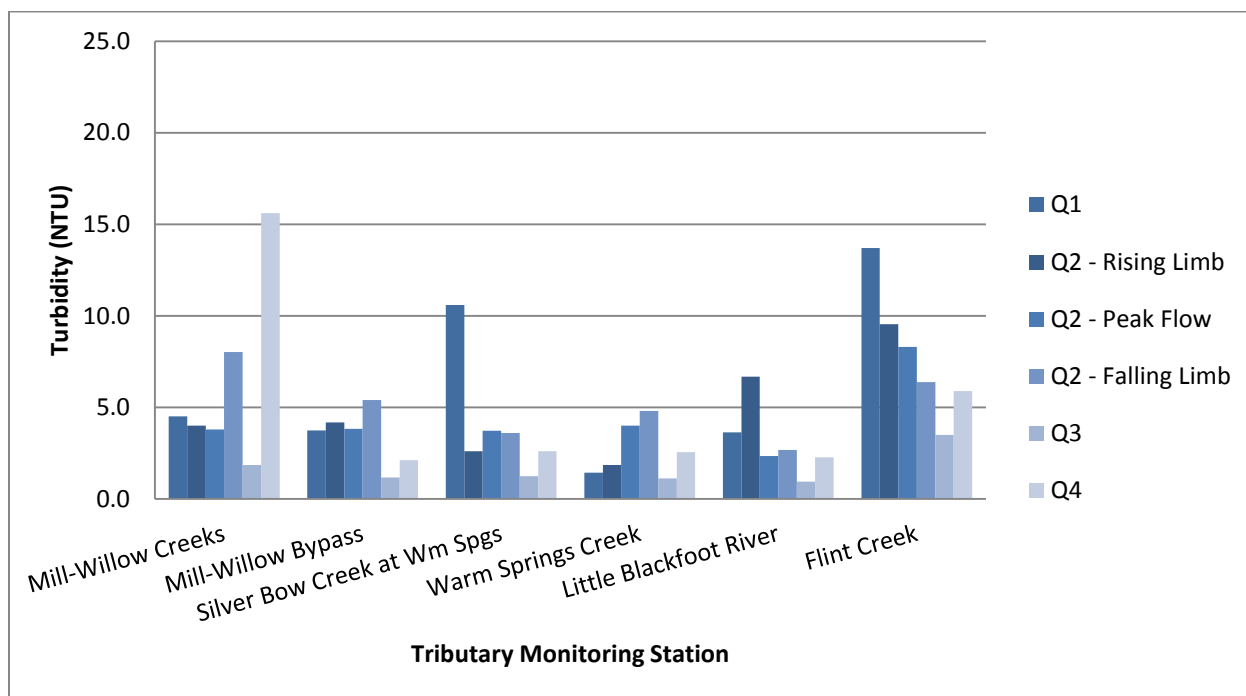
Turbidity at all mainstem Clark Fork River sites were highest during the Q1 2014 monitoring event and lowest in Q3. Turbidity usually increased in the Clark Fork River from near Galen to Deer Lodge, or Turah, depending on the monitoring event [Figure 2-15]. With the exception of the Q1 monitoring event, turbidity was generally low at mainstem monitoring sites during 2014 (range of 1.36-10.70 NTU) [Figure 2-15].

Turbidity at the tributary monitoring sites was more variable and less predictable than at the mainstem Clark Fork River sites. Highest turbidity was observed during the Q2-Peak or Q2-Falling monitoring events at three of the six tributary sites in 2014. Two other tributary sites showed highest turbidity in Q1, and the sixth site (Mill-Willow Creeks at the Frontage Road) had highest turbidity in Q4. The latter site also showed elevated suspended sediment and COC metals concentrations (see Sections 2.3.3 and 2.3.6). Turbidity at the tributary monitoring stations ranged from a low of 0.94 NTU in the Little Blackfoot River in Q3 to a high of 15.60 NTU in Mill-Willow Creek in Q4 [Figure 2-16].

Non-spring runoff period turbidity measurements were similar in each of 2010-2014, with several exceptions. In Q2 2011, turbidity during peak spring snowmelt runoff conditions was higher than during the same periods in 2010-2014. Q1 2014 turbidity was higher at the Clark Fork River at Deer Lodge and Turah sites than during Q1 in each of years 2010-2013. Lastly, turbidity in Mill-Willow Creek at the Frontage Road was higher in Q4 2014 than during any prior quarterly monitoring event in the 2012-2014 periods.



**Figure 2-15. Turbidity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



**Figure 2-16. Turbidity at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**



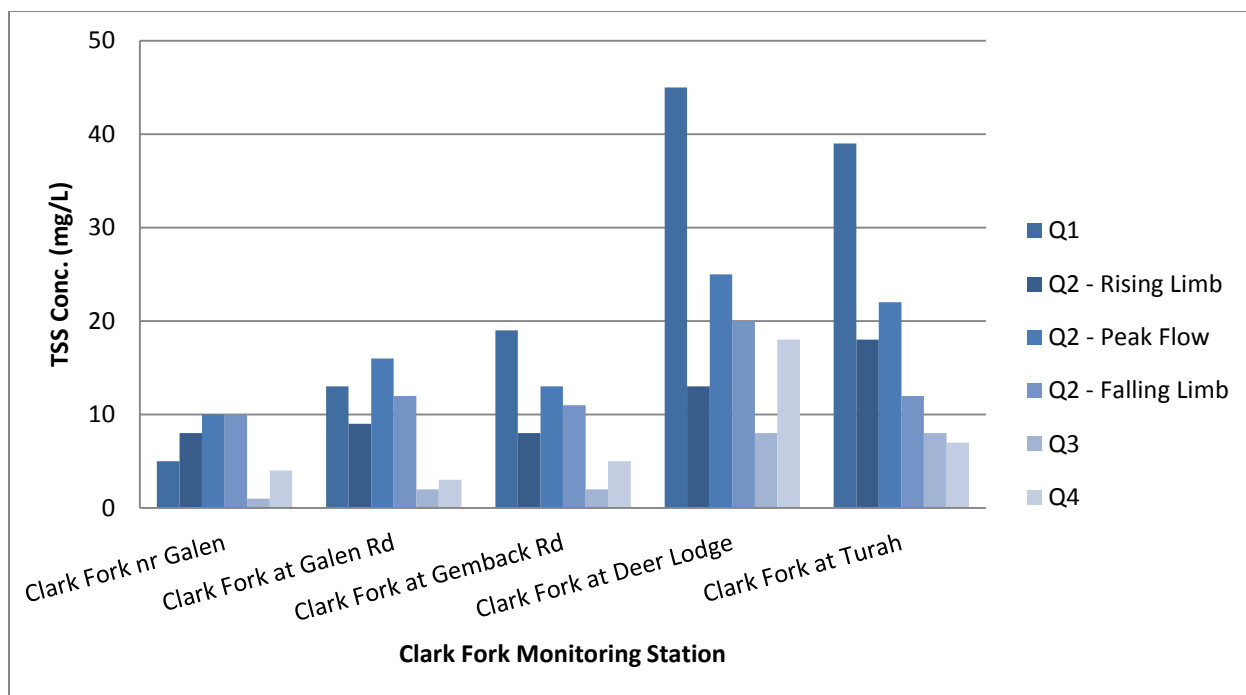
### 2.3.3 Total Suspended Sediment

---

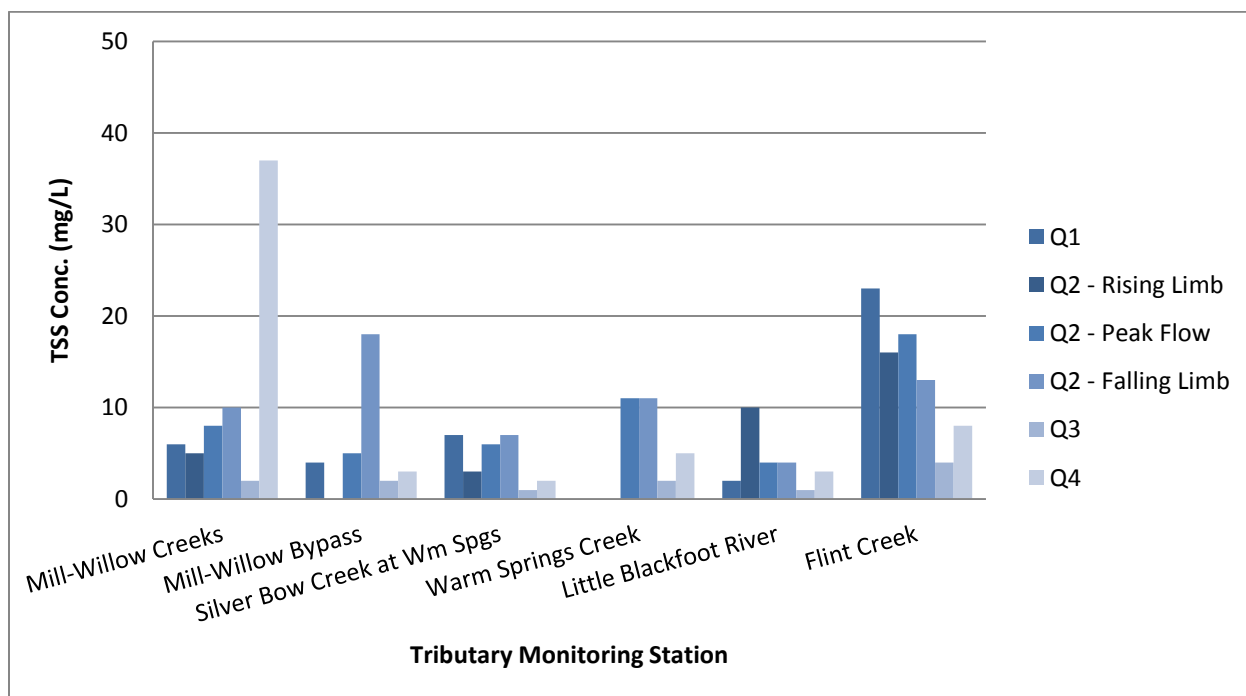
Total suspended sediment (TSS) concentrations at Clark Fork River mainstem monitoring stations in 2014 were elevated in Q1, particularly at Gemback Road, Deer Lodge and Turah. Like turbidity, this was associated with an early snowmelt runoff event in March. Second highest total suspended sediment concentrations were observed during the Q2 spring runoff monitoring events, particularly during Q2-Peak. The spatial pattern for total suspended sediment concentrations in the Clark Fork River was for increasing concentrations from near Galen to Deer Lodge, followed by similar concentrations at Turah. Largest inter-site increases in total suspended sediment concentration were noted from Gemback Road to Deer Lodge during the Q1 monitoring event. The overall range of total suspended sediment concentrations at mainstem sites was from 1-45 mg/L. Highest concentrations were noted at Deer Lodge and Turah in Q1 2014, with concentrations of 45 and 39 mg/L, respectively [Figure 2-17].

Total suspended sediment concentrations measured at the tributary monitoring stations during 2014 were generally less variable than at the mainstem stations [Figure 2-17; Figure 2-18]. On average, Flint Creek near its mouth exhibited the highest total suspended sediment concentrations of the six tributaries monitored in 2014. Mill-Willow Creek at Frontage Road had a very high total suspended sediment concentration during the Q4 monitoring event. The source is unknown, but field notes indicate high levels of turbidity extending well upstream from the sampling site at Frontage Road. COC metals concentrations were also greatly elevated at this site in Q4 (see Section 2.3.6). The overall range of total suspended sediment concentrations at the tributary sites was from less than the analytical reporting level of 1 mg/L in Mill-Willow Bypass and Warm Springs Creek during some quarters to a high of 37 mg/L in Mill-Willow Creek in Q4.

Total suspended sediment concentrations at CFROU mainstem monitoring stations during most monitoring events in 2014 were generally comparable to concentrations measured between 2010 and 2013. However, peak total suspended sediment concentrations measured during Q2 monitoring events in each of years 2010-2012 were substantially higher than any of the total suspended sediment concentrations measured during 2014.



**Figure 2-17. Total suspended sediment concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**

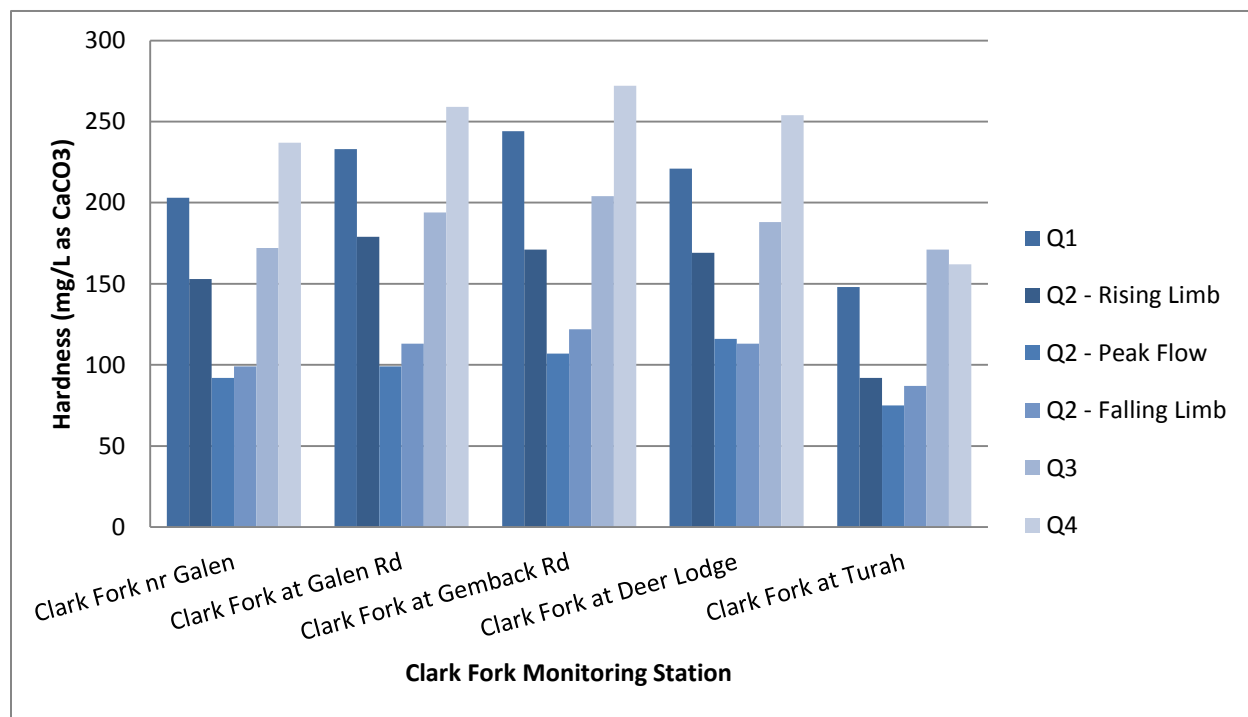


**Figure 2-18. Total suspended sediment concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate values below the analytical reporting limit.**

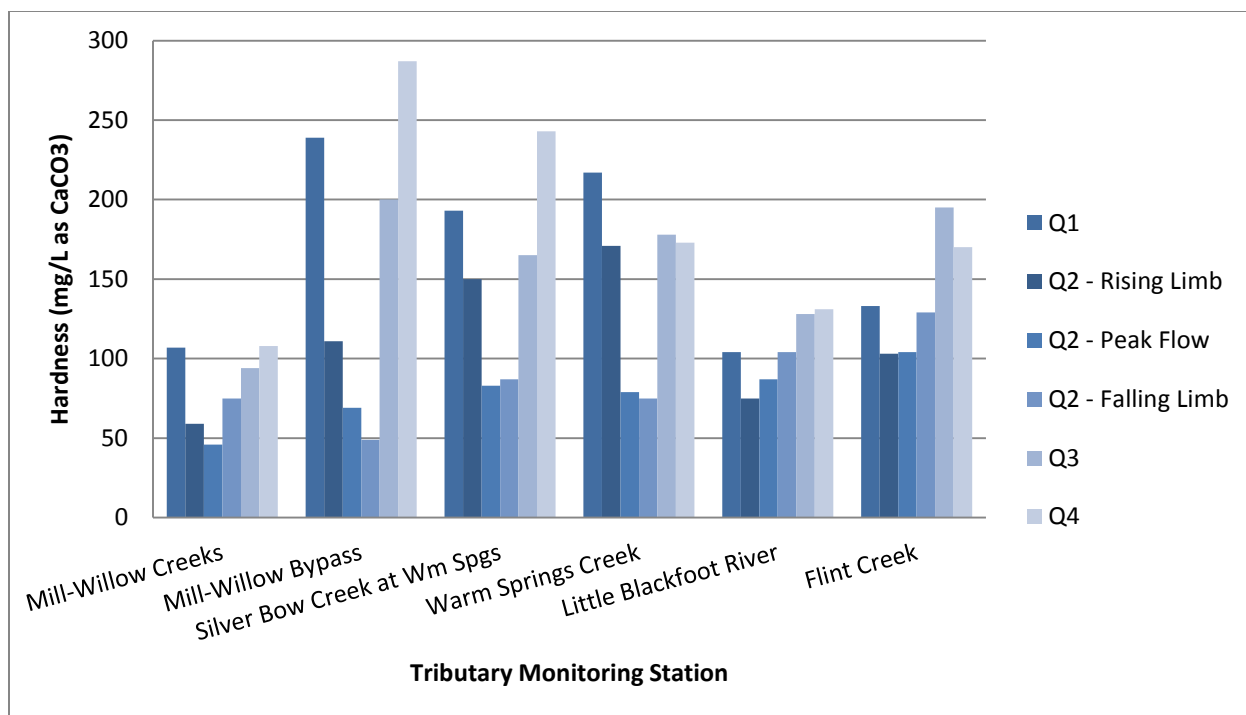
## 2.3.4 Common Ions

### 2.3.4.1 Hardness

Except during the Q2 monitoring events, water hardness at Clark Fork River mainstem stations in 2014 ranged from 148-272 mg/L as CaCO<sub>3</sub> (i.e., “hard” to “very hard”) [Figure 2-19]. The Clark Fork River at Turah site and Mill-Willow Creek at Frontage Road during the Q2-Peak monitoring event exhibited the lowest hardness (75 and 46 mg/L, respectively) [Figure 2-19; Figure 2-20]. Particularly high water hardness was observed in the Mill-Willow Bypass in Q4 (287 mg/L) and Clark Fork River mainstem monitoring stations at Galen Road (259 mg/L), at Gemback Road (272 mg/L), and at Deer Lodge (252 mg/L). Water hardness during 2014 quarterly monitoring events was generally within the range of values observed in each of years 2010-2013.



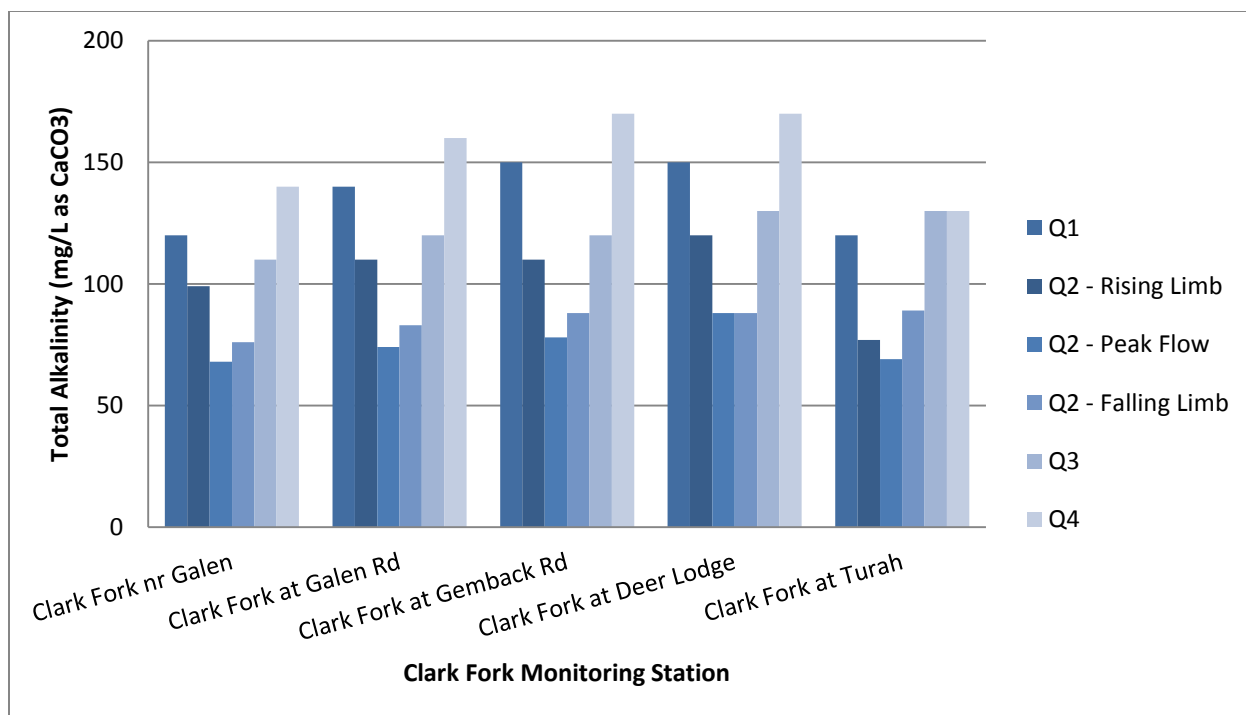
**Figure 2-19. Water hardness at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



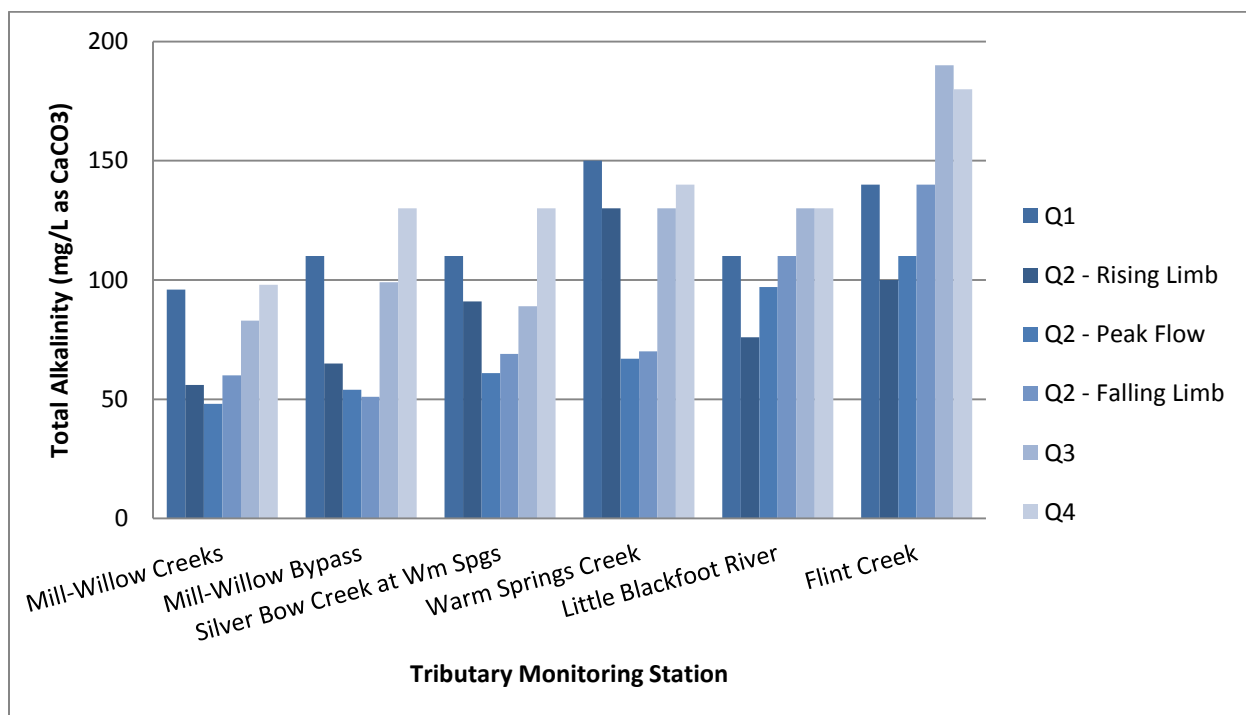
**Figure 2-20. Water hardness at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**

#### **2.3.4.2 Alkalinity and Bicarbonate**

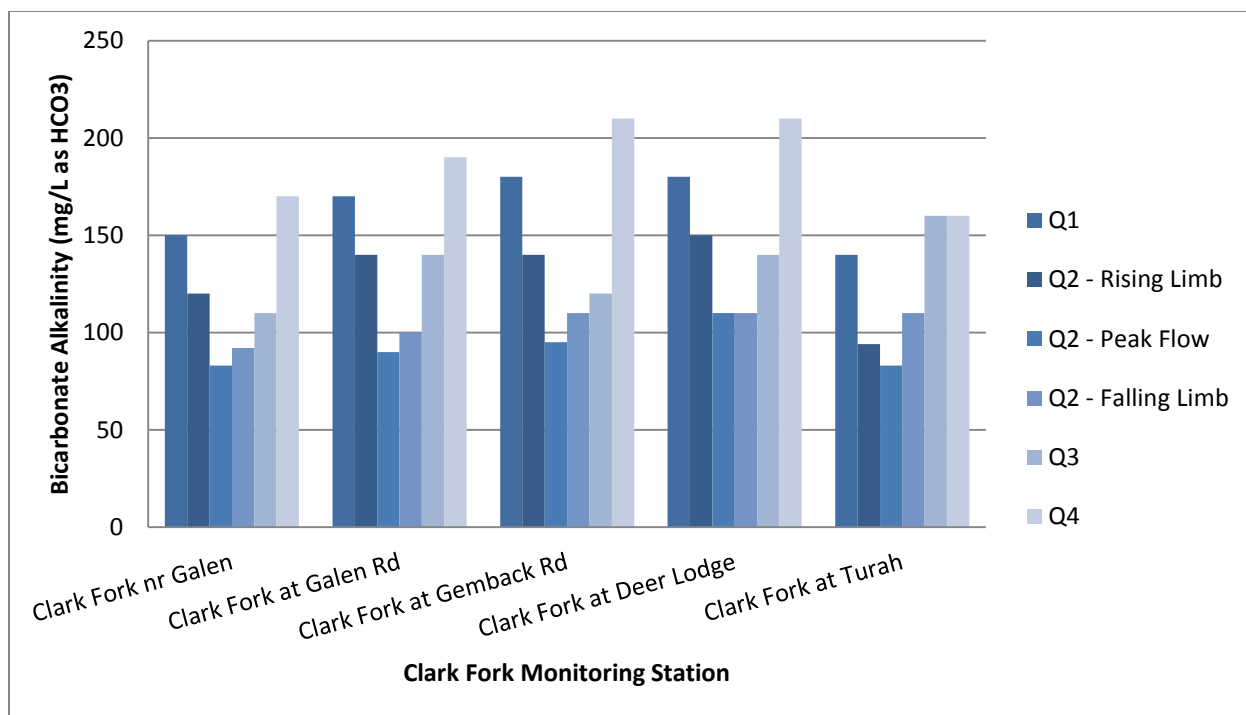
Total and bicarbonate alkalinity in the mainstem Clark Fork River in 2014 showed a modest increasing trend from near Galen to Deer Lodge, followed by lower concentrations at Turah [Figure 2-21; Figure 2-23]. Among the tributary monitoring stations, the highest alkalinity occurred in Flint Creek, the Little Blackfoot River and Warm Springs Creek, while lowest alkalinity occurred in Mill-Willow Creek at Frontage Road [Figure 2-22; Figure 2-24]. Alkalinity was relatively low during the three Q2 monitoring events. The highest alkalinity was most commonly observed in Q4. Total and bicarbonate alkalinity at CFROU mainstem and tributary monitoring stations during monitoring events in 2014 were within the range of values measured in 2010-2013.



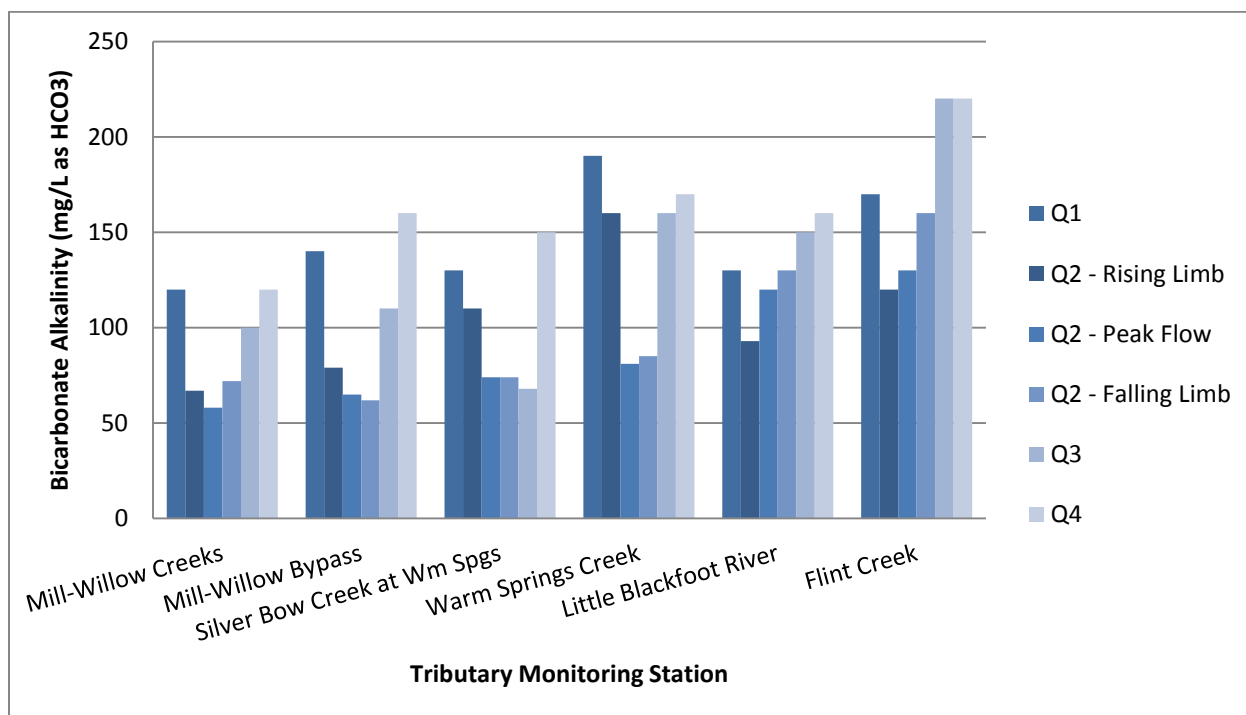
**Figure 2-21. Alkalinity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



**Figure 2-22. Alkalinity at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**



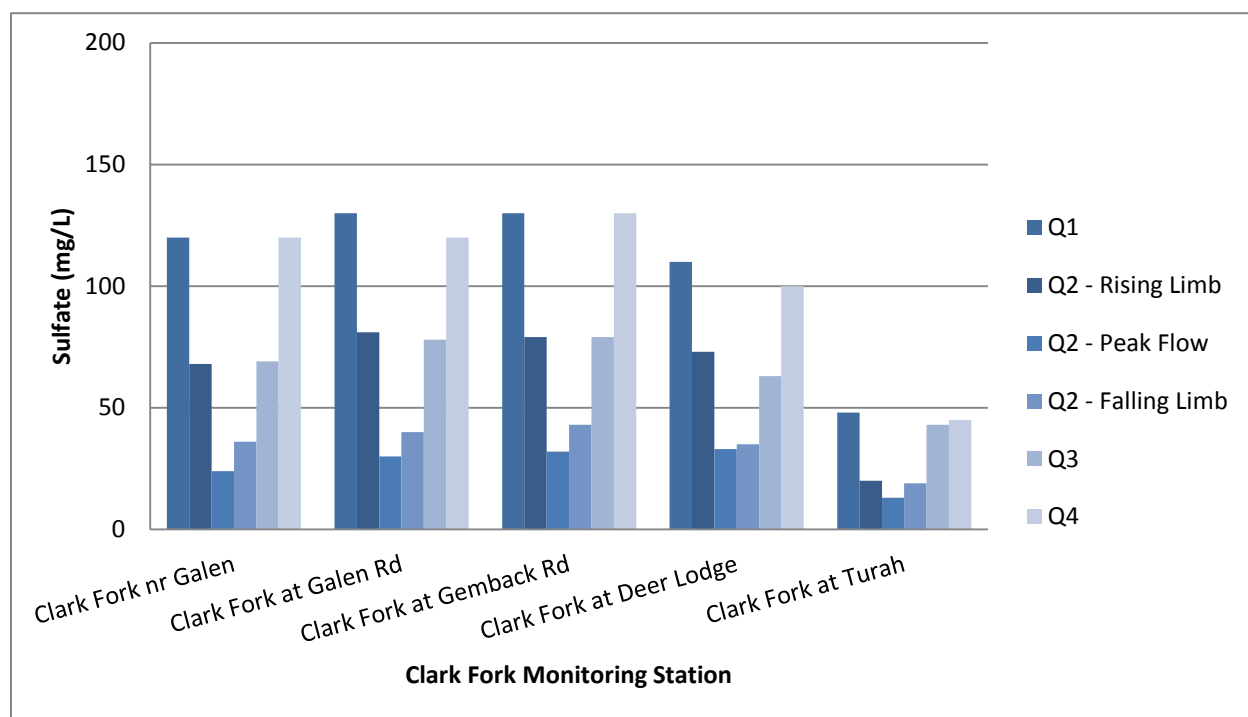
**Figure 2-23. Bicarbonate alkalinity at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



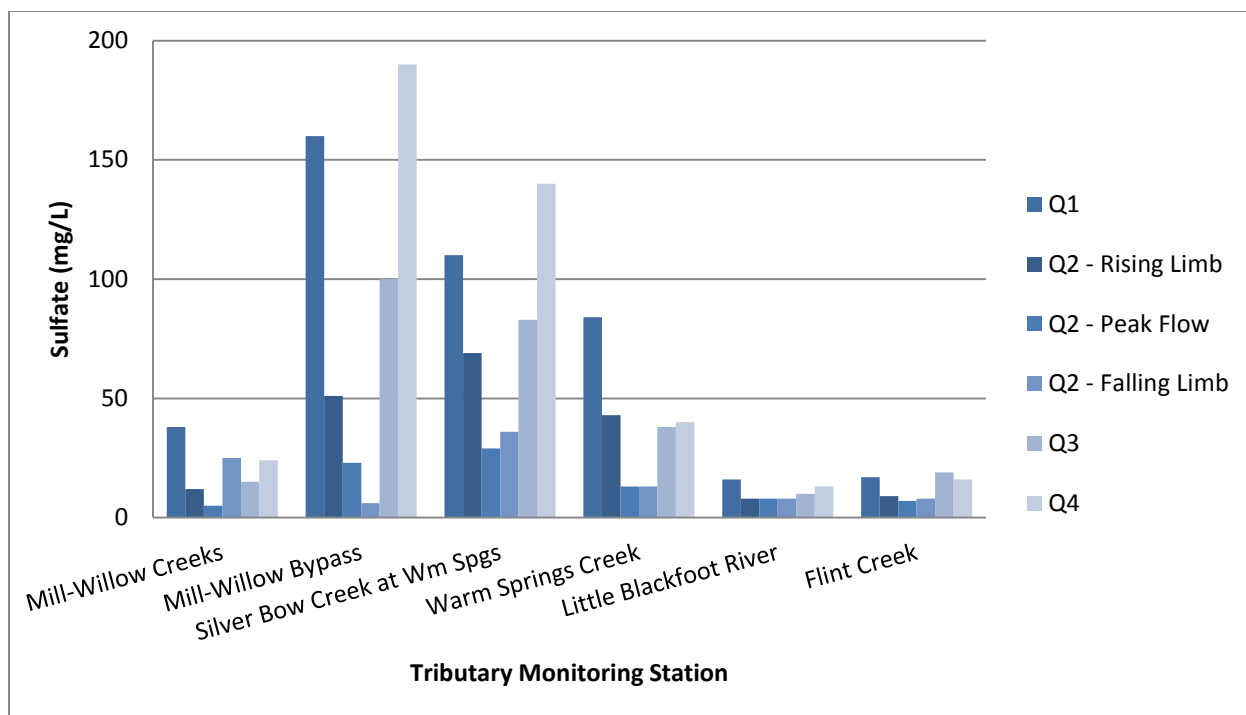
**Figure 2-24. Bicarbonate alkalinity at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**

### 2.3.4.3 Sulfate

Sulfate concentrations in the mainstem Clark Fork River were generally comparable from the near Galen to Gemback Road monitoring sites, somewhat lower at the Deer Lodge site, and lower at Turah [Figure 2-25]. The tributary monitoring stations had the highest sulfate concentrations in the Mill-Willow Bypass and in Silver Bow Creek at Warm Springs, and the lowest concentrations in the Little Blackfoot River and Flint Creek [Figure 2-26]. Similar to alkalinity, sulfate concentrations were relatively low during the Q2 monitoring events and relatively high in Q1 and Q4. Sulfate concentrations measured at CFROU monitoring stations during 2014 were within the range of values measured in 2010-2013.



**Figure 2-25. Sulfate concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014.**



**Figure 2-26. Sulfate concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014.**

## 2.3.5 Nutrients

### 2.3.5.1 Total Nitrogen

Compared to the summertime Clark Fork River water quality standards, total nitrogen concentrations were periodically elevated in the Clark Fork River at Deer Lodge in 2014 [Table 2-5; Figure 2-27]. The numeric water quality standards for nutrients in the Clark Fork River (ARM 17.30.631) apply only to the CFROU mainstem monitoring sites during the 2014 Q2-Falling and Q3 monitoring events, which occurred during the applicable June 21 to September 21 period. Compared to newly adopted summertime base numeric nutrient standards for the Middle Rockies Ecoregion, which apply to the July 1 to September 30 time period, total nitrogen concentrations were acceptable in 2014 at all six CFROU tributary monitoring stations [Table 2-5, Figure 2-28]. Based on these criteria, exceedances of the relevant total nitrogen standards were observed only at the Clark Fork River at Deer Lodge monitoring station in 2014 [Table 2-5].

Total nitrogen concentrations were highest at most stations in Q1. The maximum total nitrogen concentrations were observed in the Clark Fork River at Deer Lodge in Q1 (0.94 mg/L) and in Silver Bow Creek at Warm Springs (1.08 mg/L), also in Q1. The lowest total nitrogen concentrations were observed in Mill-Willow Creek at Frontage Road, Mill-Willow Bypass, and Warm Springs Creek (all less than the analytical reporting limit) in Q3, and in the mainstem Clark Fork River at Turah in Q3 [Table 2-5]. Total nitrogen concentrations in the mainstem Clark Fork River were similar from near Galen to Gemback Road, slightly higher at Deer



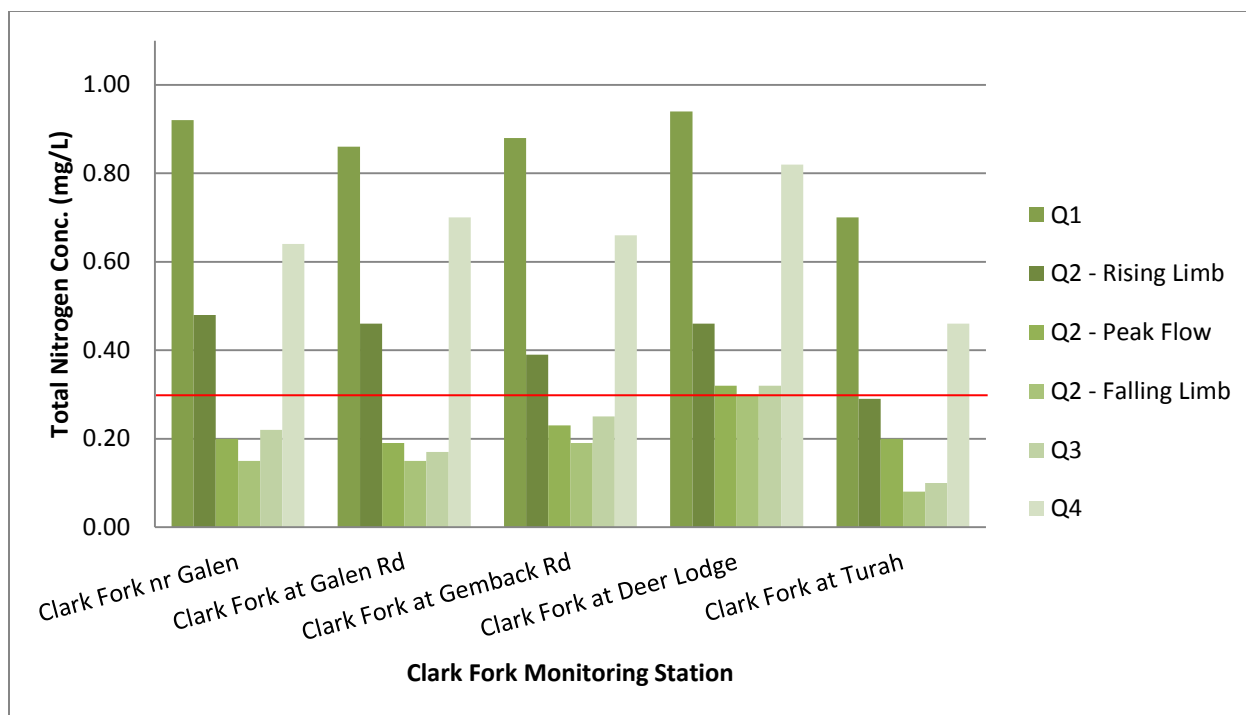
Lodge, and consistently lower at Turah. Total nitrogen concentrations during 2014 monitoring events were within the range of concentrations measured at CFROU monitoring sites in 2011-2013.

**Table 2-5. Total nitrogen concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

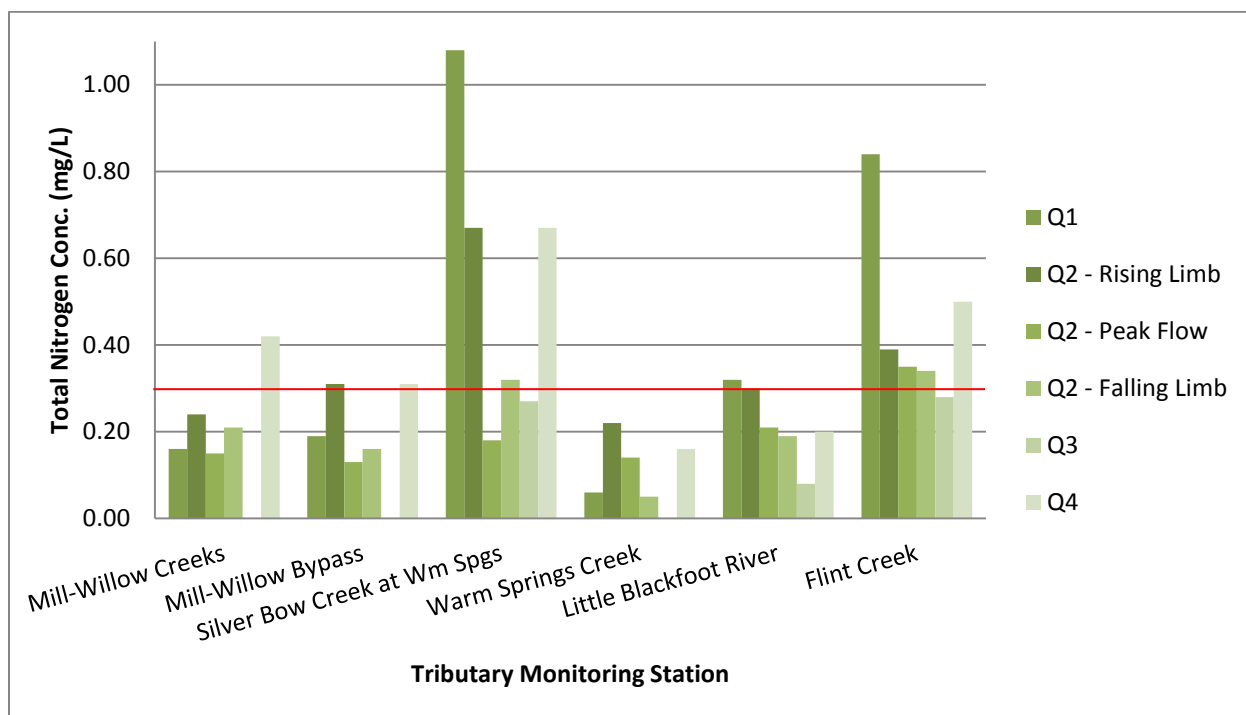
Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.92	0.48	0.20	0.15	0.22	0.64
CFR-07D	Clark Fork River at Galen Road	0.86	0.46	0.19	0.15	0.17	0.70
CFR-11F	Clark Fork River at Gemback Road	0.88	0.39	0.23	0.19	0.25	0.66
CFR-27H	Clark Fork River at Deer Lodge	0.94	0.46	0.32	0.30	0.32	0.82
CFR-116A	Clark Fork River at Turah	0.70	0.29	0.20	0.08	0.10	0.46
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	1.08	0.67	0.18	0.32	0.27	0.67
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.16	0.24	0.15	0.21	ND	0.42
MWB-SBC	Mill-Willow Bypass near mouth	0.19	0.31	0.13	0.16	ND	0.31
WSC-SBC	Warm Springs Creek near mouth	0.06	0.22	0.14	0.05	ND	0.16
LBR-CFR	Little Blackfoot River near Garrison	0.32	0.30	0.21	0.19	0.08	0.20
FC-CFR	Flint Creek near mouth	0.84	0.39	0.35	0.34	0.28	0.50

Exceeds Clark Fork River total nitrogen standard applicable June 21 to September 21 (0.30 mg/L; ARM 17.30.631), or Middle Rockies Ecoregion total nitrogen standard applicable July 1 to September 30 (0.30 mg/L) [MDEQ, 2014b].

ND Not detected at analytical reporting limit.



**Figure 2-27. Total nitrogen concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b].**



**Figure 2-28. Total nitrogen concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b].**

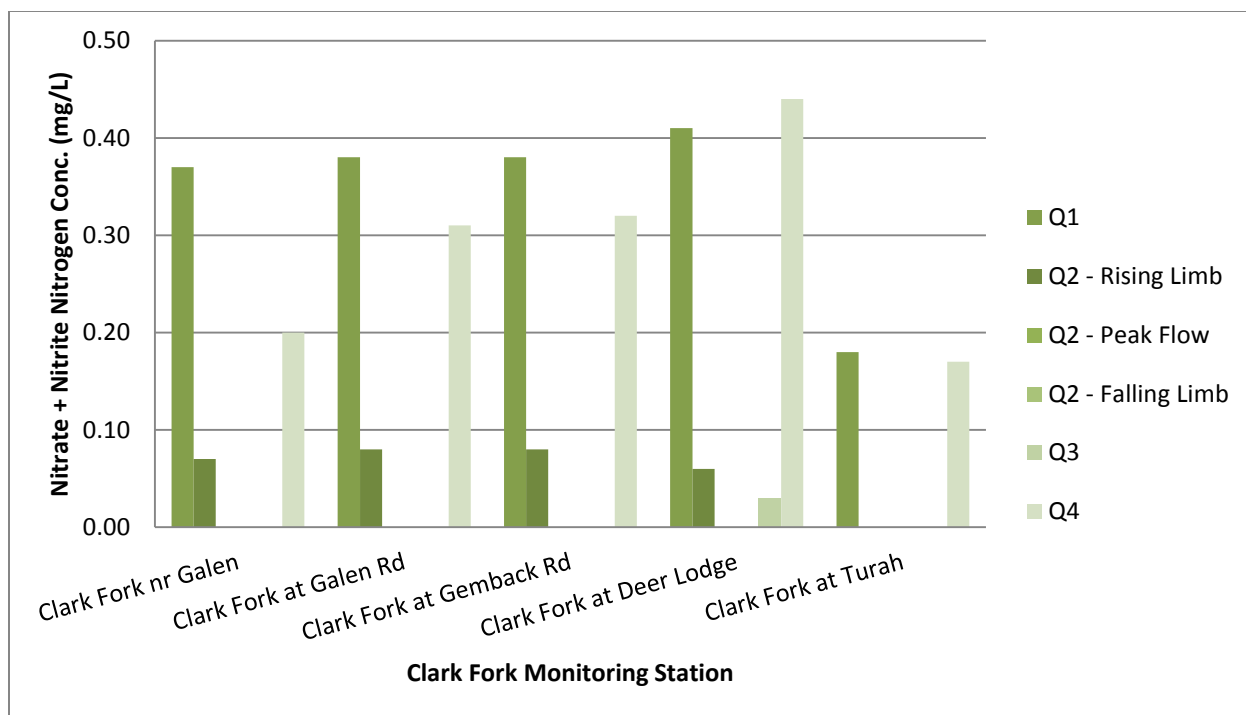
### 2.3.5.2 Nitrate Plus Nitrite Nitrogen

Concentrations of nitrate plus nitrite nitrogen were somewhat elevated in Q1 and Q4 during low streamflow conditions, and generally low during other quarterly monitoring events in 2014 [Figure 2-29; Figure 2-30]. The spatial trend for nitrate plus nitrite concentrations in the mainstem Clark Fork River showed increasing concentrations from near Galen to Deer Lodge during several monitoring events, followed by a decline at the downstream Turah monitoring site. Nitrate plus nitrite nitrogen concentrations were frequently below the minimum analytical reporting limit during many of the 2014 monitoring events, at both mainstem Clark Fork River as well as tributary monitoring stations (41 of 66 site observations were below the reporting limit) [Table 2-6]. Nitrate plus nitrite concentrations during 2014 monitoring events were within the range of concentrations measured at CFROU monitoring sites in 2011-2013.

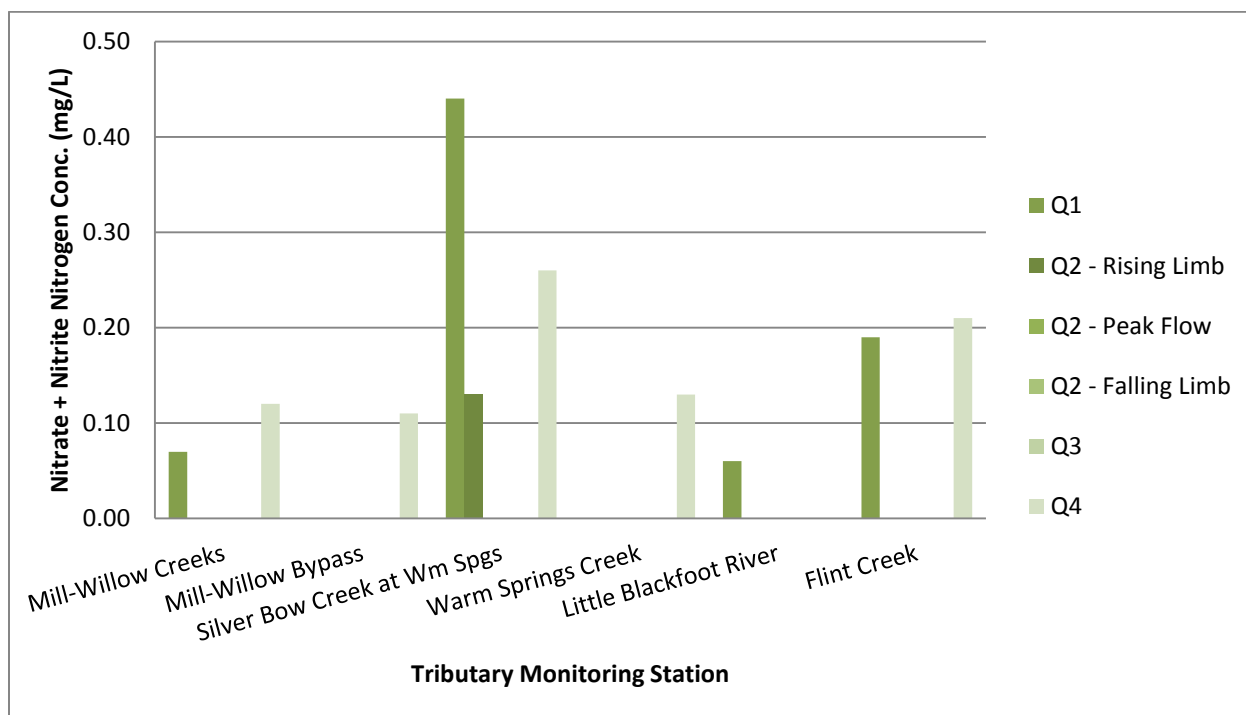
**Table 2-6. Nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.37	0.07	ND	ND	ND	0.20
CFR-07D	Clark Fork River at Galen Road	0.38	0.08	ND	ND	ND	0.31
CFR-11F	Clark Fork River at Gemback Road	0.38	0.08	ND	ND	ND	0.32
CFR-27H	Clark Fork River at Deer Lodge	0.41	0.06	ND	ND	0.03	0.44
CFR-116A	Clark Fork River at Turah	0.18	ND	ND	ND	ND	0.17
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.44	0.13	ND	ND	ND	0.26
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.07	ND	ND	ND	ND	0.12
MWB-SBC	Mill-Willow Bypass near mouth	ND	ND	ND	ND	ND	0.11
WSC-SBC	Warm Springs Creek near mouth	ND	ND	ND	ND	ND	0.13
LBR-CFR	Little Blackfoot River near Garrison	0.06	ND	ND	ND	ND	ND
FC-CFR	Flint Creek near mouth	0.19	ND	ND	ND	ND	0.21

ND Not detected at analytical reporting limit.



**Figure 2-29. Nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2014.**



**Figure 2-30. Nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2014.**

### 2.3.5.3 Total Ammonia

All but four of 66 samples collected from the CFROU in 2014 had ammonia concentrations below the analytical reporting limit. In Q1 2014, ammonia was detectable in Silver Bow Creek at Warm Springs and at three Clark Fork River mainstem sites downstream from Silver Bow Creek [Table 2-7]. The total ammonia concentration (1.08 mg/L) in Silver Bow Creek at Warm Springs on March 19, 2014 was 189% higher than the water temperature- and pH-dependent chronic toxicity ALS and was 86% of the acute ALS.

Spring turnover in the Warm Springs Ponds on Silver Bow Creek was believed to be the cause of the elevated ammonia concentrations during the Q1 monitoring event. Prior to 2014, ammonia was not detected at any of the CFROU monitoring stations during any quarterly monitoring event since 2013.

**Table 2-7. Total ammonia concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.11	ND	ND	ND	ND	ND
CFR-07D	Clark Fork River at Galen Road	ND	ND	ND	ND	ND	ND
CFR-11F	Clark Fork River at Gemback Road	0.06	ND	ND	ND	ND	ND
CFR-27H	Clark Fork River at Deer Lodge	0.06	ND	ND	ND	ND	ND
CFR-116A	Clark Fork River at Turah	ND	ND	ND	ND	ND	ND
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	1.08	ND	ND	ND	ND	ND
MCWC-MWB	Mill-Willow Creek at Frontage Road	ND	ND	ND	ND	ND	ND
MWB-SBC	Mill-Willow Bypass near mouth	ND	ND	ND	ND	ND	ND
WSC-SBC	Warm Springs Creek near mouth	ND	ND	ND	ND	ND	ND
LBR-CFR	Little Blackfoot River near Garrison	ND	ND	ND	ND	ND	ND
FC-CFR	Flint Creek near mouth	ND	ND	ND	ND	ND	ND

Exceeds the chronic aquatic life standard [MDEQ, 2012b].

ND Not detected at analytical reporting limit.

### 2.3.5.4 Total Phosphorus

Total phosphorus concentrations in 2014 exceeded the Clark Fork River total phosphorus water quality standard (0.020 mg/L) at all five mainstem sites during at least one summertime monitoring event [Table 2-8; Figure 2-31]. Total phosphorus concentrations exceeded the Middle Rockies Ecoregion total phosphorus water quality standard (0.030 mg/L) at two tributary sites: Silver Bow Creek and Flint Creek [Table 2-8; Figure 2-32]. Concentrations of total phosphorus

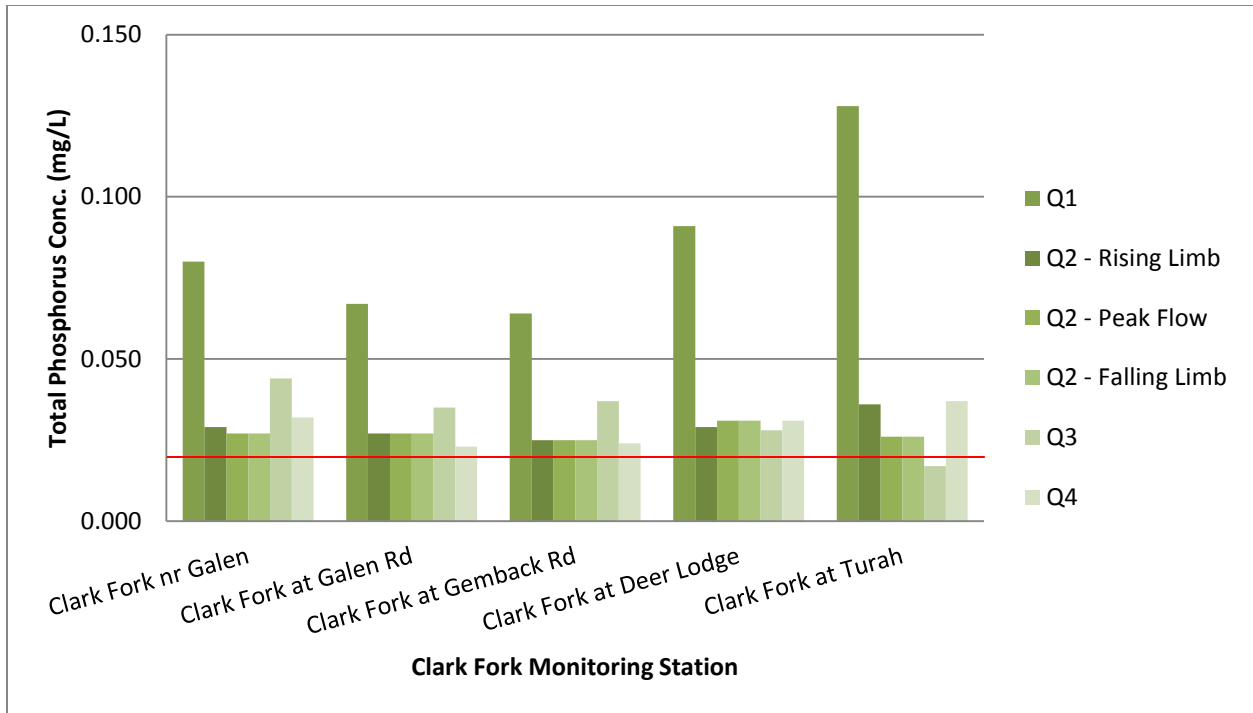
were highest at most sites during the Q1 monitoring event, when streamflows were still elevated from the unusual March snowmelt runoff event. All five mainstem Clark Fork River monitoring sites exceeded the relevant total phosphorus standard during Q2-Falling monitoring event, whereas four of five mainstem sites exhibited exceedances during the Q3 monitoring event. Silver Bow Creek and Flint Creek exceeded the relevant total phosphorus standard during Q3 monitoring event.

Total phosphorus concentrations were highest in Flint Creek, the Clark Fork River at Turah, and in Silver Bow Creek at Warm Springs during Q1. Total phosphorus concentrations tended to be similar throughout much of the Clark Fork River mainstem sites. The lowest total phosphorus concentrations were observed in Warm Springs Creek [Figure 2-32]. Total phosphorus concentrations in 2014 were within the range of concentrations measured at CFROU monitoring sites in 2011-2013. However, total phosphorus concentrations at mainstem Clark Fork River sites during Q2 2011 and Q2 2012 were higher than those observed during the Q2 2013 and Q2 2014 monitoring events.

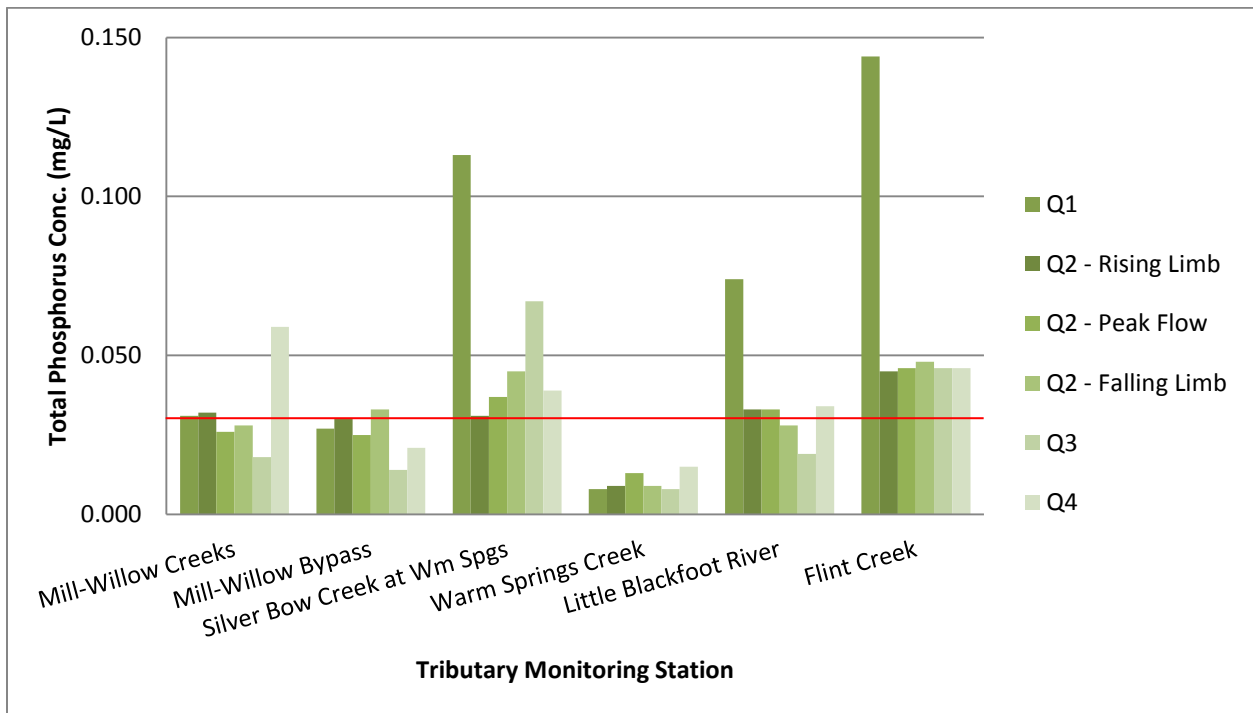
**Table 2-8. Total phosphorus concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.080	0.029	0.027	0.027	0.044	0.032
CFR-07D	Clark Fork River at Galen Road	0.067	0.027	0.030	0.027	0.035	0.023
CFR-11F	Clark Fork River at Gemback Road	0.064	0.025	0.028	0.025	0.037	0.024
CFR-27H	Clark Fork River at Deer Lodge	0.091	0.029	0.045	0.031	0.028	0.031
CFR-116A	Clark Fork River at Turah	0.128	0.036	0.037	0.026	0.017	0.037
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.113	0.031	0.037	0.045	0.067	0.039
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.031	0.032	0.026	0.028	0.018	0.059
MWB-SBC	Mill-Willow Bypass near mouth	0.027	0.030	0.025	0.033	0.014	0.021
WSC-SBC	Warm Springs Creek near mouth	0.008	0.009	0.013	0.009	0.008	0.015
LBR-CFR	Little Blackfoot River near Garrison	0.074	0.033	0.033	0.028	0.019	0.034
FC-CFR	Flint Creek near mouth	0.144	0.045	0.046	0.048	0.046	0.046

Exceeds Clark Fork River total phosphorus standard applicable June 21 to September 21 (0.020 mg/L; ARM 17.30.631), or Middle Rockies Ecoregion total phosphorus standard applicable July 1 to September 30 (0.030 mg/L) [MDEQ, 2014b].



**Figure 2-31. Total phosphorus concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b].**



**Figure 2-32. Total phosphorus concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2014. Red line represents total nitrogen standard [MDEQ, 2014b].**

## 2.3.6 Contaminants of Concern

---

### 2.3.6.1 Arsenic

Average concentrations of total recoverable (TR) and dissolved arsenic at CFROU monitoring stations during 2014 were highest in Mill-Willow Creek at Frontage Road, Mill-Willow Bypass, Silver Bow Creek at Warm Springs, and the Clark Fork River station at Deer Lodge. Arsenic concentrations were lowest in the Little Blackfoot River, Warm Springs Creek, and in the Clark Fork River at Turah [Figure 2-33; Figure 2-34]. Arsenic concentrations were comparable in the reach of the Clark Fork River from near Galen to Gembach Road, slightly higher at Deer Lodge, and lower at the Clark Fork River at Turah station below Rock Creek. The single highest arsenic concentrations were observed in Mill-Willow Creek, Mill-Willow Bypass and Silver Bow Creek at Warm Springs. Arsenic concentrations showed minimal seasonal variation at most of the CFROU monitoring stations during most of the six monitoring events. However, lowest concentrations were observed at most of the monitoring sites in Q4. With the exception of the second quarter 2011 monitoring event when both streamflows and arsenic concentrations at some sites were unusually high, arsenic concentrations at CFROU mainstem monitoring stations during the 2014 calendar year were comparable to those measured in 2010-2013.

A high percentage of arsenic detected at CFROU monitoring stations in 2014 was present in the dissolved form during all of the six monitoring events [Figure 2-33]. Arsenic concentrations commonly exceeded the dissolved and total recoverable performance goals [USEPA, 2004] at seven of the 11 CFROU monitoring stations during the 2014 monitoring year [Table 2-9; Table 2-10]. None of the measured arsenic values during 2014 exceeded the acute or chronic aquatic life standard (ALS) [MDEQ, 2012b]. The frequencies of arsenic performance goal excursions at CFROU monitoring sites in 2014 was slightly higher than during monitoring in 2010-2013. In 2014, 61% of the dissolved and 38% of the total recoverable samples in the CFROU exceeded the performance goals [USEPA, 2004].

The arsenic performance goal [USEPA, 2004] and chronic ALS [MDEQ, 2012b] compliance ratios for the four selected stations have remained relatively stable over the four year period [Figure 2-35 through Figure 2-38]. The performance goal compliance ratios for Silver Bow Creek at Warm Springs and the Clark Fork River near Galen and at Deer Lodge were commonly near or above 1.0 during monitoring events in the examined period indicating frequent exceedances of that goal. In contrast, the Clark Fork River at Turah rarely exceeded the 1.0 threshold value during the same time period. The chronic ALS compliance ratio for arsenic was consistently below 1.0 at all four of the selected stations. Examining the two human health compliance ratios for arsenic during the six 2014 monitoring events, ratios were similar at the upper four Clark Fork River mainstem stations from near Galen to Deer Lodge and were always near or greater than 1.0, then much lower at the Turah station [Figure 2-39; Figure 2-40]. Among the tributary monitoring stations, the two arsenic human health compliance ratios during 2014 were near or greater than 1.0 in Mill-Willow Creek at Frontage Road, Mill-Willow Bypass, and Silver Bow Creek at Warm Springs, and below 1.0 in Warm Springs Creek, the Little Blackfoot River, and Flint Creek [Figure 2-41; Figure 2-42].



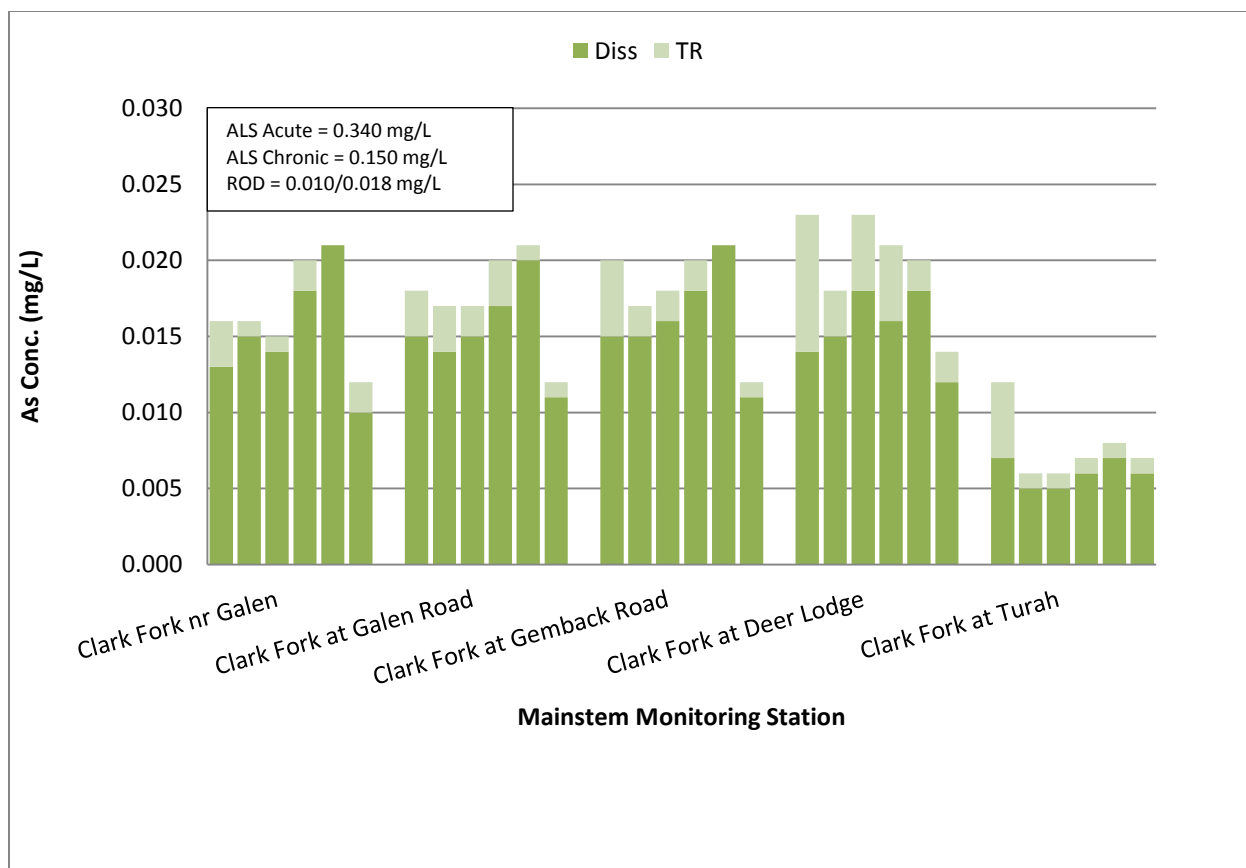
**Table 2-9. Dissolved arsenic concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.013	0.015	0.014	0.018	0.021	0.010
CFR-07D	Clark Fork River at Galen Road	0.015	0.014	0.015	0.017	0.020	0.011
CFR-11F	Clark Fork River at Gemback Road	0.015	0.015	0.016	0.018	0.021	0.011
CFR-27H	Clark Fork River at Deer Lodge	0.014	0.015	0.018	0.016	0.018	0.012
CFR-116A	Clark Fork River at Turah	0.007	0.005	0.005	0.006	0.007	0.006
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.014	0.017	0.022	0.026	0.028	0.009
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.019	0.025	0.019	0.024	0.019	0.011
MWB-SBC	Mill-Willow Bypass near mouth	0.018	0.025	0.020	0.025	0.019	0.014
WSC-SBC	Warm Springs Creek near mouth	0.008	0.006	0.005	0.006	0.007	0.005
LBR-CFR	Little Blackfoot River near Garrison	0.004	0.004	0.006	0.006	0.005	0.004
FC-CFR	Flint Creek near mouth	0.008	0.006	0.008	0.009	0.008	0.006

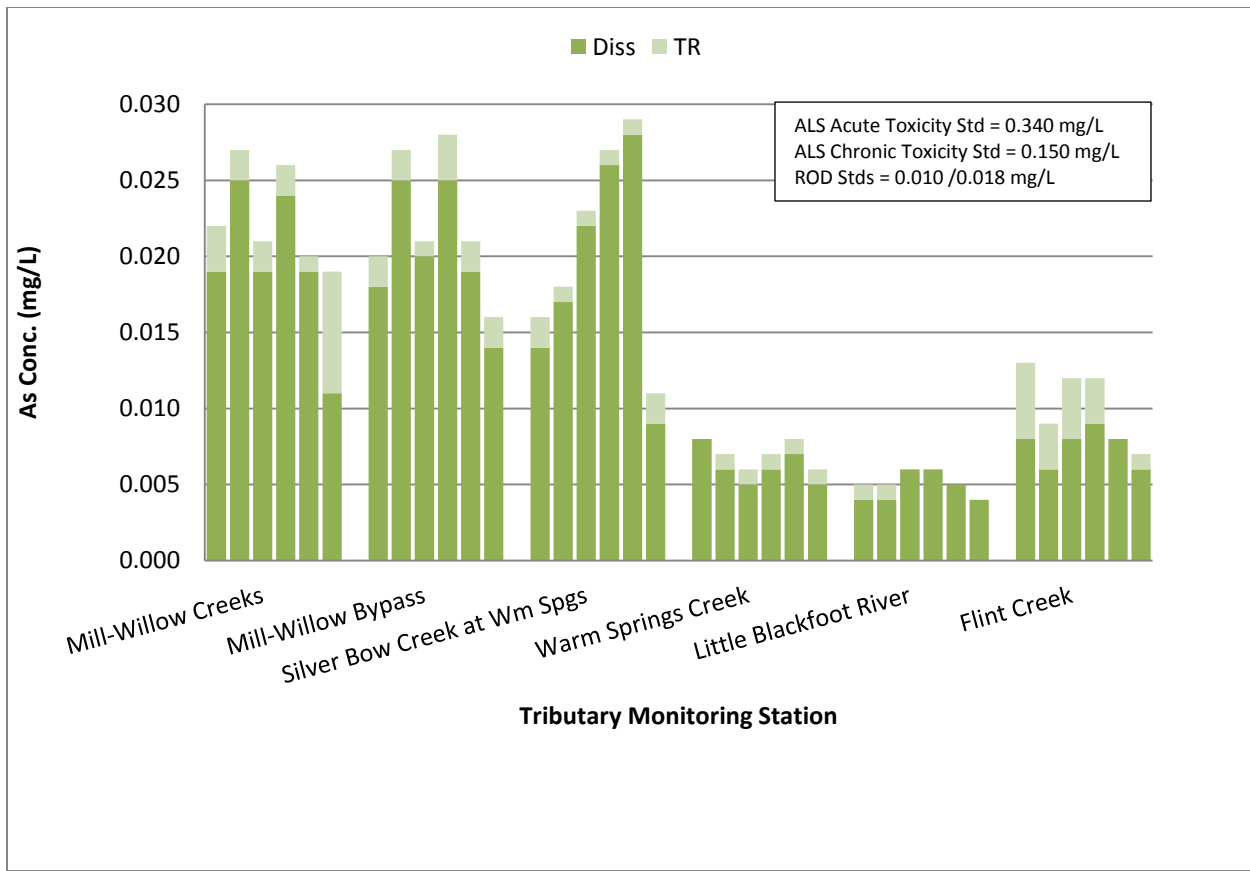
Exceeds specified arsenic surface water performance goal for dissolved concentration (0.010 mg/L) [USEPA, 2004].

**Table 2-10. Total recoverable arsenic concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

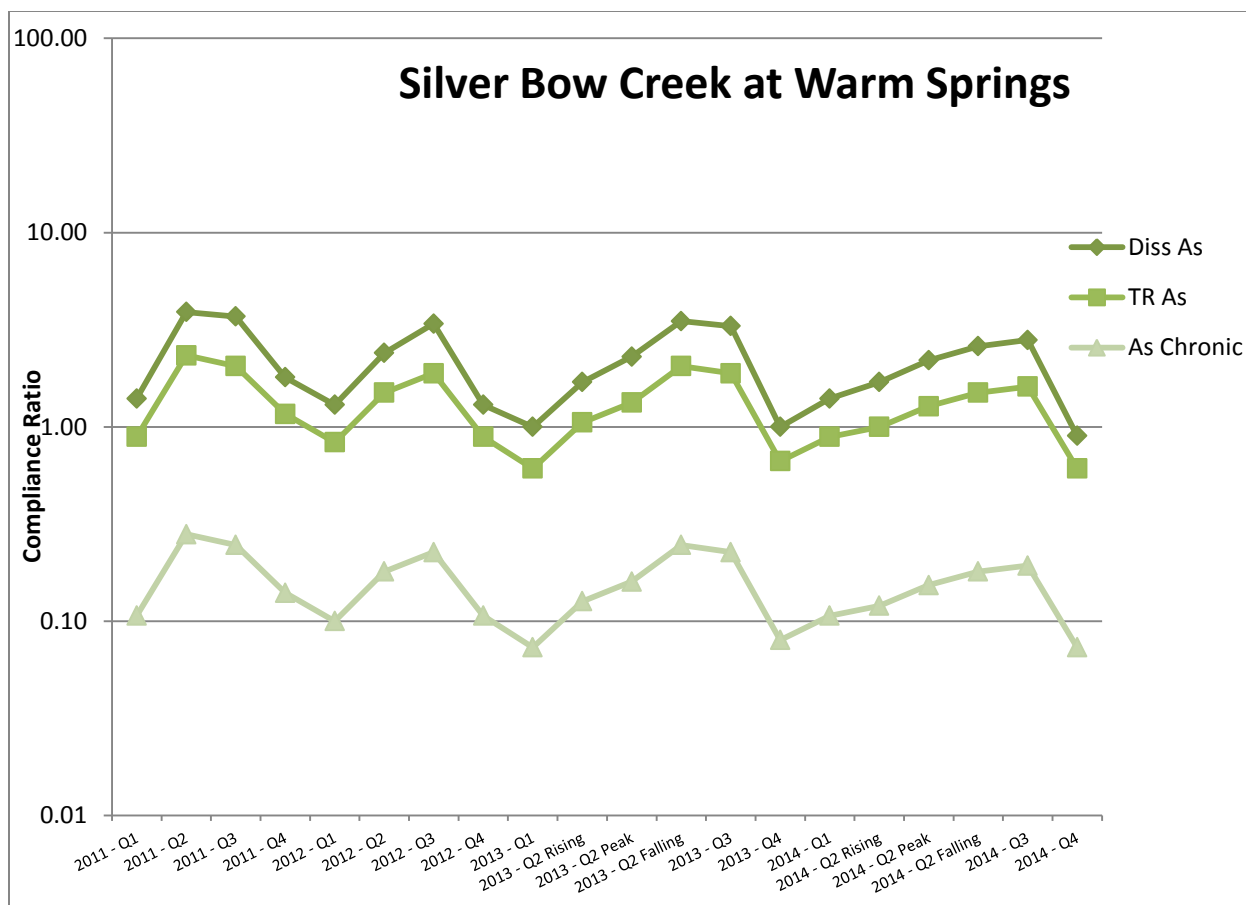
Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.016	0.016	0.015	0.020	0.021	0.012
CFR-07D	Clark Fork River at Galen Road	0.018	0.017	0.017	0.020	0.021	0.012
CFR-11F	Clark Fork River at Gemback Road	0.020	0.017	0.018	0.020	0.021	0.012
CFR-27H	Clark Fork River at Deer Lodge	0.023	0.018	0.023	0.021	0.020	0.014
CFR-116A	Clark Fork River at Turah	0.012	0.006	0.006	0.007	0.008	0.007
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.016	0.018	0.023	0.027	0.029	0.011
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.022	0.027	0.021	0.026	0.020	0.019
MWB-SBC	Mill-Willow Bypass near mouth	0.020	0.027	0.021	0.028	0.021	0.016
WSC-SBC	Warm Springs Creek near mouth	0.008	0.007	0.006	0.007	0.008	0.006
LBR-CFR	Little Blackfoot River near Garrison	0.005	0.005	0.006	0.006	0.005	0.004
FC-CFR	Flint Creek near mouth	0.013	0.009	0.012	0.012	0.008	0.007
	Exceeds specified arsenic surface water performance goal for total recoverable concentration (0.018 mg/L) [USEPA, 2004].						



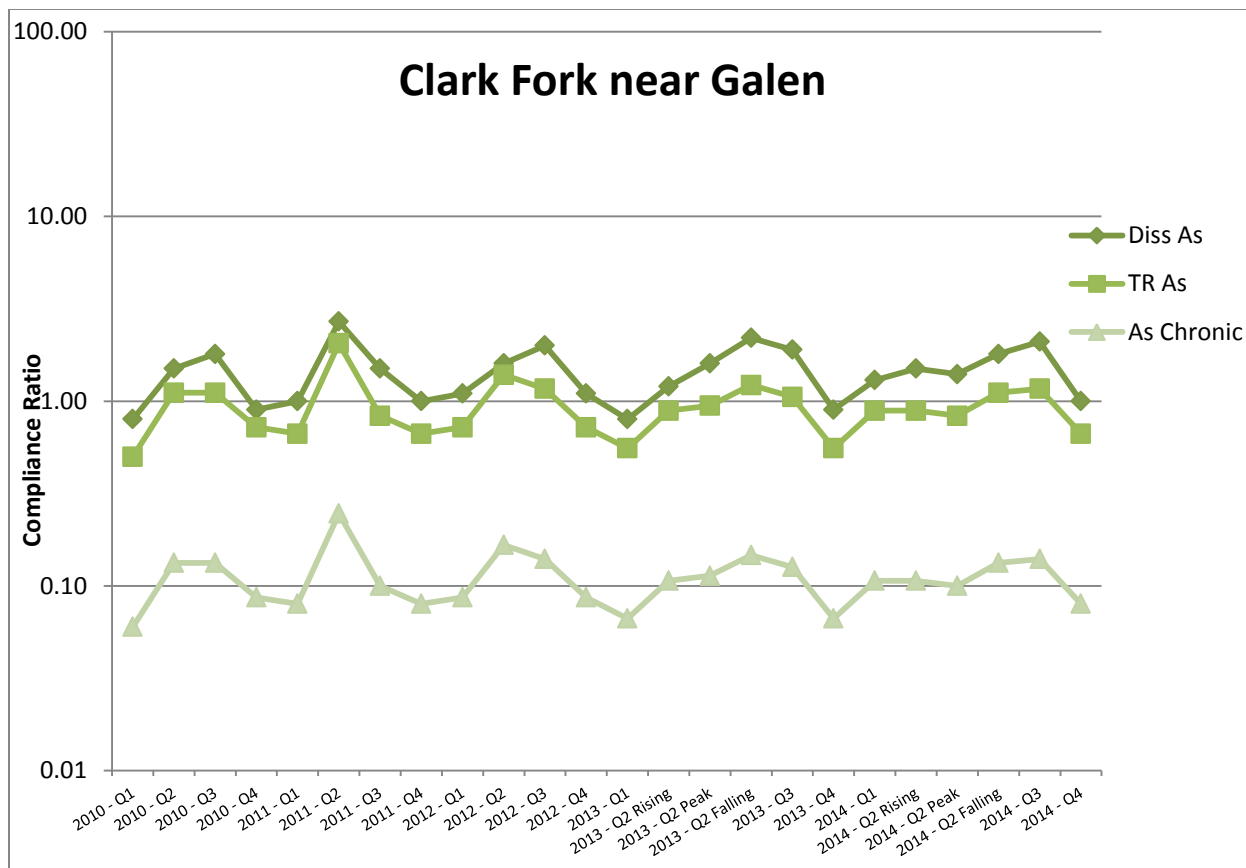
**Figure 2-33. Total recoverable and dissolved arsenic (As) concentrations at mainstem sampling sites in the Clark Fork River Operable Unit (CFROU), 2014. Applicable water quality standards are the acute and chronic aquatic life standards (ALS) [MDEQ, 2012b] and the arsenic performance goals from the CFROU Record of Decision (ROD) [USEPA, 2004]. The ROD performance goals are 0.010 mg/L for dissolved and 0.018 mg/L for total recoverable arsenic [USEPA, 2004].**



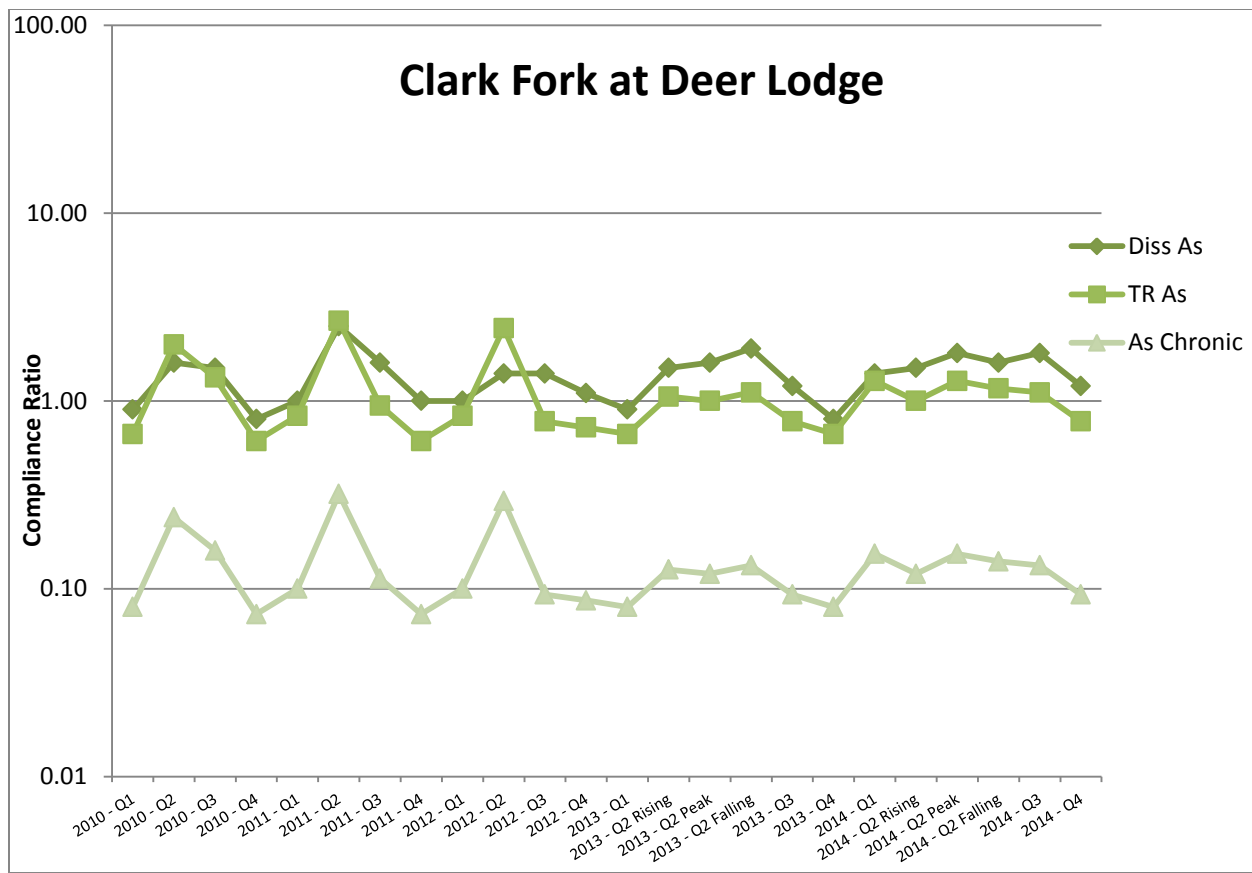
**Figure 2-34. Total recoverable (TR) and dissolved (Diss) arsenic concentrations at Clark Fork River tributary sites, 2014. Applicable water quality standards are the acute and chronic aquatic life standards (ALS) [MDEQ, 2012b] and the arsenic performance goals from the CFROU Record of Decision (ROD) [USEPA, 2004]. The ROD performance goals are 0.010 mg/L for dissolved and 0.018 mg/L for total recoverable arsenic [USEPA, 2004].**



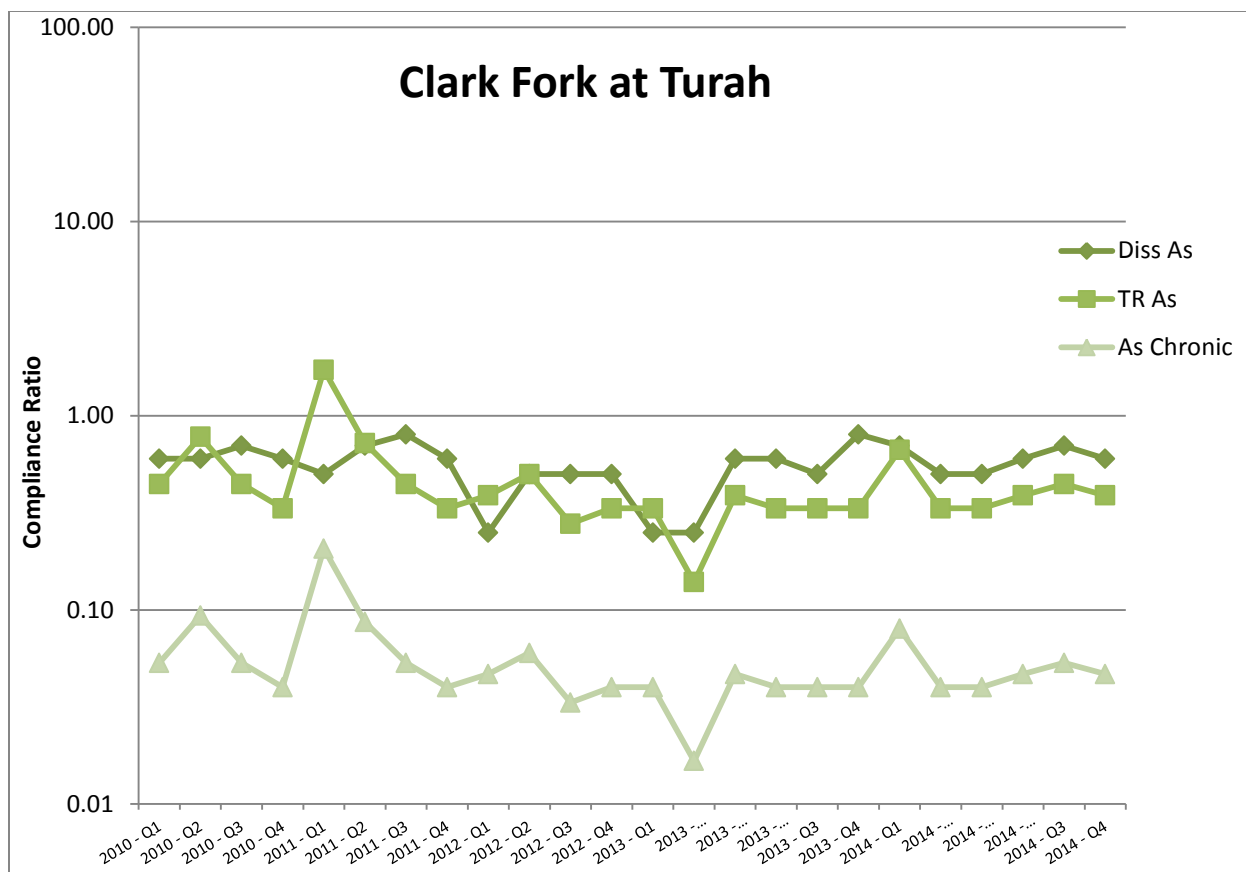
**Figure 2-35. Total recoverable arsenic (As) compliance ratios for the Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004].**



**Figure 2-36. Total recoverable arsenic (As) compliance ratios for the Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for the dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004].**

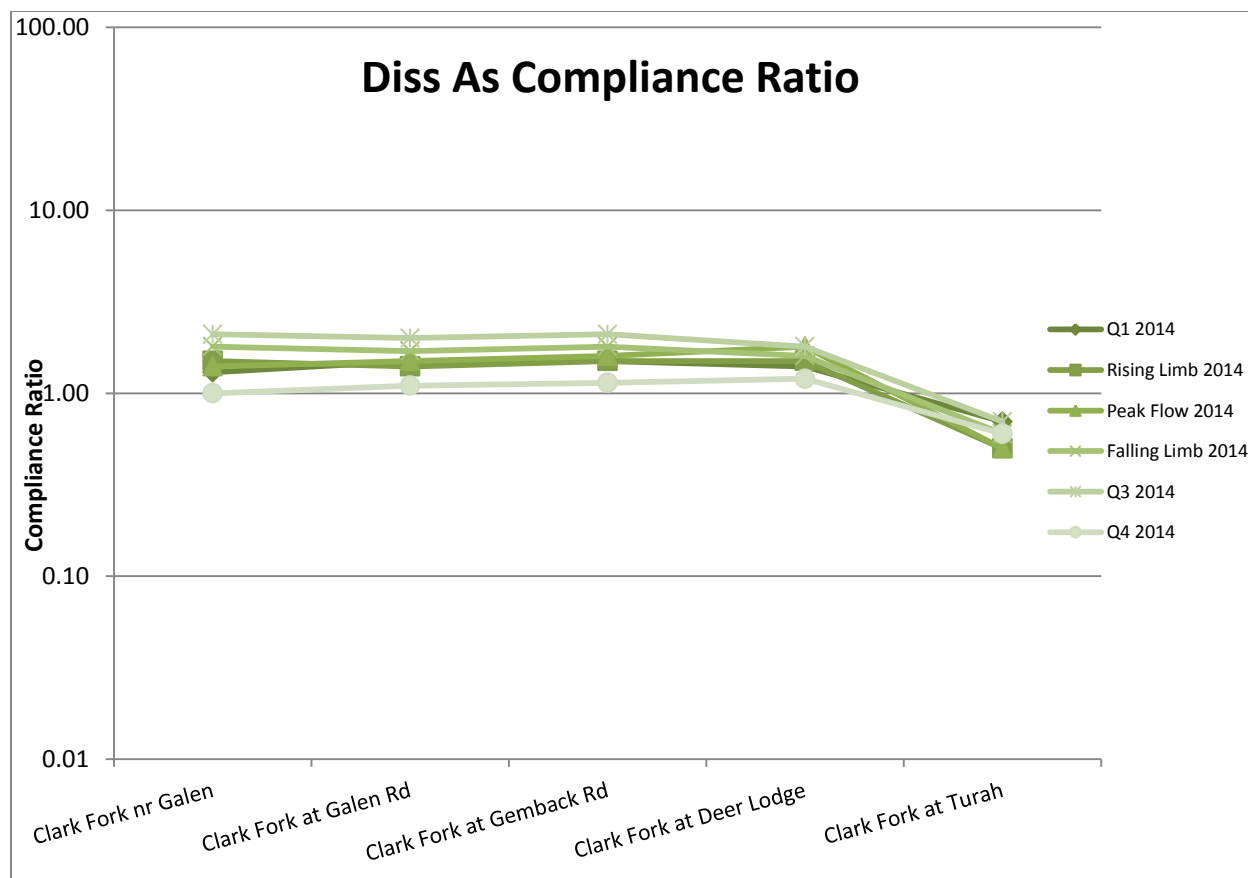


**Figure 2-37. Total recoverable arsenic (As) compliance ratios for the Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for the dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004].**

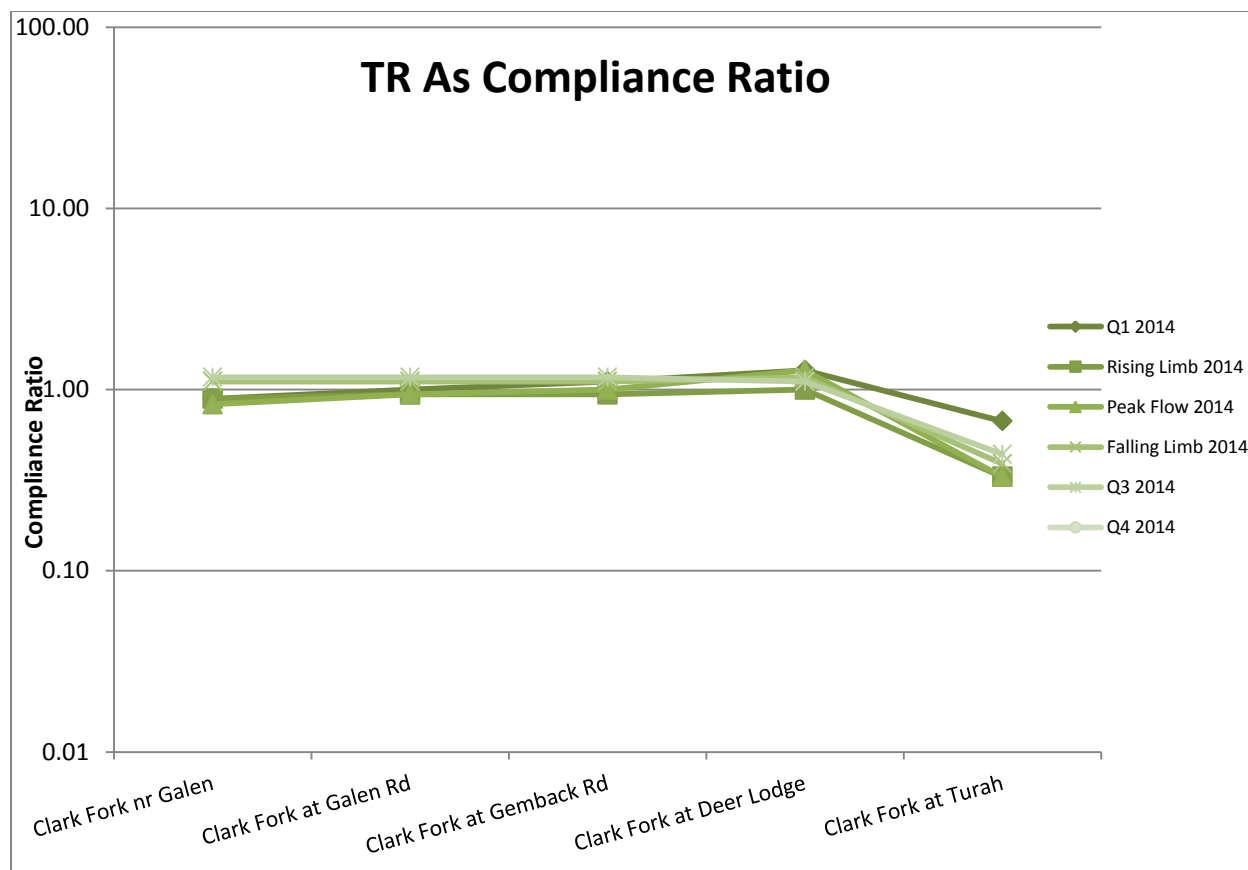


**Figure 2-38. Total recoverable arsenic (As) compliance ratios for the Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic aquatic life standard (As Chronic) [MDEQ, 2012b] and the Clark Fork River Operable Unit Record of Decision performance goals for the dissolved (Diss As) and total recoverable (TR As) arsenic concentrations [USEPA, 2004].**

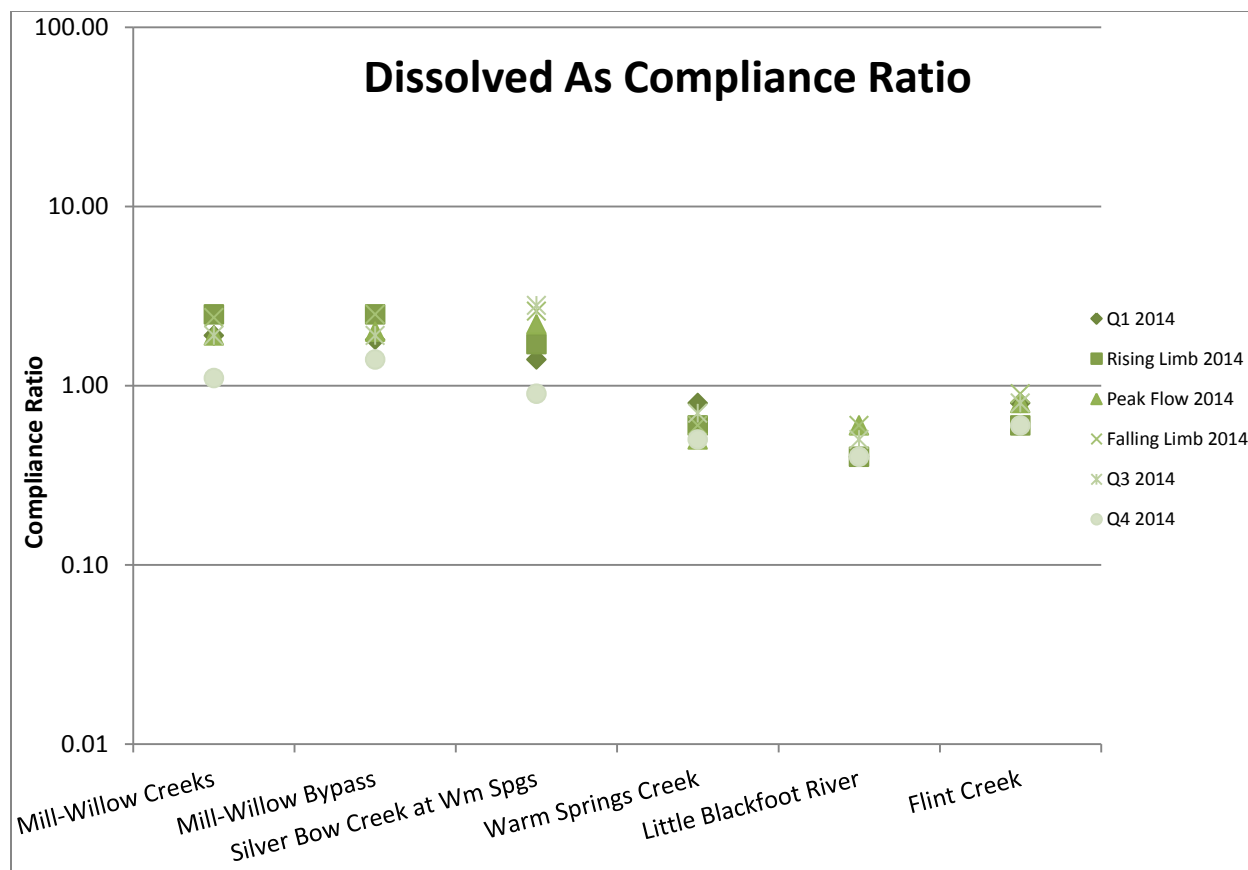




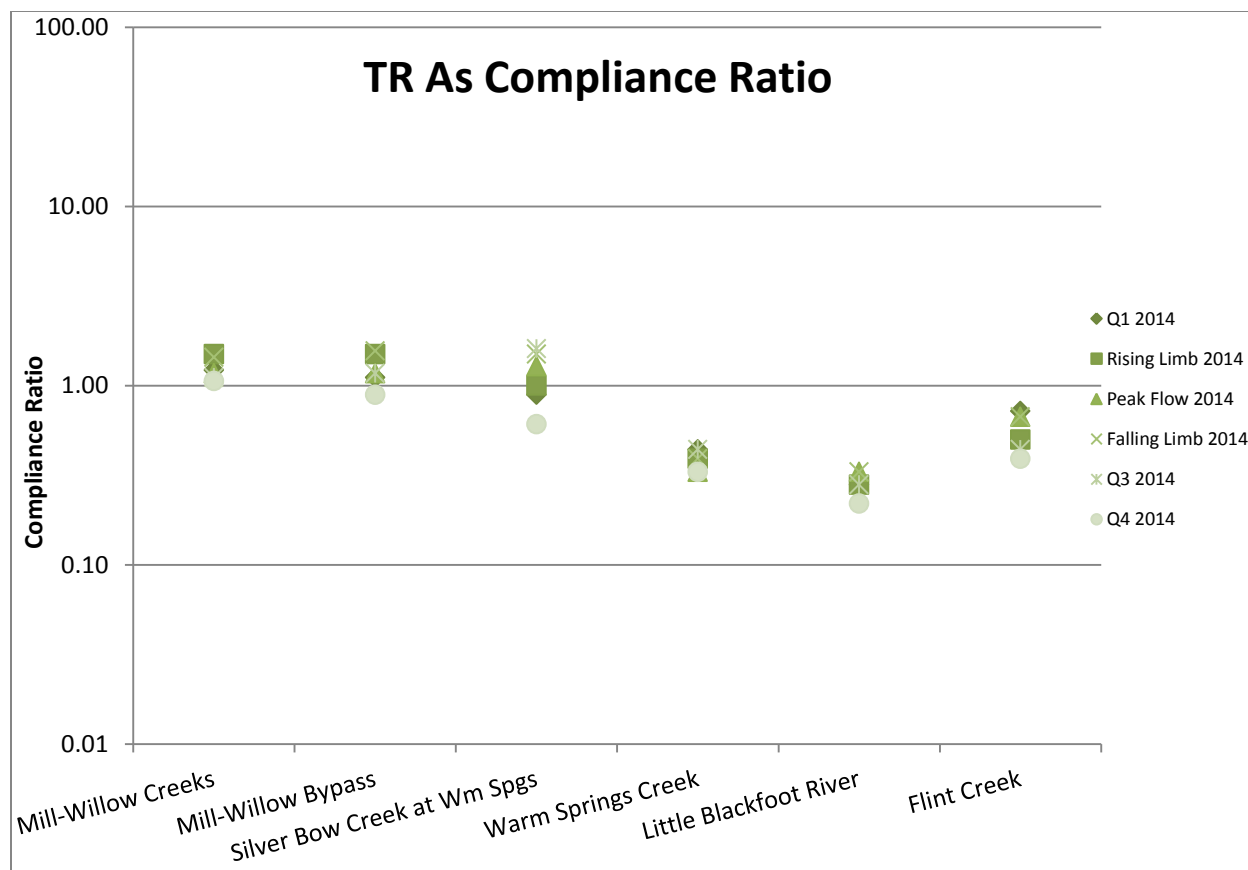
**Figure 2-39. Dissolved arsenic compliance ratios for the Clark Fork River mainstem sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for dissolved arsenic (Diss As) concentration [USEPA, 2004].**



**Figure 2-40. Total recoverable arsenic compliance ratios for the Clark Fork River mainstem sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for total recoverable arsenic (TR As) concentration [USEPA, 2004].**



**Figure 2-41. Dissolved arsenic compliance ratios for the Clark Fork River tributary sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for dissolved arsenic (Diss As) concentration [USEPA, 2004].**



**Figure 2-42. Total recoverable arsenic compliance ratios for the Clark Fork River tributary sites, 2014. Compliance ratio is based on Clark Fork River Operable Unit Record of Decision performance goal for total recoverable arsenic (TR As) concentration [USEPA, 2004].**

### 2.3.6.2 Cadmium

Concentrations of total recoverable cadmium during 2014 were generally comparable and low at mainstem Clark Fork River monitoring stations extending from near Galen to Gemback Road and at Turah, with slightly higher concentrations at Deer Lodge [Table 2-11; Figure 2-43]. Cadmium concentrations were generally somewhat lower at all six of the tributary monitoring stations [Table 2-11; Figure 2-44]. Concentrations of dissolved cadmium were usually close to the minimum analytical reporting limit during 2014 monitoring events and most measureable cadmium was present in a sediment-associated state (i.e., total recoverable).

The highest concentrations of total recoverable cadmium were almost always measured during the Q1 monitoring event. The maximum concentrations in 2014 were recorded at the Clark Fork River at Deer Lodge site in Q1 (0.00038 mg/L), and in Mill-Willow Creek at Frontage Road in Q4 (0.00034 mg/L). Unexplained high turbidity conditions were encountered in Mill-Willow Creek during the Q4 2014 monitoring event and several COC metals as well as total suspended sediment were elevated. The lowest concentrations of total recoverable cadmium were observed during the Q3 monitoring event at all sites except Warm Springs Creek, which had the lowest seasonal concentration in Q4 [Table 2-11].

The minimum analytical reporting level for cadmium was lowered in 2014 from 0.00008 mg/L to 0.00003 mg/L. This improved detection capability makes direct comparison of the 2014 cadmium concentrations to earlier monitoring years difficult. This is especially true because many of the 2010-2013 measurements were below the current reporting level. Total recoverable cadmium concentrations in 2014 only rarely exceeded the chronic ALS, and never exceeded the acute ALS or the HHSWS at any of the CFROU monitoring stations [Table 2-11]. The Q4 2014 cadmium measurement at the Mill-Willow Creek at Frontage Road site represented the only exceedance of the chronic ALS. No exceedances of the established ALS or HHSWS performance goals were observed in 60 site measurements in 2013. In contrast, a higher frequency of exceedances was observed in each of the prior three years: 2010 (5 of 24 exceedances), 2011 (6 of 28 exceedances), and 2012 (4 of 60 exceedances).

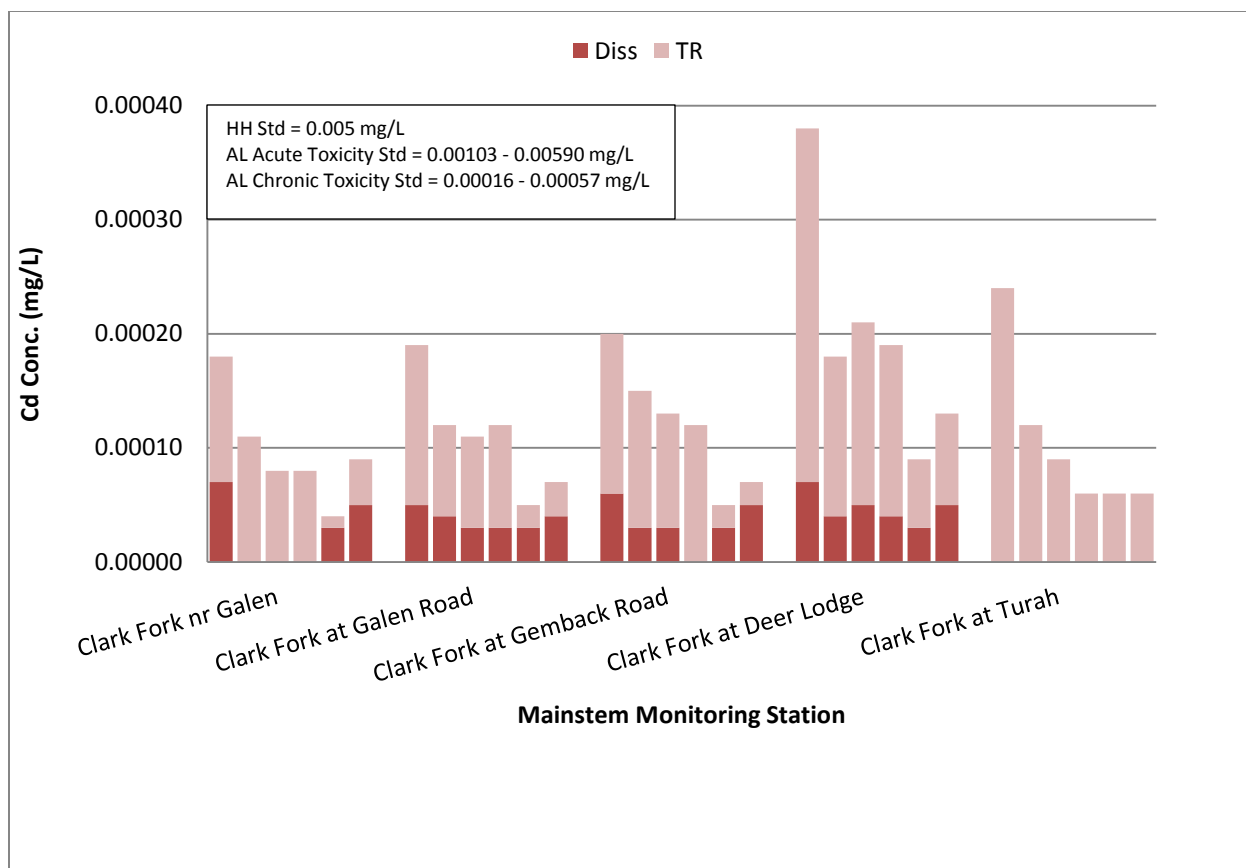
The cadmium chronic ALS compliance ratios for the three selected Clark Fork River stations, but not for the Silver Bow Creek site, appear to have declined to some degree since 2010 [Figure 2-45 through Figure 2-48]. Chronic ALS compliance ratios have not exceeded 1.0 at any of the selected stations since Q1 2012. The acute ALS compliance ratios for total recoverable cadmium were also below 1.0 at all mainstem and tributary monitoring sites examined. The highest chronic ALS compliance ratios for total recoverable cadmium were observed during the Q1 monitoring event. The Clark Fork River at Deer Lodge most frequently showed the highest cadmium ALS compliance ratios during 2014, and the Clark Fork River sites from near Galen to Gemback Road showed the lowest ratios [Figure 2-49]. Among the tributaries, Mill-Willow Creek at Frontage Road showed the highest cadmium compliance ratios and the Little Blackfoot River showed the lowest ratios [Figure 2-50].

**Table 2-11. Total recoverable cadmium concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

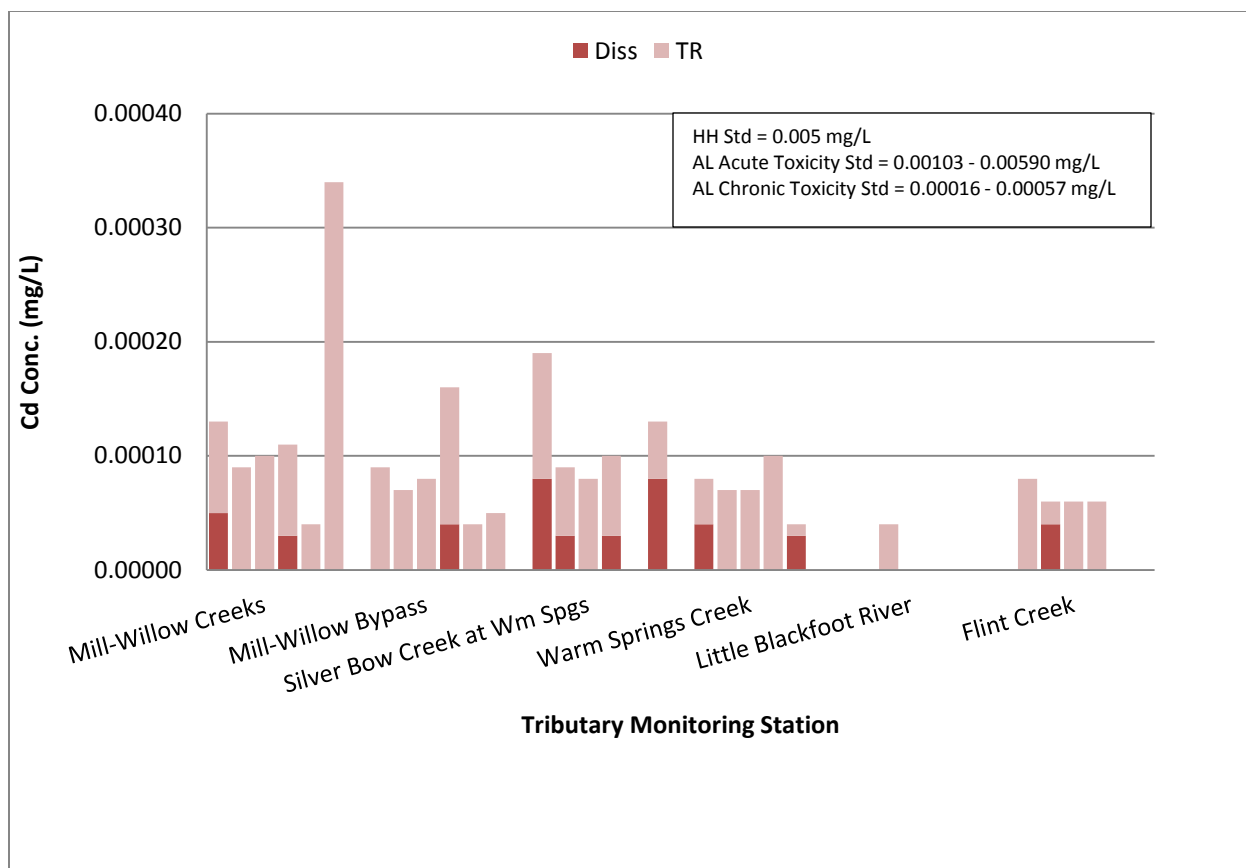
Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.00018	0.00011	0.00008	0.00008	0.00004	0.00009
CFR-07D	Clark Fork River at Galen Road	0.00019	0.00012	0.00011	0.00012	0.00005	0.00007
CFR-11F	Clark Fork River at Gemback Road	0.00020	0.00015	0.00013	0.00012	0.00005	0.00007
CFR-27H	Clark Fork River at Deer Lodge	0.00038	0.00018	0.00021	0.00019	0.00009	0.00013
CFR-116A	Clark Fork River at Turah	0.00024	0.00012	0.00009	0.00006	0.00006	0.00006
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.00019	0.00009	0.00008	0.00010	ND	0.00013
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.00013	0.00009	0.00010	0.00011	0.00004	0.00034
MWB-SBC	Mill-Willow Bypass near mouth	0.00009	0.00007	0.00008	0.00016	0.00004	0.00005
WSC-SBC	Warm Springs Creek near mouth	0.00008	0.00007	0.00007	0.00010	0.00004	ND
LBR-CFR	Little Blackfoot River near Garrison	ND	0.00004	ND	ND	ND	ND
FC-CFR	Flint Creek near mouth	0.00008	0.00006	0.00006	0.00006	ND	ND

Exceeds chronic aquatic life standard [MDEQ, 2012b].

ND Not detected at analytical reporting limit.

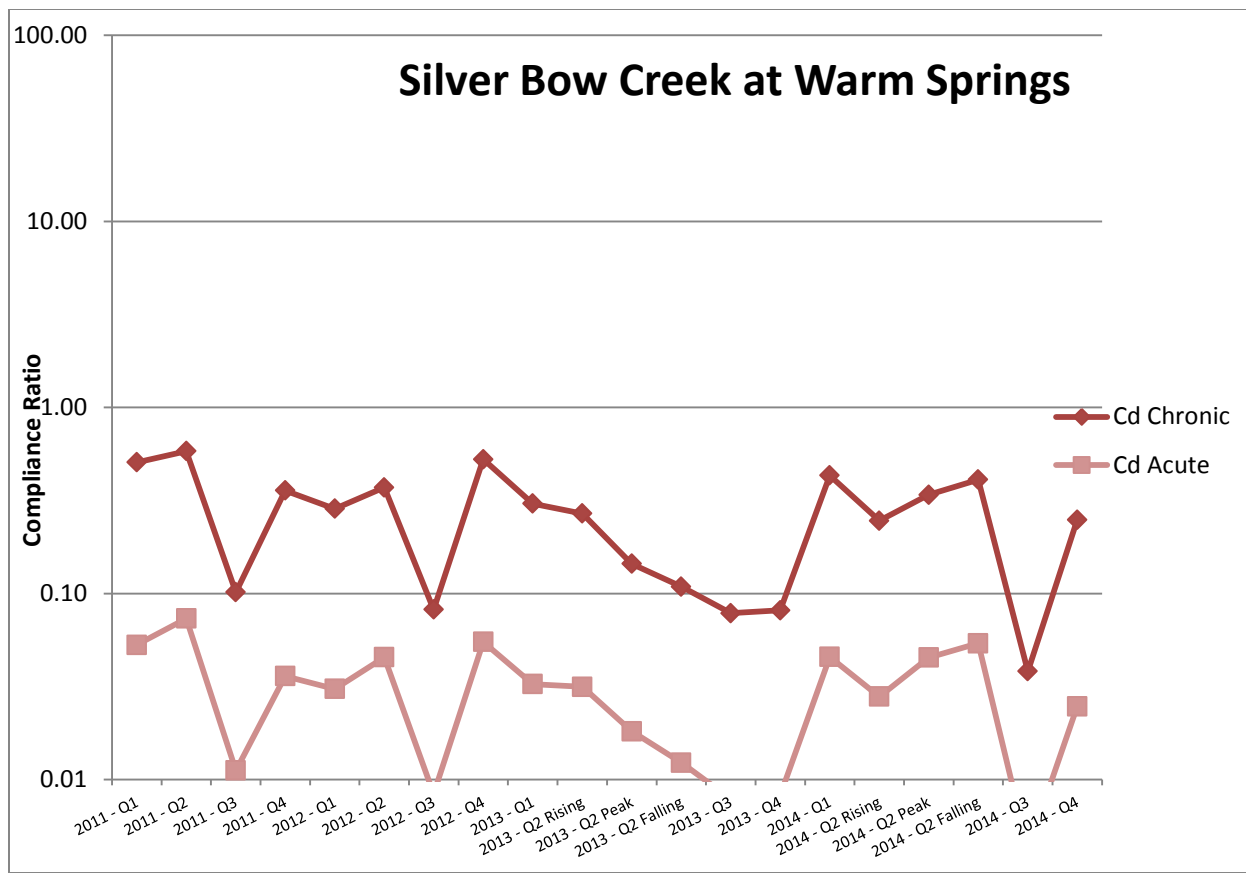


**Figure 2-43. Total recoverable (TR) and dissolved (Diss) cadmium concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**

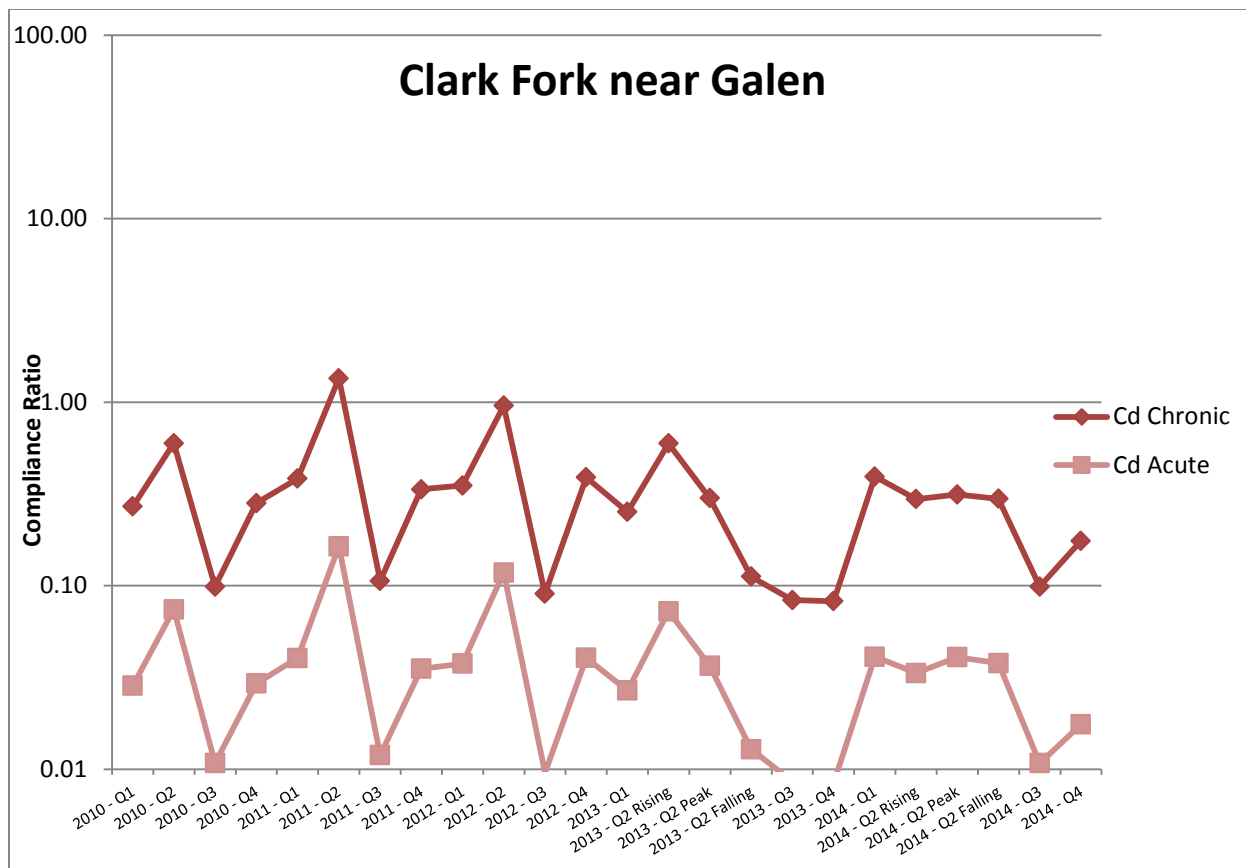


**Figure 2-44. Total recoverable (TR) and dissolved (Diss) cadmium concentrations at Clark Fork River tributary sampling sites, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**

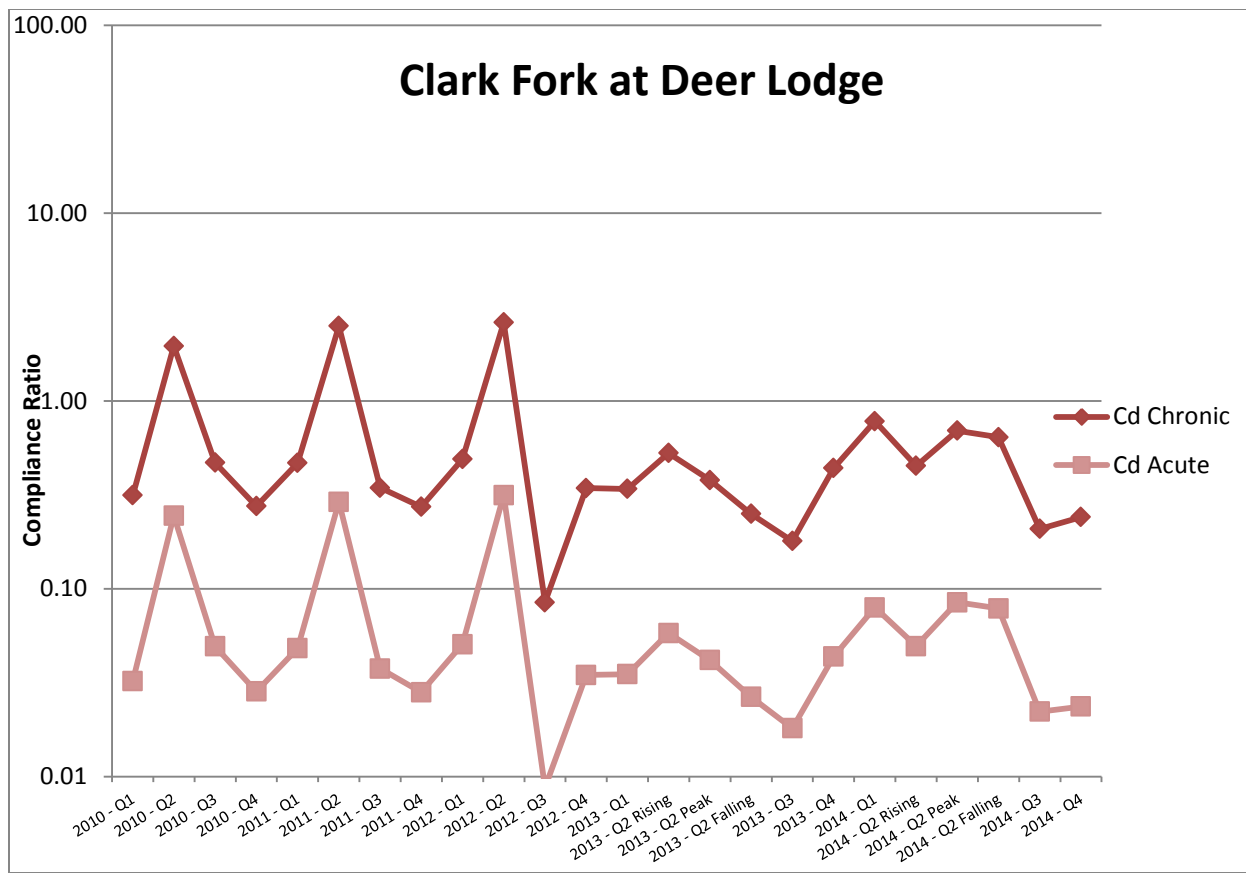




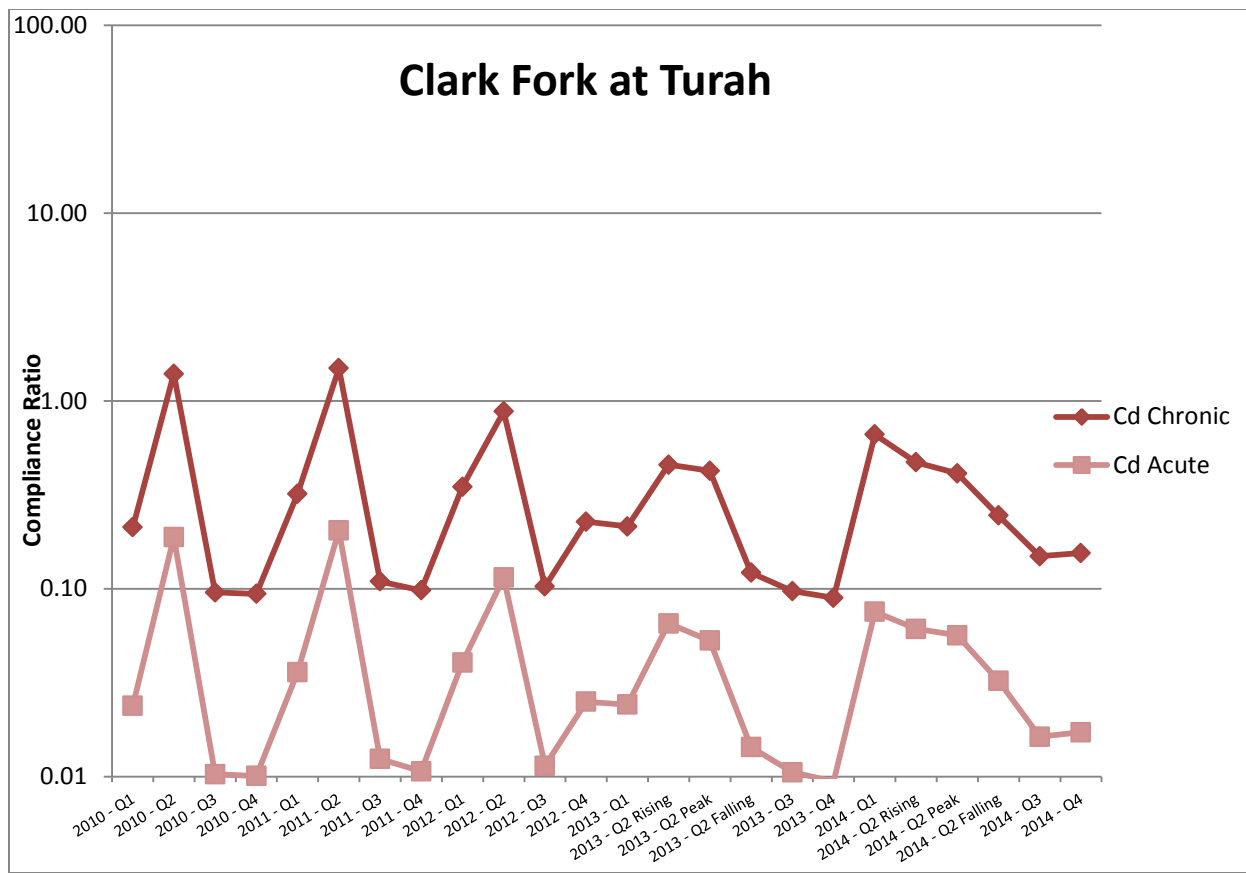
**Figure 2-45. Total recoverable cadmium (Cd) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



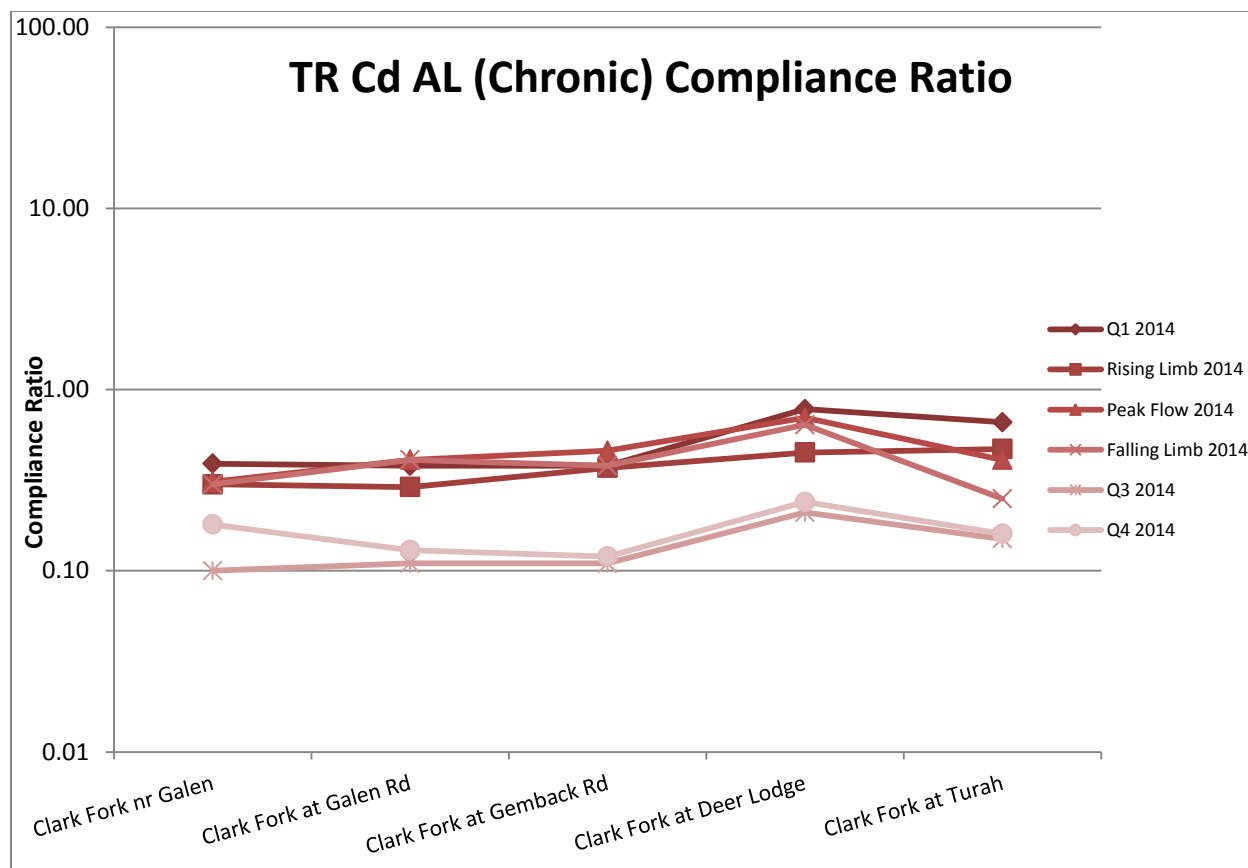
**Figure 2-46. Total recoverable cadmium (Cd) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



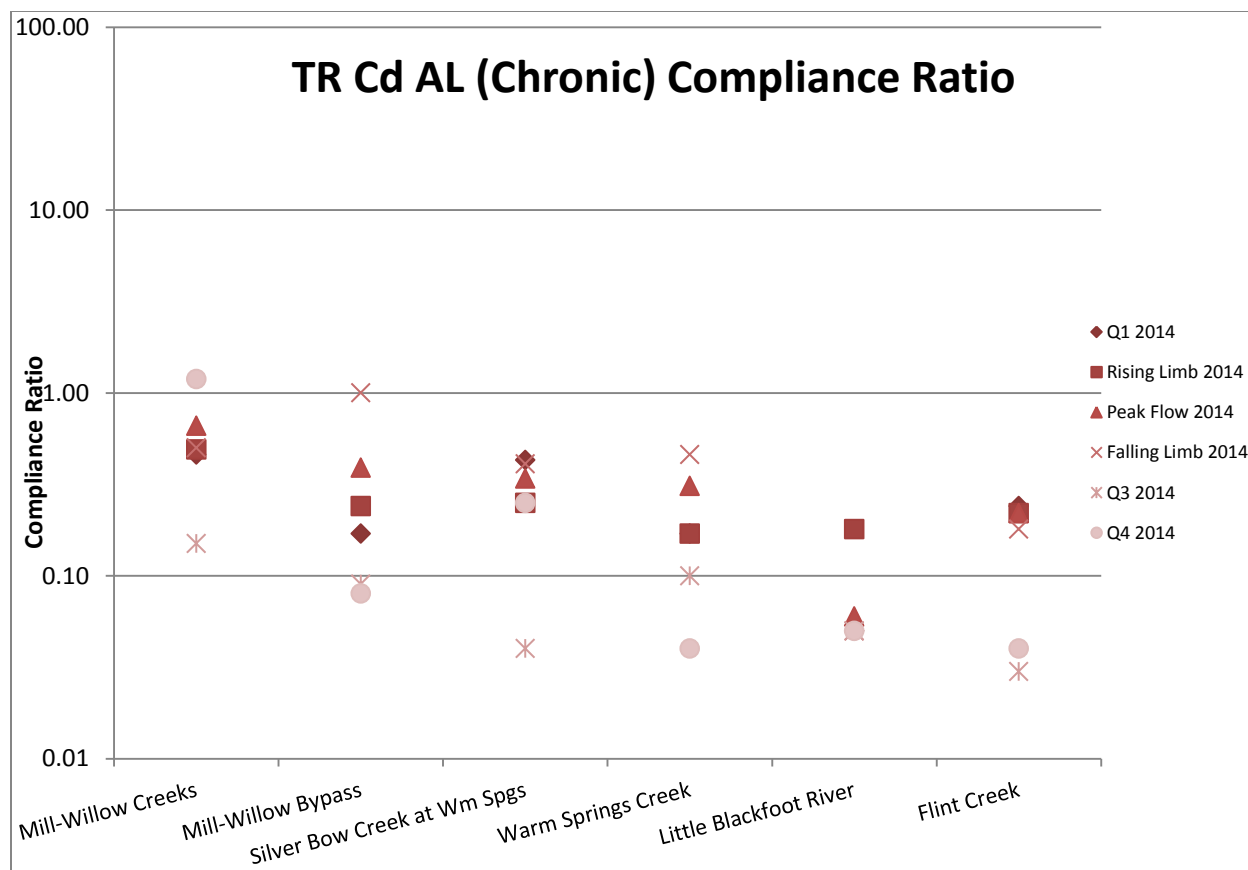
**Figure 2-47. Total recoverable cadmium (Cd) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



**Figure 2-48. Total recoverable cadmium (Cd) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



**Figure 2-49. Total recoverable (TR) cadmium (Cd) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].**



**Figure 2-50. Total recoverable (TR) cadmium (Cd) compliance ratio in Clark Fork River (CFR) tributary sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].**

### 2.3.6.3 Copper

Concentrations of total recoverable and dissolved copper during 2014 were elevated in Q1 and Q2 at all mainstem Clark Fork River sites and at several of the tributary monitoring sites. The highest concentrations of total recoverable copper were observed at the Clark Fork River at Deer Lodge station [Table 2-12]. Total recoverable copper concentrations increased from the near Galen site to Deer Lodge, and then declined downstream to the Turah site [Figure 2-51]. The lowest mainstem copper concentrations were observed at the near Galen site. Within the tributary sites, lowest concentrations were measured in the Little Blackfoot River, followed by Flint Creek [Table 2-12]. The other tributaries had higher copper concentrations; most notably Mill-Willow Creek at Frontage Road in Q4 in association with high turbidity (see Section 2.3.2.5) [Figure 2-52]. The highest copper concentrations at all of the CFROU mainstem monitoring sites were observed during the Q1 monitoring event, while lowest concentrations were observed in Q3. The tributary monitoring sites did not exhibit any consistent pattern of seasonality in 2014.

Dissolved copper concentrations were relatively consistent during each 2014 monitoring event compared to total recoverable copper concentrations.

Total recoverable copper concentrations frequently exceeded the chronic ALS (30 of 66 samples) during 2014 [Table 2-12]. The acute ALS was exceeded in 18 of 66 samples. Each of the five mainstem Clark Fork River monitoring stations had at least three exceedances of the chronic ALS during six monitoring events. Samples from the Clark Fork River at Deer Lodge site exceeded the chronic ALS during all six monitoring events, and exceeded the acute ALS during four of the six events. Samples from Warm Springs Creek near mouth showed two exceedances of the total recoverable copper acute ALS, and Silver Bow Creek at Warm Springs had two exceedances of the total recoverable copper chronic ALS. Mill-Willow Bypass had one exceedance of the chronic ALS. Only the samples from the Little Blackfoot River and Flint Creek were consistently below the chronic ALS for total recoverable copper. The overall frequency of exceedances of the copper ALS at CFROU monitoring stations in 2014 (30 of 66 samples) was somewhat higher than in 2012 (17 of 60 samples) and 2013 (19 of 60 samples), but lower than in 2011 (16 of 28 samples) and 2010 (15 of 24 samples).

Of the Clark Fork River mainstem stations that have been monitored each year since 2010 (near Galen, at Deer Lodge, and at Turah), the frequency of exceedances of the chronic and acute ALS for copper was similar in 2014 to each of the previous years. All of the ALS excursions in 2014 occurred during the Q1 and Q2 monitoring events during periods of elevated streamflows. Silver Bow Creek at Warm Springs, which has been monitored since 2011, showed similar total recoverable copper compliance ratios in each of years 2011-2014.

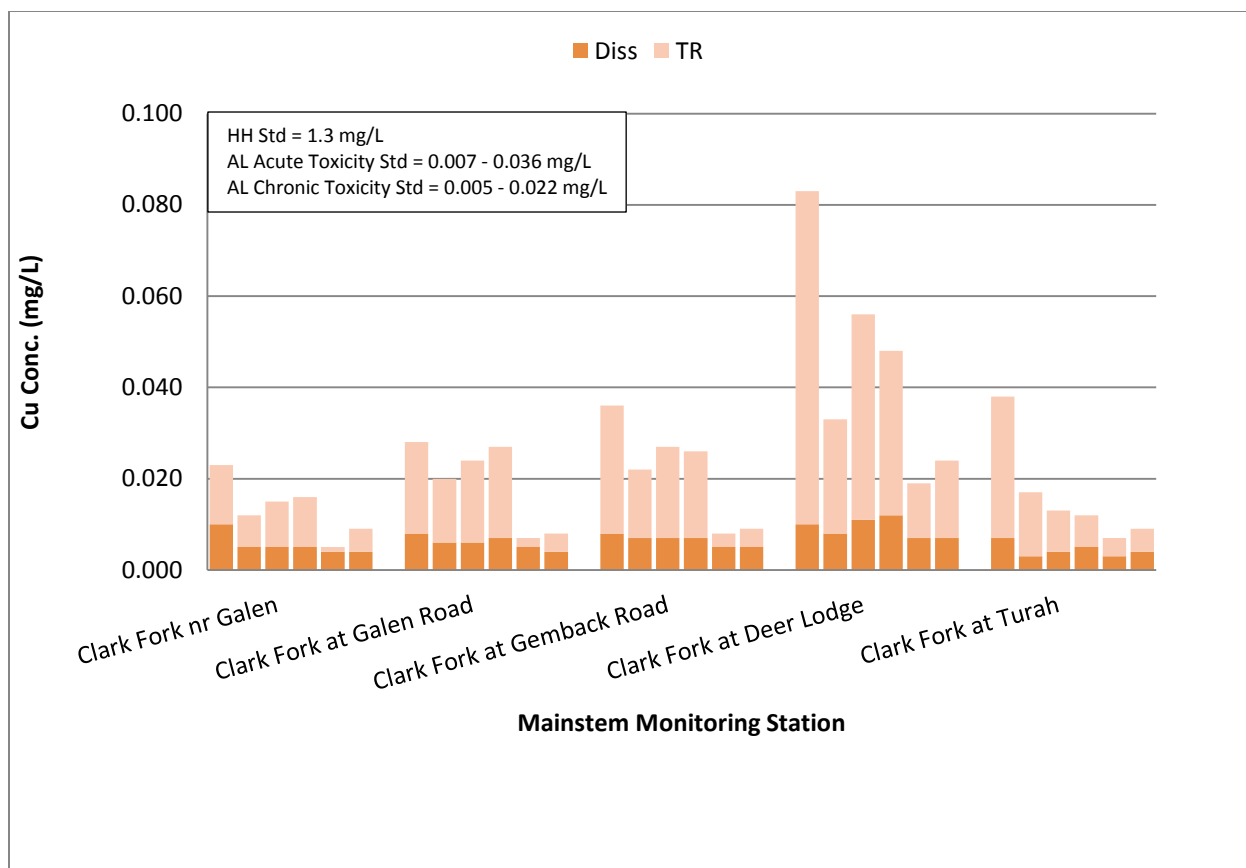
The magnitude of the chronic and acute ALS compliance ratios for total recoverable copper at the three Clark Fork River mainstem stations that have been monitored each year since 2010 (near Galen, at Deer Lodge, and at Turah) appear to have declined over the five year period [Figure 2-53 through Figure 2-56]. Despite the apparent improvements, ALS compliance ratios for copper commonly continue to exceed 1.0 at the Deer Lodge station. The seasonal and spatial trends in ALS compliance ratios for total recoverable copper during 2014 were similar to the pattern noted for cadmium. The Clark Fork River at Deer Lodge had the highest copper ALS

compliance ratios during 2014 [Figure 2-55]. The Clark Fork River near Galen had the lowest copper ALS compliance ratios of the mainstem monitoring sites during 2014 [Figure 2-57]. Among the tributary sites, Mill-Willow Creek at the Frontage Road, Warm Springs Creek near its mouth, and Silver Bow Creek at Warm Springs had the highest copper compliance ratios and the Little Blackfoot River had the lowest ratios [Figure 2-58]. The highest copper ALS compliance ratios at mainstem monitoring sites were observed during the Q1 or Q2-Peak monitoring event.

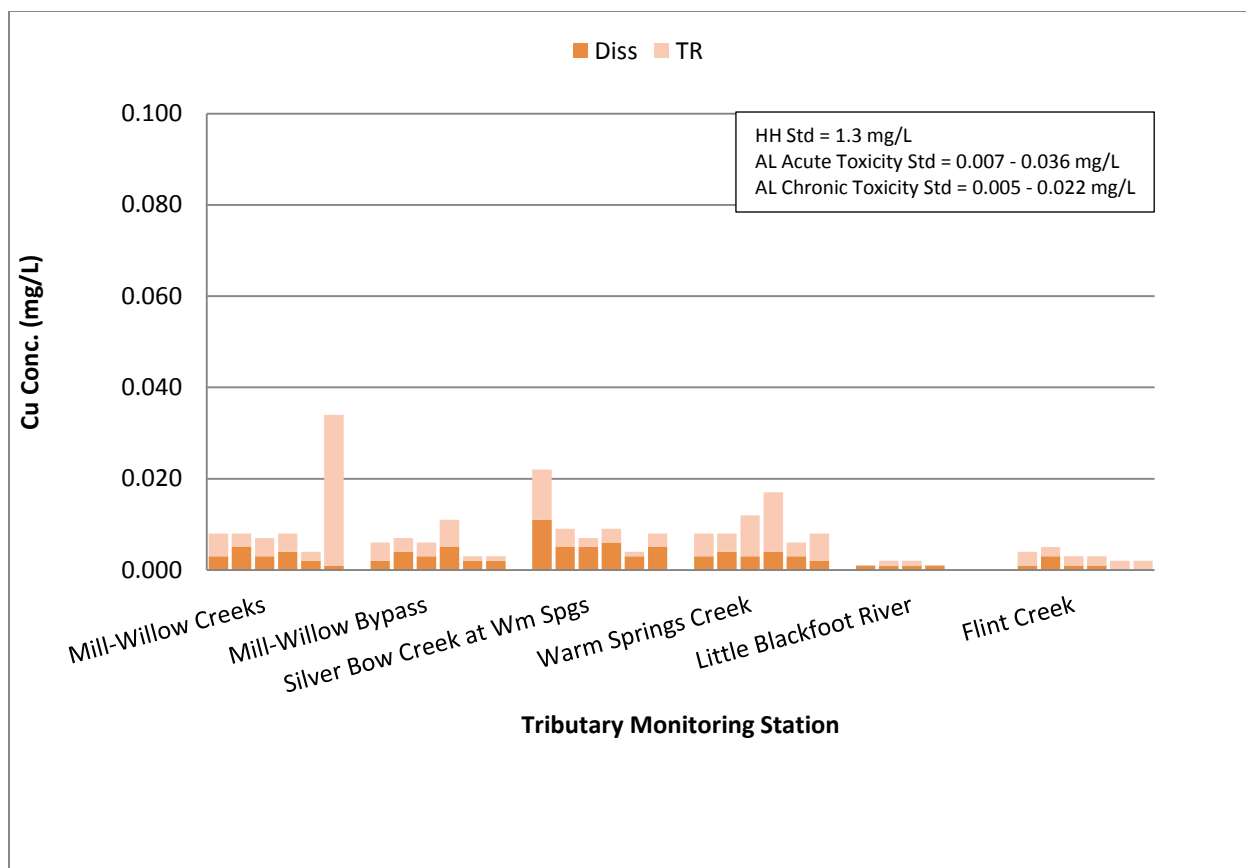
**Table 2-12. Total recoverable copper concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.023	0.012	0.015	0.016	0.005	0.009
CFR-07D	Clark Fork River at Galen Road	0.028	0.020	0.024	0.027	0.007	0.008
CFR-11F	Clark Fork River at Gemback Road	0.036	0.022	0.027	0.026	0.008	0.009
CFR-27H	Clark Fork River at Deer Lodge	0.083	0.033	0.056	0.048	0.019	0.024
CFR-116A	Clark Fork River at Turah	0.038	0.017	0.013	0.012	0.007	0.009
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.022	0.009	0.007	0.009	0.004	0.008
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.008	0.008	0.007	0.008	0.004	0.034
MWB-SBC	Mill-Willow Bypass near mouth	0.006	0.007	0.006	0.011	0.003	0.003
WSC-SBC	Warm Springs Creek near mouth	0.008	0.008	0.012	0.017	0.006	0.008
LBR-CFR	Little Blackfoot River near Garrison	0.001	0.002	0.002	0.001	ND	ND
FC-CFR	Flint Creek near mouth	0.004	0.005	0.003	0.003	0.002	0.002
	Exceeds chronic aquatic life standard [MDEQ, 2012b].						
	Exceeds acute aquatic life standard [MDEQ, 2012b].						
ND	Not detected at analytical reporting limit.						

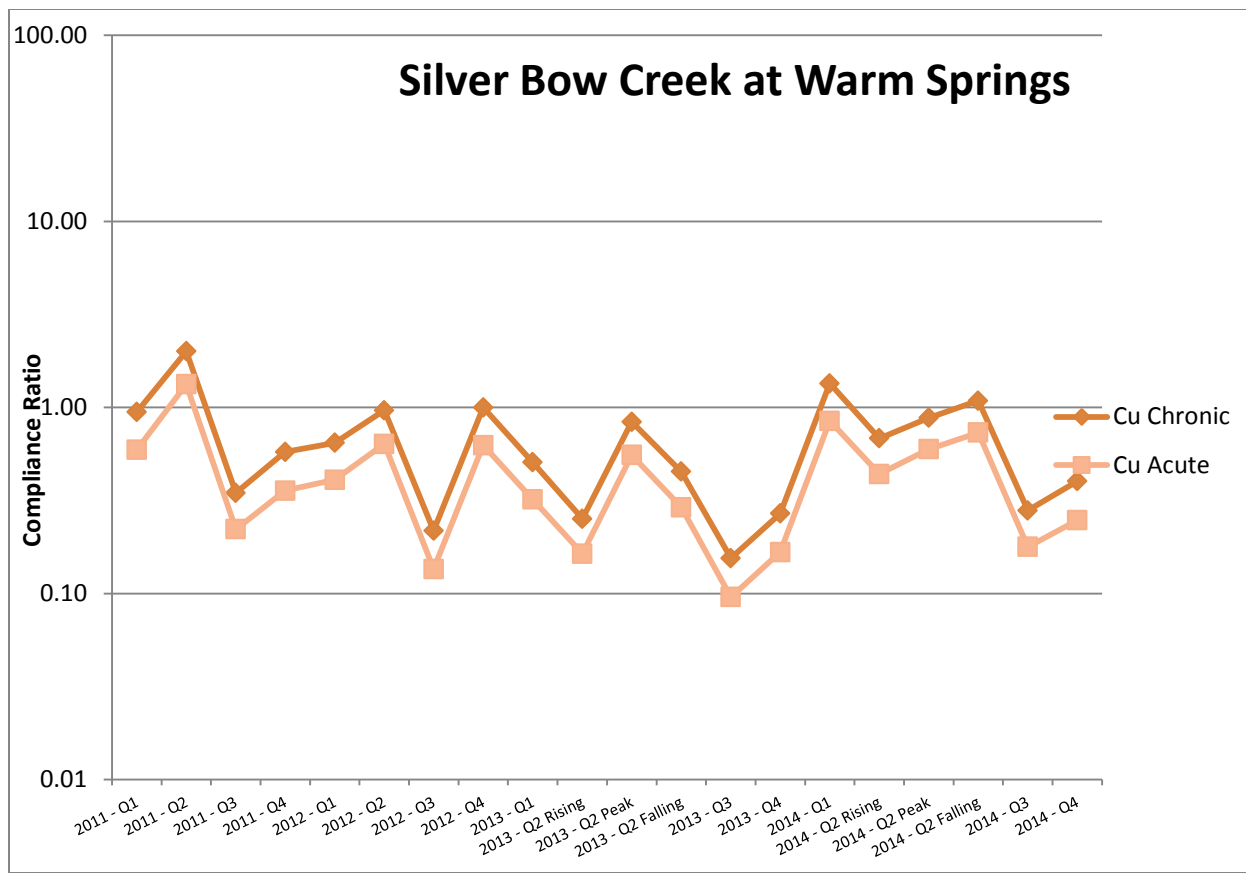




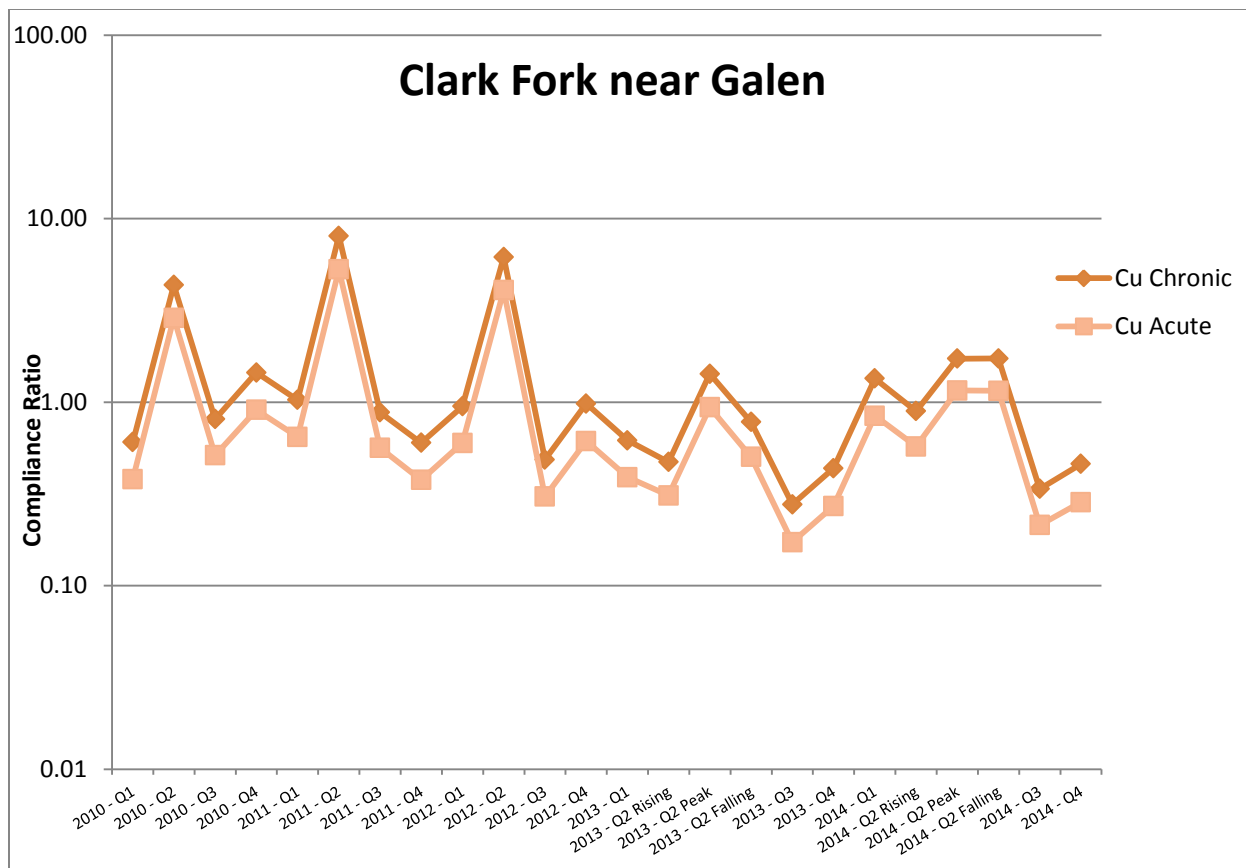
**Figure 2-51. Total recoverable (TR) and dissolved (Diss) copper concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**



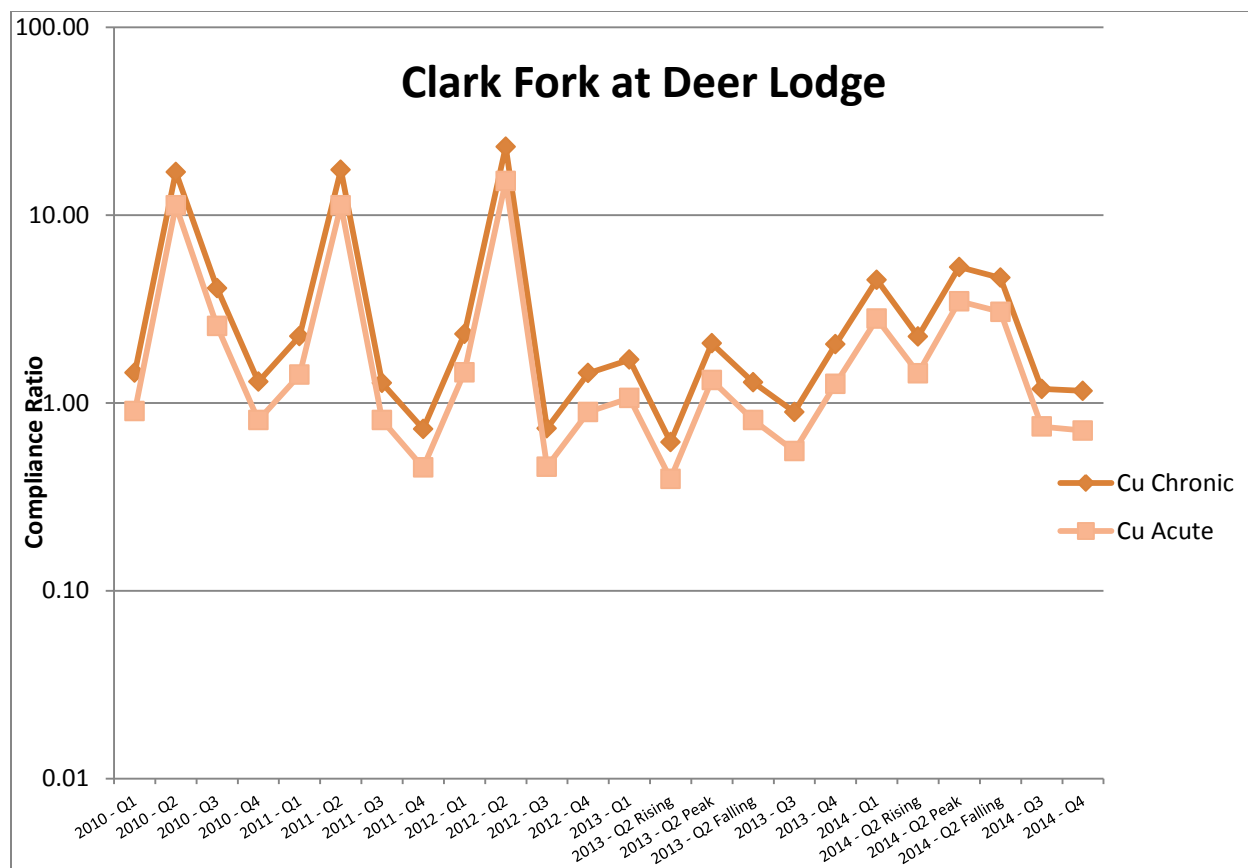
**Figure 2-52. Total recoverable (TR) and dissolved (Diss) copper concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**



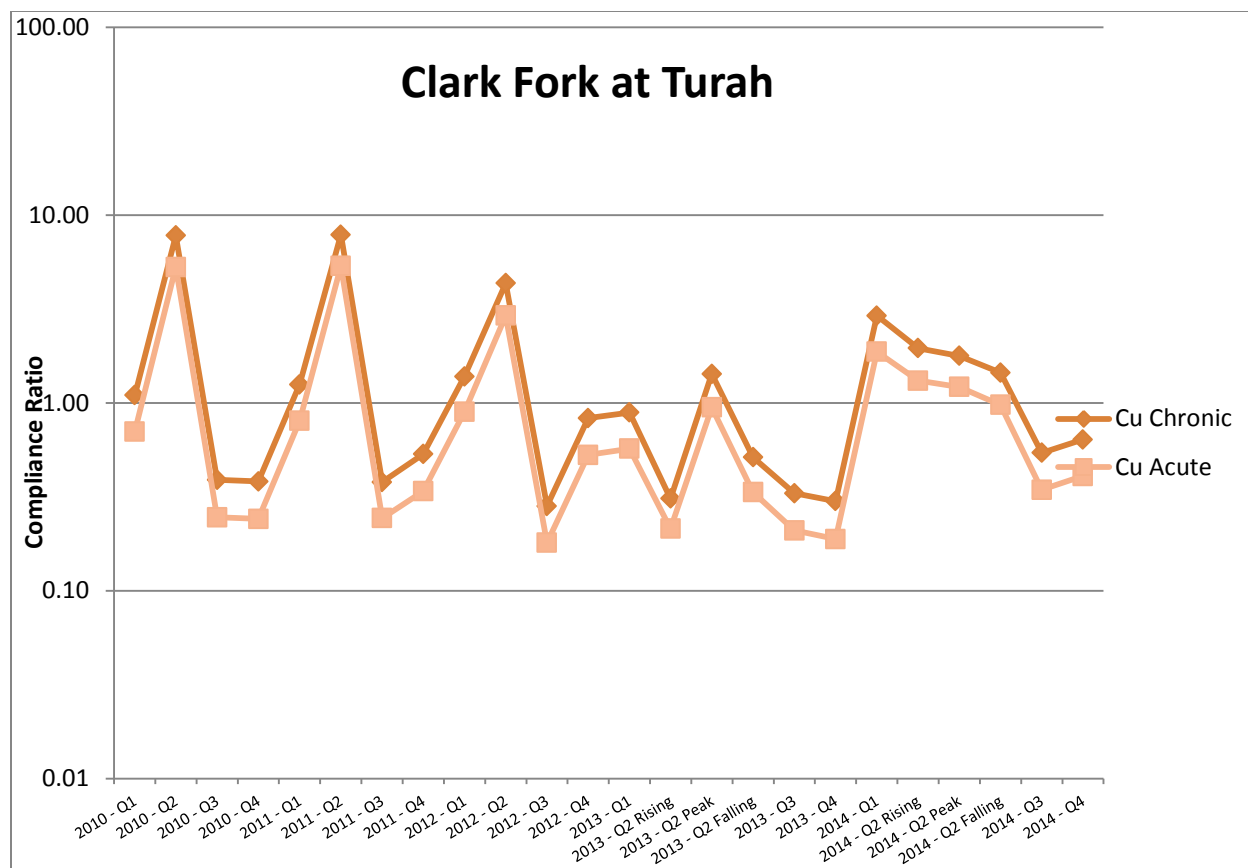
**Figure 2-53. Total recoverable copper (Cu) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



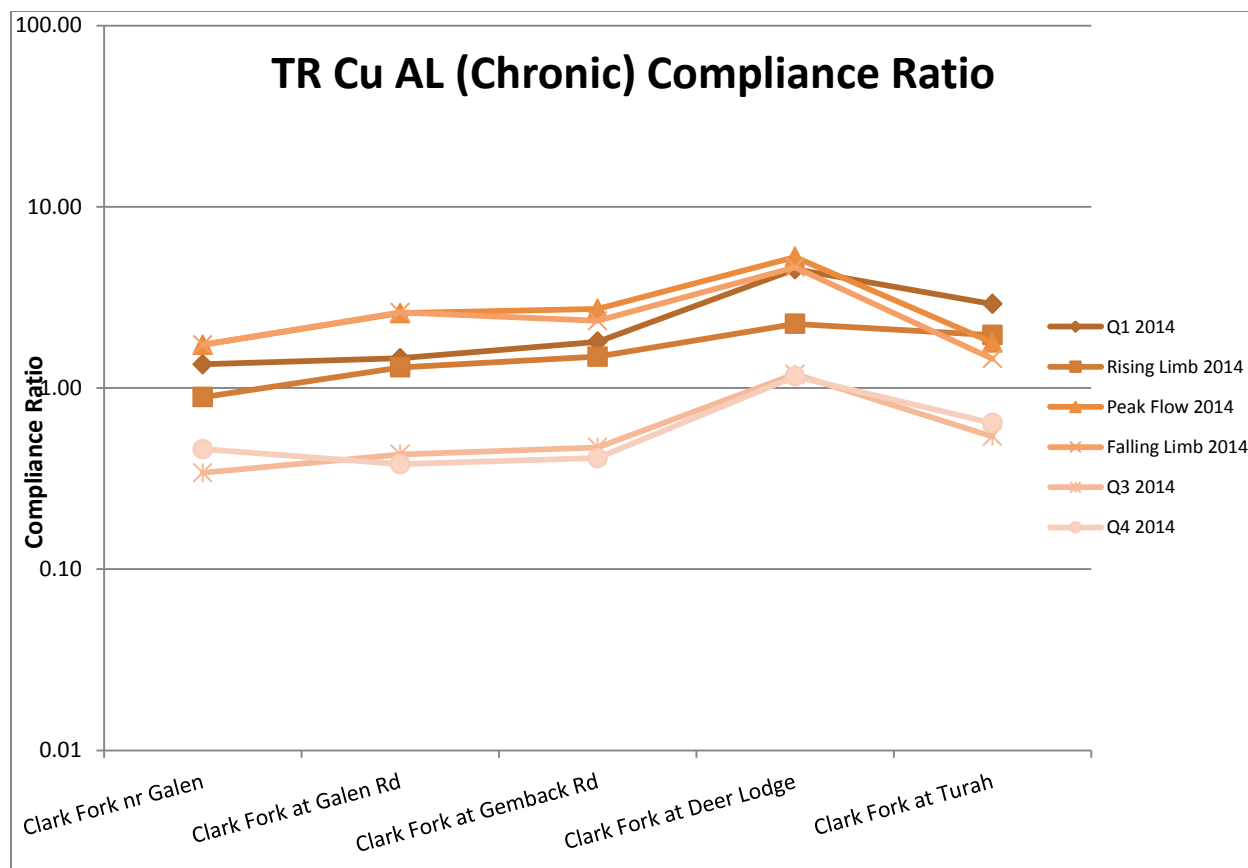
**Figure 2-54. Total recoverable copper (Cu) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



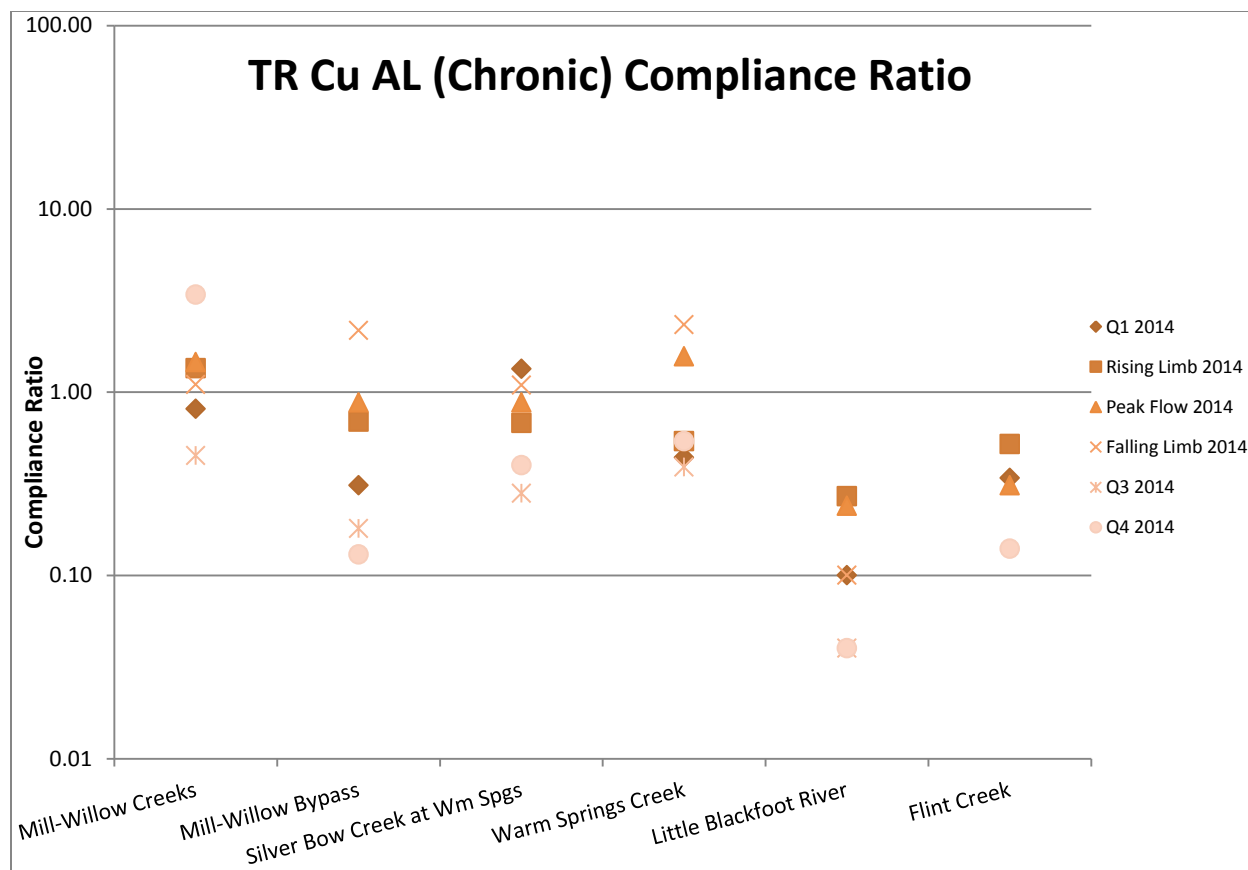
**Figure 2-55. Total recoverable copper (Cu) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



**Figure 2-56. Total recoverable copper (Cu) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



**Figure 2-57. Total recoverable (TR) copper (Cu) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].**



**Figure 2-58. Total recoverable (TR) copper (Cu) compliance ratio in Clark Fork River (CFR) tributary sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].**



#### 2.3.6.4 Lead

Increasing concentrations of total recoverable lead were observed in the mainstem Clark Fork River from the near Galen site to the Deer Lodge site during 2014, followed by lower total recoverable lead concentrations downstream at Turah [Table 2-13; Figure 2-59]. Lowest mainstem total recoverable lead concentrations were found at the Clark Fork River near Galen site, and highest concentrations were observed at the Deer Lodge site. Among the tributary sites, concentrations of total recoverable lead were frequently high in Flint Creek, and were occasionally elevated in Mill-Willow Creek at Frontage Road, Mill-Willow Bypass, and Silver Bow Creek at Warm Springs in 2014 [Table 2-13; Figure 2-60]. The highest concentrations of lead were observed at most stations during the Q1 monitoring event. The overall highest total recoverable lead concentrations were measured in the Clark Fork River at Deer Lodge in Q1, and in Mill-Willow Creek at Frontage Road during the Q4 monitoring event when turbidity (Section 2.3.2.5) and total suspended sediment (Section 2.3.3) were also elevated at that site. Nearly all detectable lead was present in a sediment associated state; dissolved lead concentrations were commonly below the minimum analytical reporting limit during most (59 of 66) sampling events.

The maximum annual total recoverable lead concentration at CFROU monitoring stations in 2014 (0.0122 mg/L) was higher than the maximum concentration in 2013 (0.0060 mg/L), but lower than the maximum concentrations in 2010 (0.0295 mg/L), 2011 (0.0515 mg/L) and 2012 (0.0366 mg/L).

Total recoverable lead concentrations exceeded the chronic ALS at two Clark Fork River mainstem stations during 2014, including the Deer Lodge station (three exceedances; Q1, Q2-Peak, Q2-Falling) and the Turah station (one exceedance; Q1) [Table 2-13]. Flint Creek exhibited four exceedances of the chronic ALS in six measurements (Q1 and all Q2 events), while Mill-Willow Creek at Frontage Road had two exceedances (Q2-Peak and Q4) and the Mill-Willow Bypass had one exceedance (Q2-Falling). Samples collected at Clark Fork River mainstem stations near Galen, at Galen Road, and at Gemback Road, and tributary sites on Warm Springs Creek and the Little Blackfoot River, were consistently below the chronic ALS for total recoverable lead during 2014 monitoring events. The overall frequency of exceedances of the lead ALS at CFROU monitoring stations in 2014 (11 of 66 samples) was somewhat higher than in 2013 (3 of 60 samples), but lower than in each of 2012 (11 of 60 samples), 2011 (6 of 28 samples) and 2010 (7 of 24 samples).

The lead chronic and acute ALS compliance ratios for the Clark Fork River mainstem stations near Galen, at Deer Lodge, and at Turah appear to have declined somewhat over the five-year period since 2010 [Figure 2-61 through Figure 2-64]. The lead compliance ratio for Silver Bow Creek at Warm Springs was similar in each year from 2011 through 2014 [Figure 2-61].

The Clark Fork River near Galen frequently exceeded the lead chronic ALS compliance ratio from 2010-2013, but did not exceed the chronic ALS in 2014 [Figure 2-62]. The Clark Fork River at Galen Road and at Gemback Road also did not exceed the chronic ALS in 2014 [Figure 2-65]. Among the tributary sites, Mill-Willow Creek at Frontage Road, Mill-Willow Bypass, and Flint

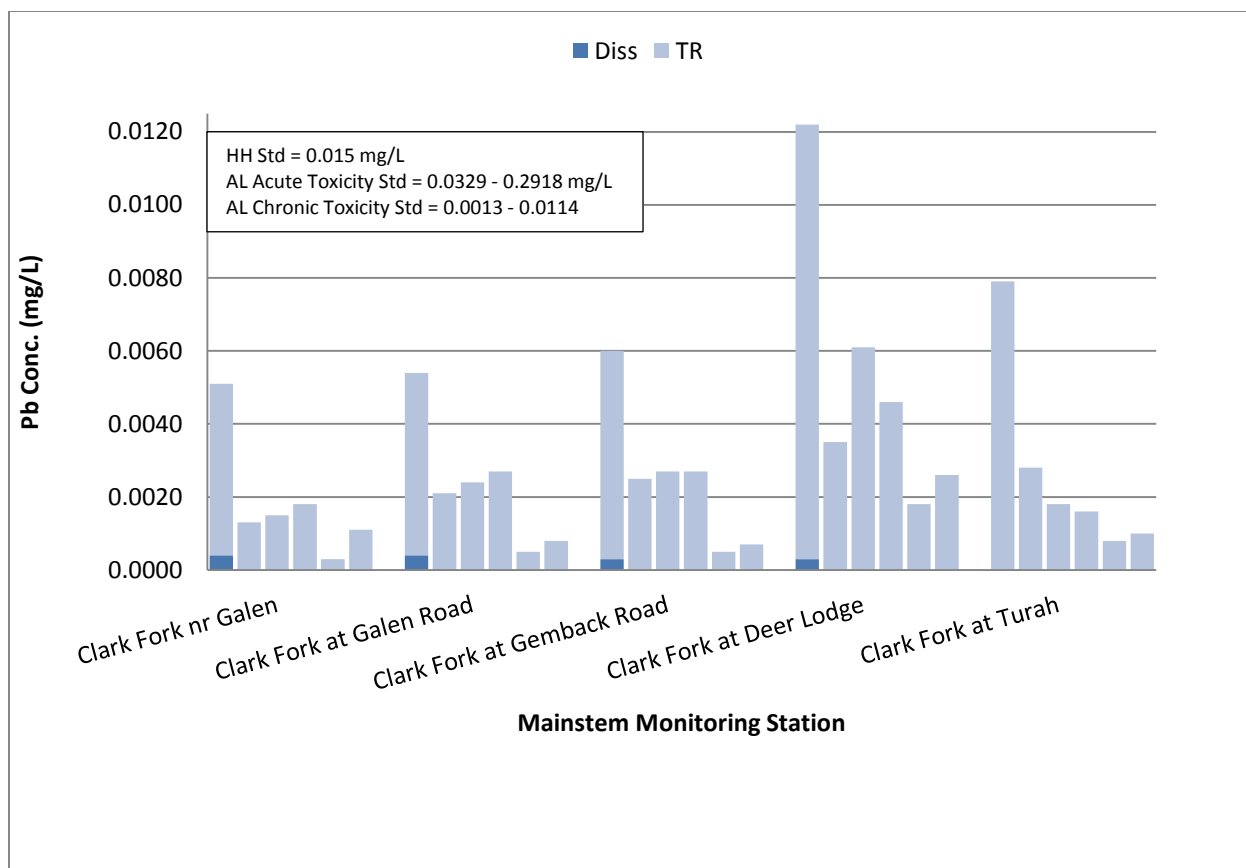
Creek had the highest lead compliance ratios and the Little Blackfoot River had the lowest compliance ratios [Figure 2-66].

**Table 2-13. Total recoverable lead concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

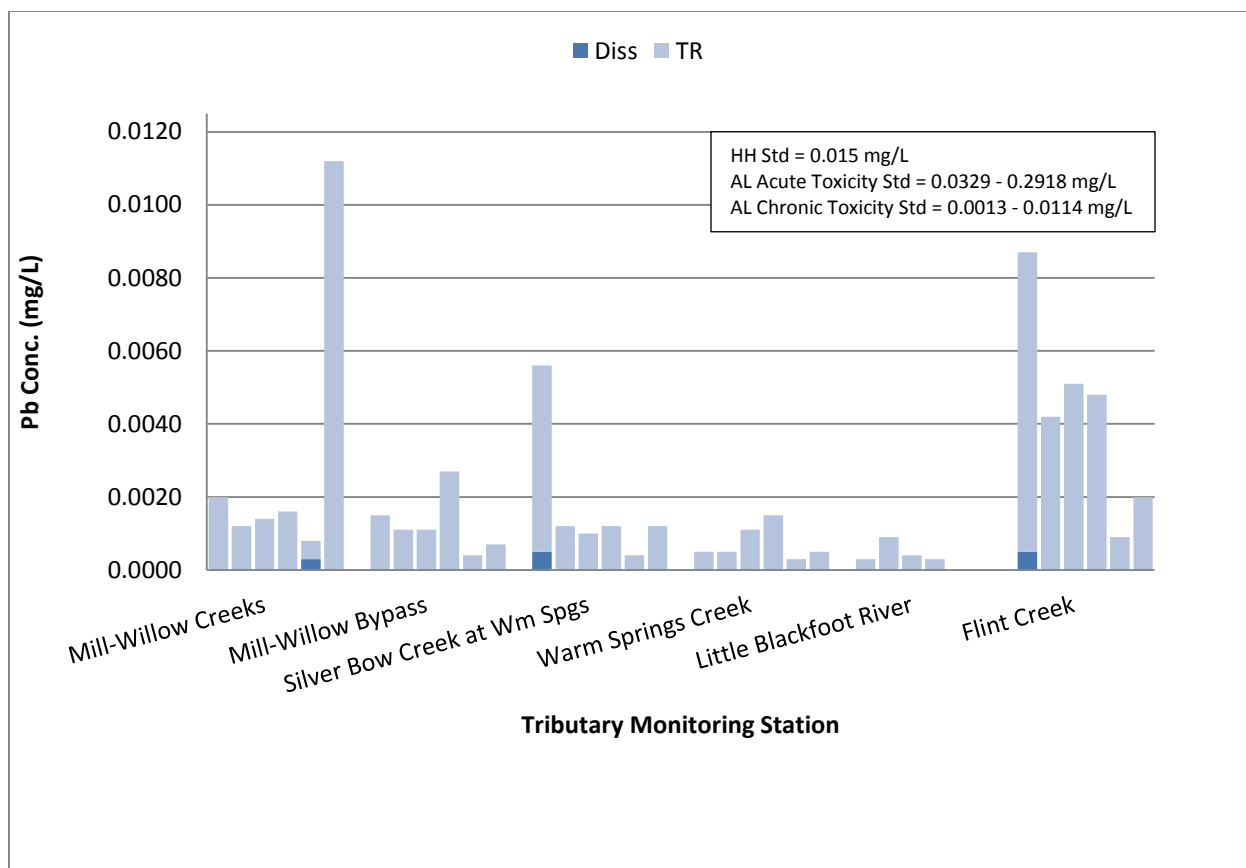
Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.0051	0.0013	0.0015	0.0018	0.0003	0.0011
CFR-07D	Clark Fork River at Galen Road	0.0054	0.0021	0.0024	0.0027	0.0005	0.0008
CFR-11F	Clark Fork River at Gemback Road	0.0060	0.0025	0.0027	0.0027	0.0005	0.0007
CFR-27H	Clark Fork River at Deer Lodge	0.0122	0.0035	0.0061	0.0046	0.0018	0.0026
CFR-116A	Clark Fork River at Turah	0.0079	0.0028	0.0018	0.0016	0.0008	0.0010
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.0056	0.0012	0.0010	0.0012	0.0004	0.0012
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.0020	0.0012	0.0014	0.0016	0.0008	0.0112
MWB-SBC	Mill-Willow Bypass near mouth	0.0015	0.0011	0.0011	0.0027	0.0004	0.0007
WSC-SBC	Warm Springs Creek near mouth	0.0005	0.0005	0.0011	0.0015	0.0003	0.0005
LBR-CFR	Little Blackfoot River near Garrison	0.0003	0.0009	0.0004	0.0003	ND	ND
FC-CFR	Flint Creek near mouth	0.0087	0.0042	0.0051	0.0048	0.0009	0.0020

Exceeds chronic aquatic life standard [MDEQ, 2012b].

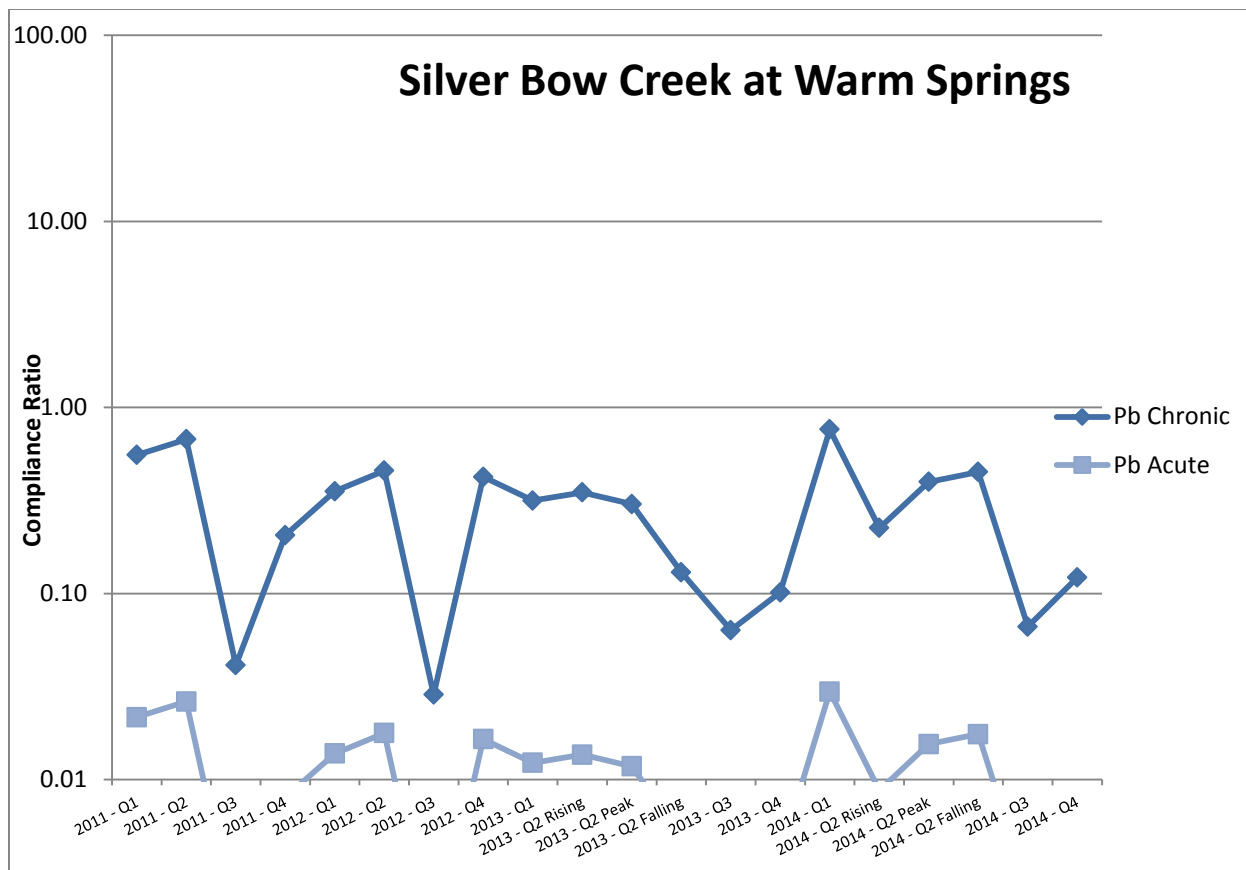
ND Not detected at analytical reporting limit.



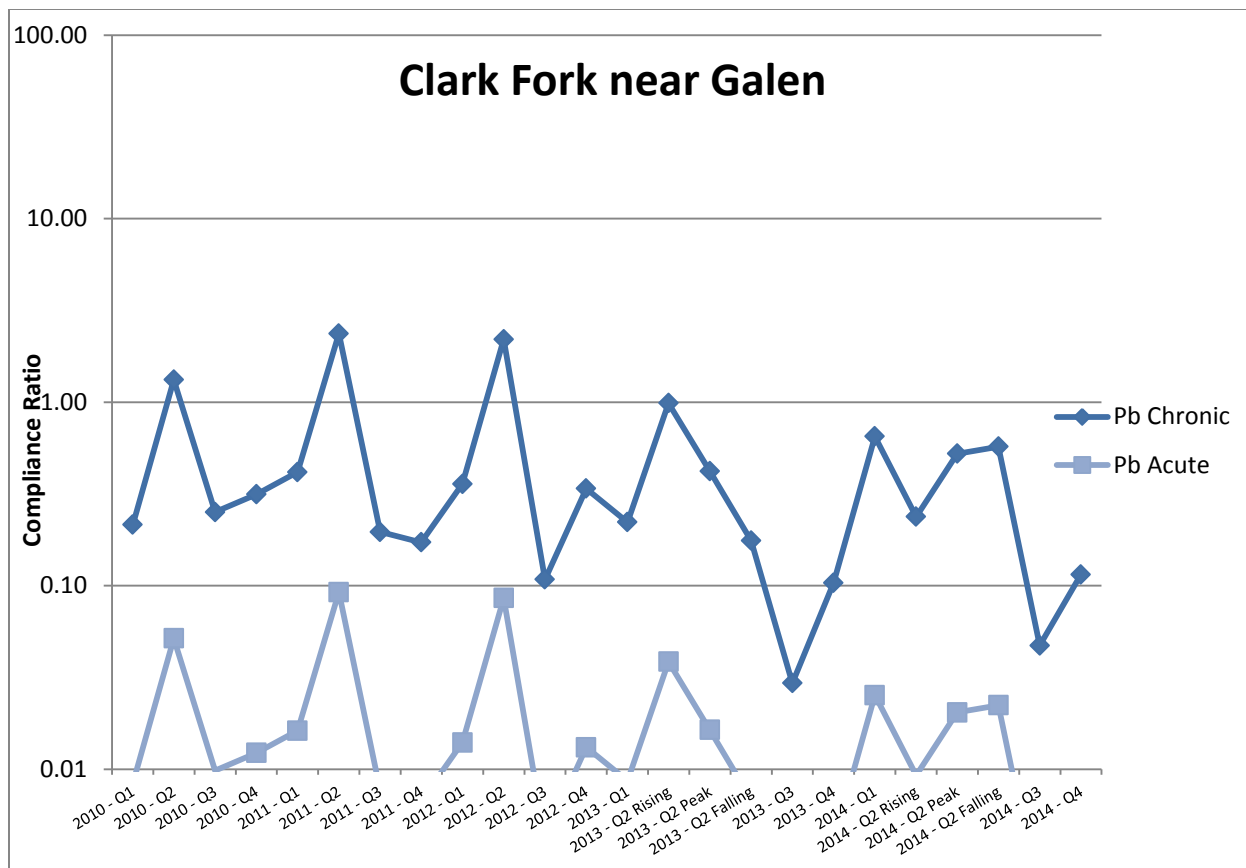
**Figure 2-59. Total recoverable (total recoverable) and dissolved (Diss) lead concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**



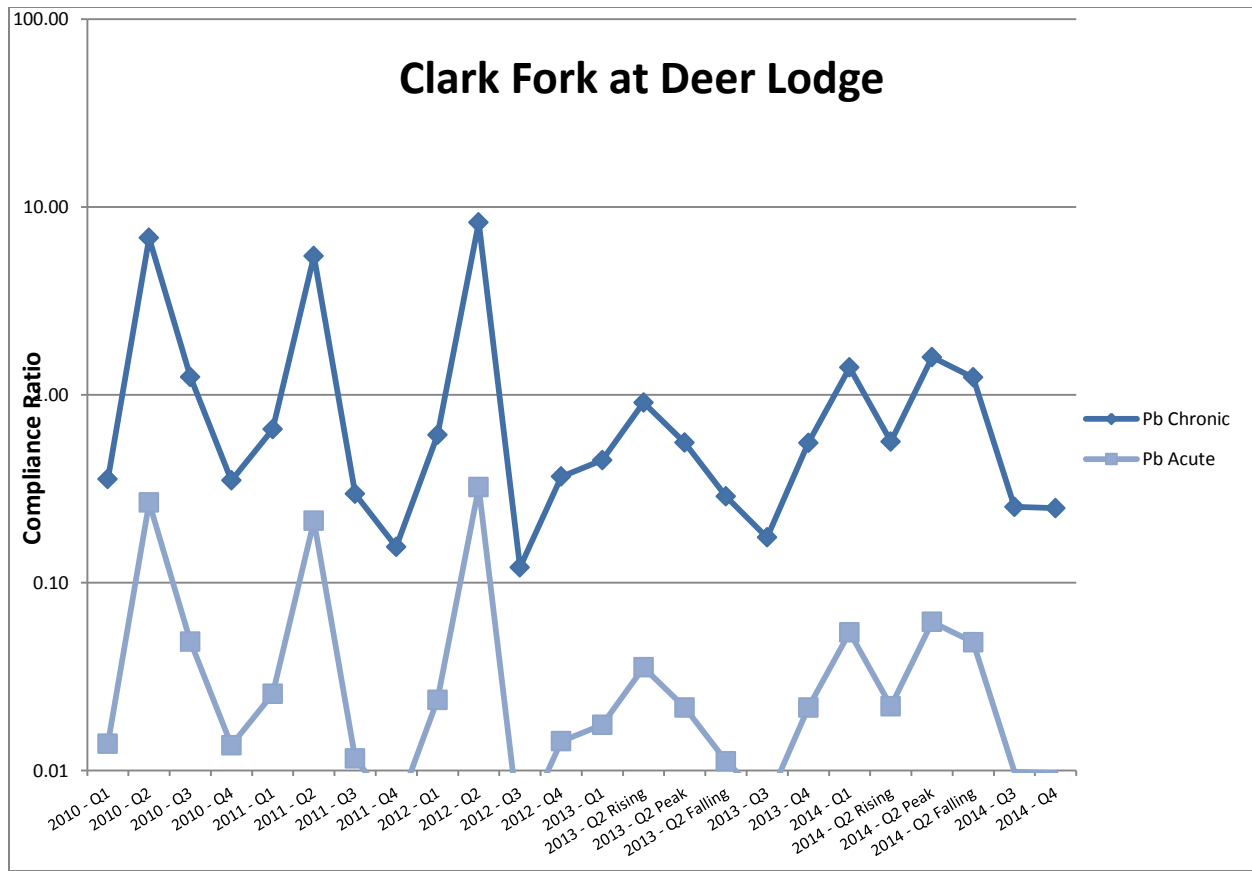
**Figure 2-60. Total recoverable (TR) and dissolved (Diss) lead concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**



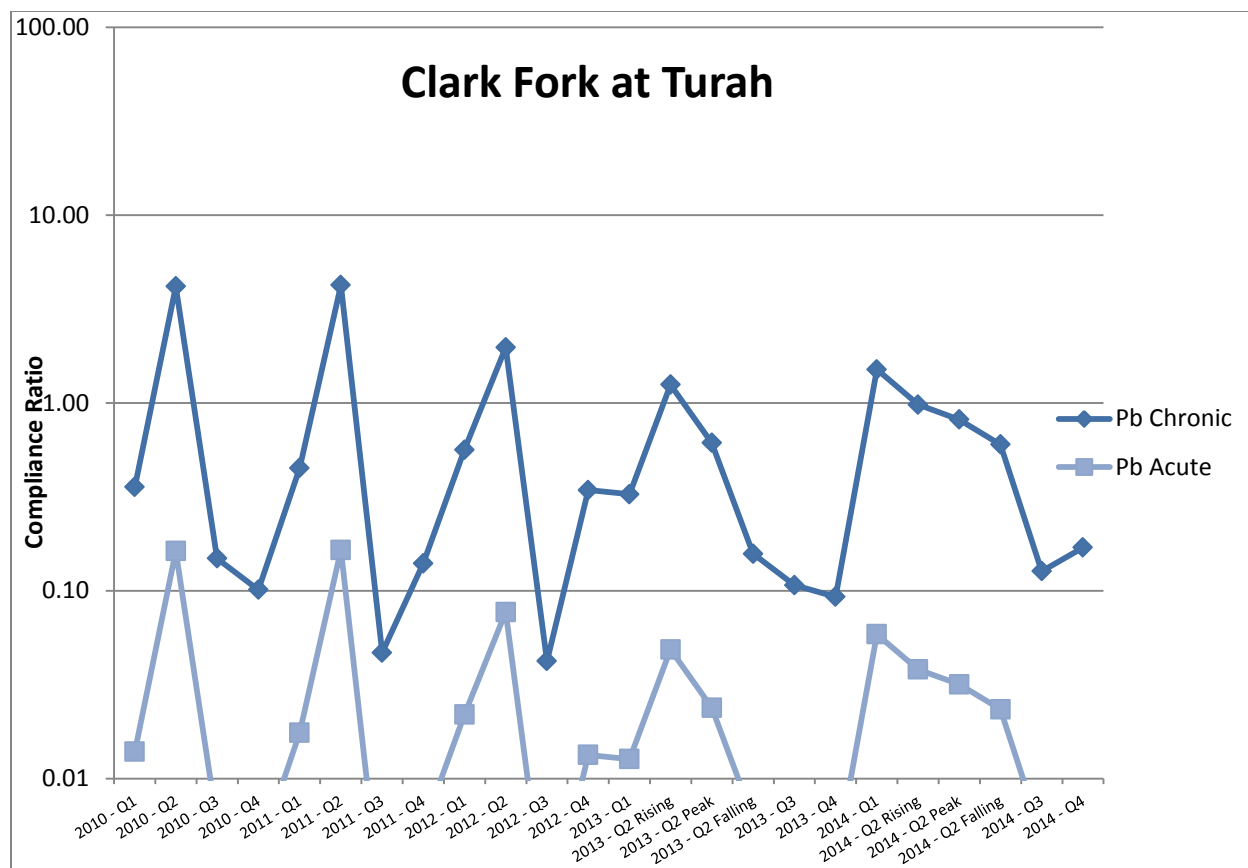
**Figure 2-61. Total recoverable lead (Pb) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**



**Figure 2-62. Total recoverable lead (Pb) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**

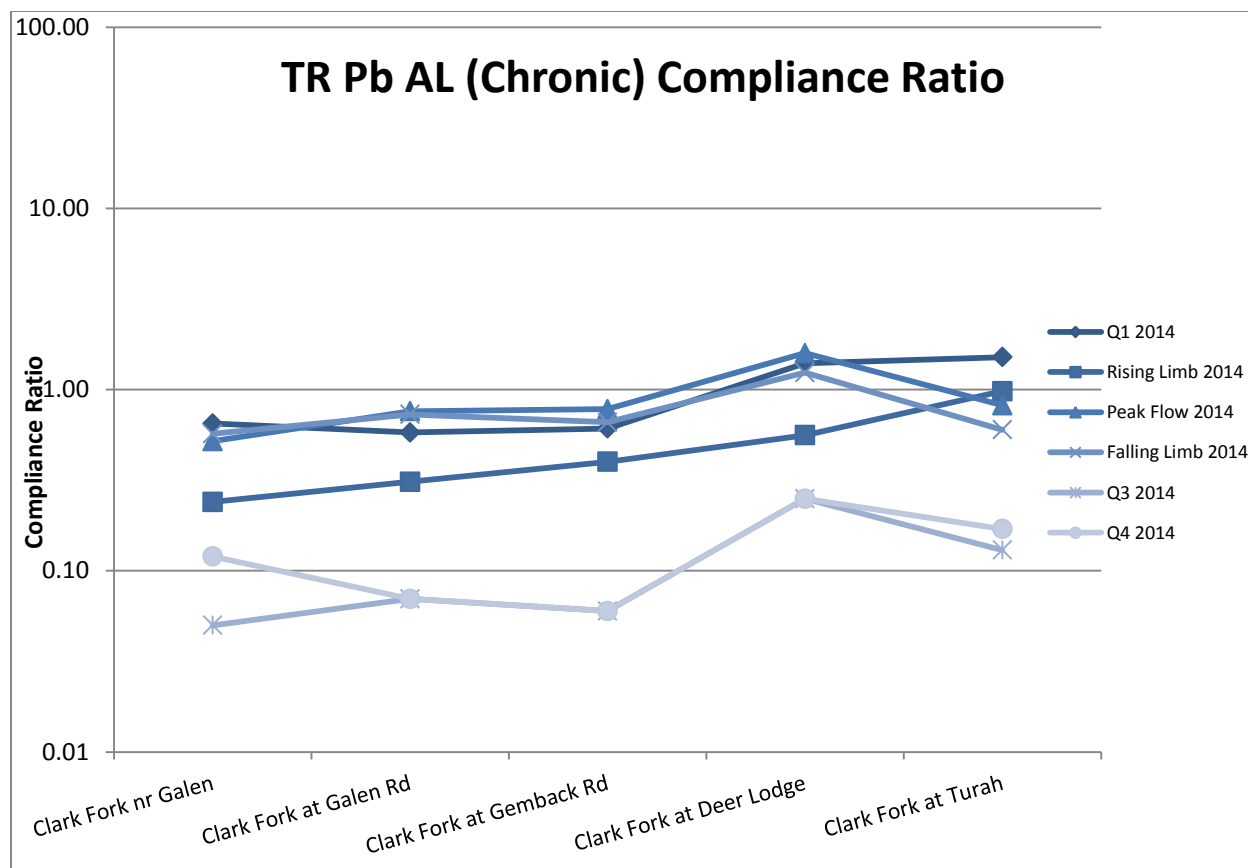


**Figure 2-63. Total recoverable lead (Pb) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**

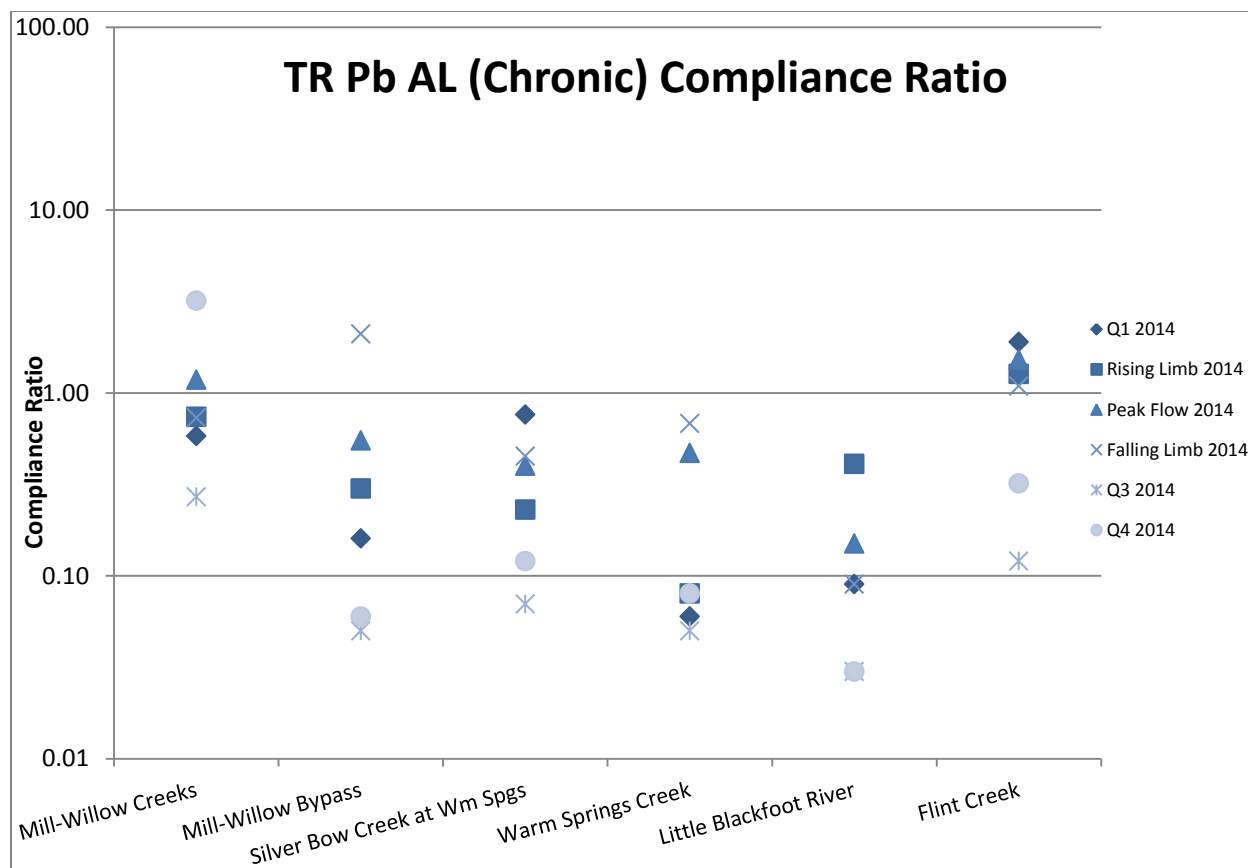


**Figure 2-64. Total recoverable lead (Pb) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the chronic and acute aquatic life standards [MDEQ, 2012b].**





**Figure 2-65. Total recoverable (TR) lead (Pb) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].**



**Figure 2-66. Total recoverable (TR) lead (Pb) compliance ratio in Clark Fork River (CFR) tributary sites, 2014. Compliance ratio is based on the chronic aquatic life standard (ALS) [MDEQ, 2012b].**

### 2.3.6.5 Zinc

Zinc concentrations in the Clark Fork River mainstem increased at each monitoring station throughout Reach A, from near Galen to Deer Lodge, and then decreased downstream at Turah in 2014 [Table 2-14; Figure 2-67]. Lowest concentrations at mainstem monitoring sites were seen in the Clark Fork near Galen, while highest concentrations were observed at the Deer Lodge site. All samples from the CFROU tributary sites had low zinc concentrations in 2014, with two exceptions [Table 2-14; Figure 2-68]. These included the Mill-Willow Creek at Frontage Road site in Q4 during the high turbidity event, and Silver Bow Creek at Warm Springs in Q1 which may have corresponded to spring turnover in the Warm Springs Ponds based on other parameters. Like most of the COC metals during 2014 monitoring events, the highest zinc concentrations in 2014 were usually observed during the Q1 monitoring event. This temporal pattern was not distinct for the tributary sites where zinc concentrations were lower overall.

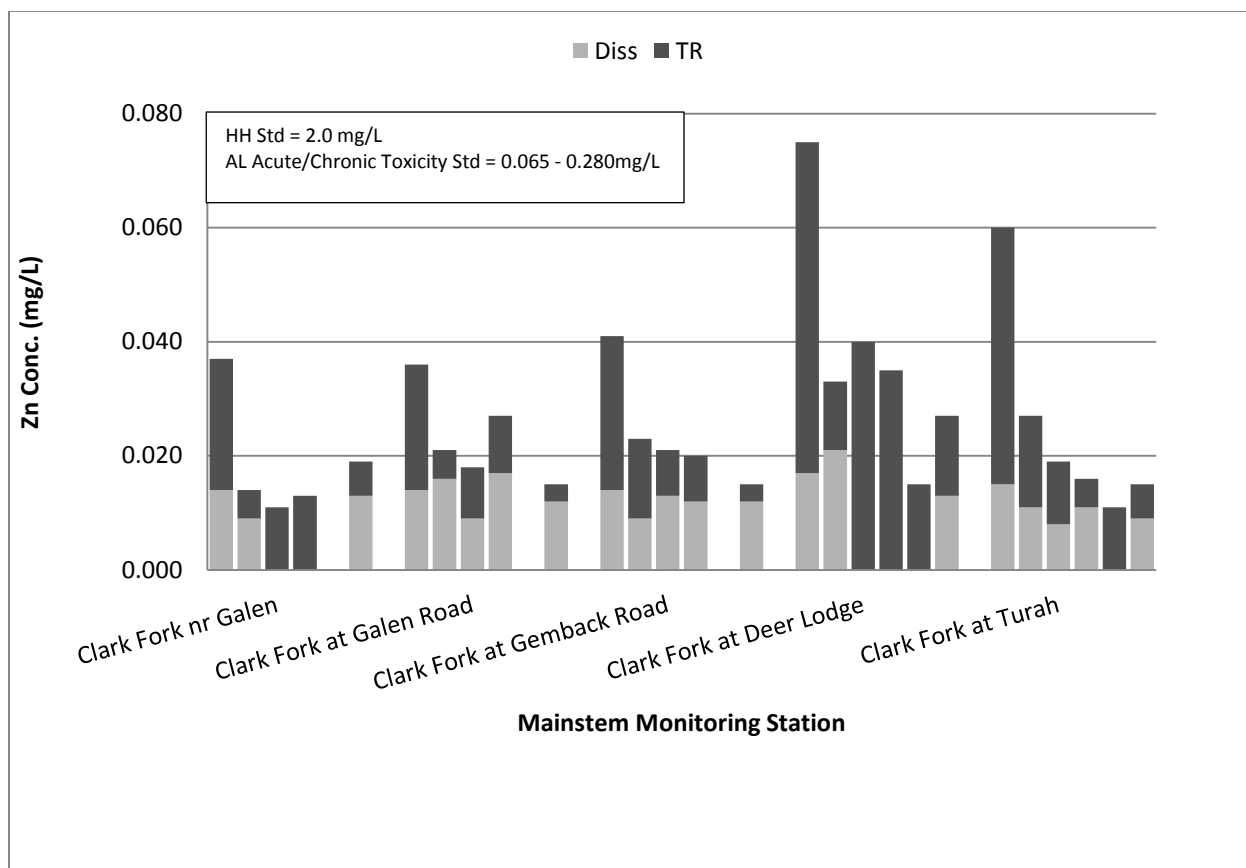
A relatively high proportion of the zinc present at many of the mainstem monitoring stations during many of the quarterly monitoring events was present in a dissolved state [Figure 2-67]. This was less pronounced during higher flow conditions in Q1 and Q2 when more of the zinc was present in a sediment associated state. The highest total recoverable zinc concentration at CFROU monitoring stations in 2014 (0.075 mg/L) was higher than the maximum concentration in 2013 (0.04 mg/L), but much lower than the maximum concentrations in 2010 (0.17 mg/L), 2011 (0.25 mg/L) and 2012 (0.22 mg/L). The minimum analytical reporting limit for zinc was lowered in 2014 to 0.008 mg/L from the prior limit of 0.01 mg/L which applied to 2010-2013 monitoring years.

The zinc ALS compliance ratios for the Clark Fork River mainstem stations near Galen, at Deer Lodge, and at Turah appear to have declined somewhat since 2010 [Figure 2-69 through Figure 2-72]. The tributary station on Silver Bow Creek at Warm Springs did not show a similar declining trend [Figure 2-69]. The seasonal and spatial trends in ALS compliance ratios for total recoverable zinc during the six 2014 monitoring events were similar to the patterns noted for cadmium, copper, and lead. The Clark Fork River at Gemback Road and at Deer Lodge most frequently had the highest zinc ALS compliance ratios during 2014, and the highest mainstem ratios occurred during the Q1 monitoring events [Figure 2-73]. All of the tributaries had compliance ratios that were consistently below 0.1 [Figure 2-74]. The mainstem stations also had compliance ratios during 2014 that were consistently below 1.0. Compliance ratios at all of the mainstem Clark Fork River stations examined appear to have declined since 2010 [Figure 2-70; Figure 2-71; Figure 2-72]. Compliance ratios at the Silver Bow Creek at Warm Springs station appear unchanged since 2011 [Figure 2-69]. The overall frequency of exceedances of the zinc ALS at CFROU monitoring stations in 2014 (0 of 66 samples) was comparable to 2013 (0 of 60 samples), but lower than in each of 2010 (2 of 24 samples), 2011 (2 of 28 samples), and 2012 (3 of 60 samples).

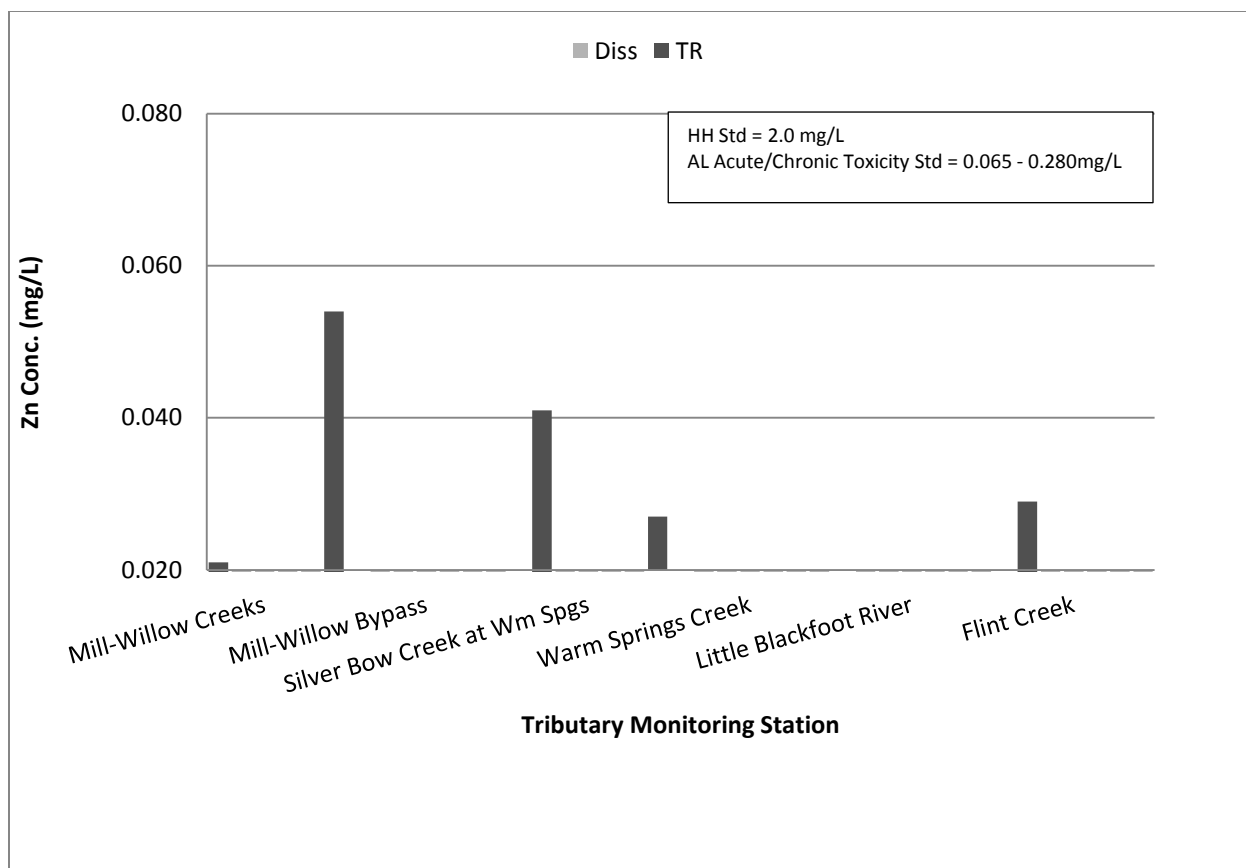
**Table 2-14. Total recoverable zinc concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.037	0.014	0.011	0.013	ND	0.019
CFR-07D	Clark Fork River at Galen Road	0.036	0.021	0.018	0.027	ND	0.015
CFR-11F	Clark Fork River at Gemback Road	0.041	0.023	0.021	0.020	ND	0.015
CFR-27H	Clark Fork River at Deer Lodge	0.075	0.033	0.040	0.035	0.015	0.027
CFR-116A	Clark Fork River at Turah	0.060	0.027	0.019	0.016	0.011	0.015
Tributary Sites							
SS-25	Silver Bow Creek at Warm Springs	0.041	0.014	0.008	0.011	ND	0.027
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.021	ND	ND	0.010	ND	0.054
MWB-SBC	Mill-Willow Bypass near mouth	0.017	ND	ND	0.014	ND	0.010
WSC-SBC	Warm Springs Creek near mouth	0.009	ND	ND	0.010	ND	ND
LBR-CFR	Little Blackfoot River near Garrison	ND	ND	ND	ND	ND	ND
FC-CFR	Flint Creek near mouth	0.029	0.016	0.017	0.015	ND	ND

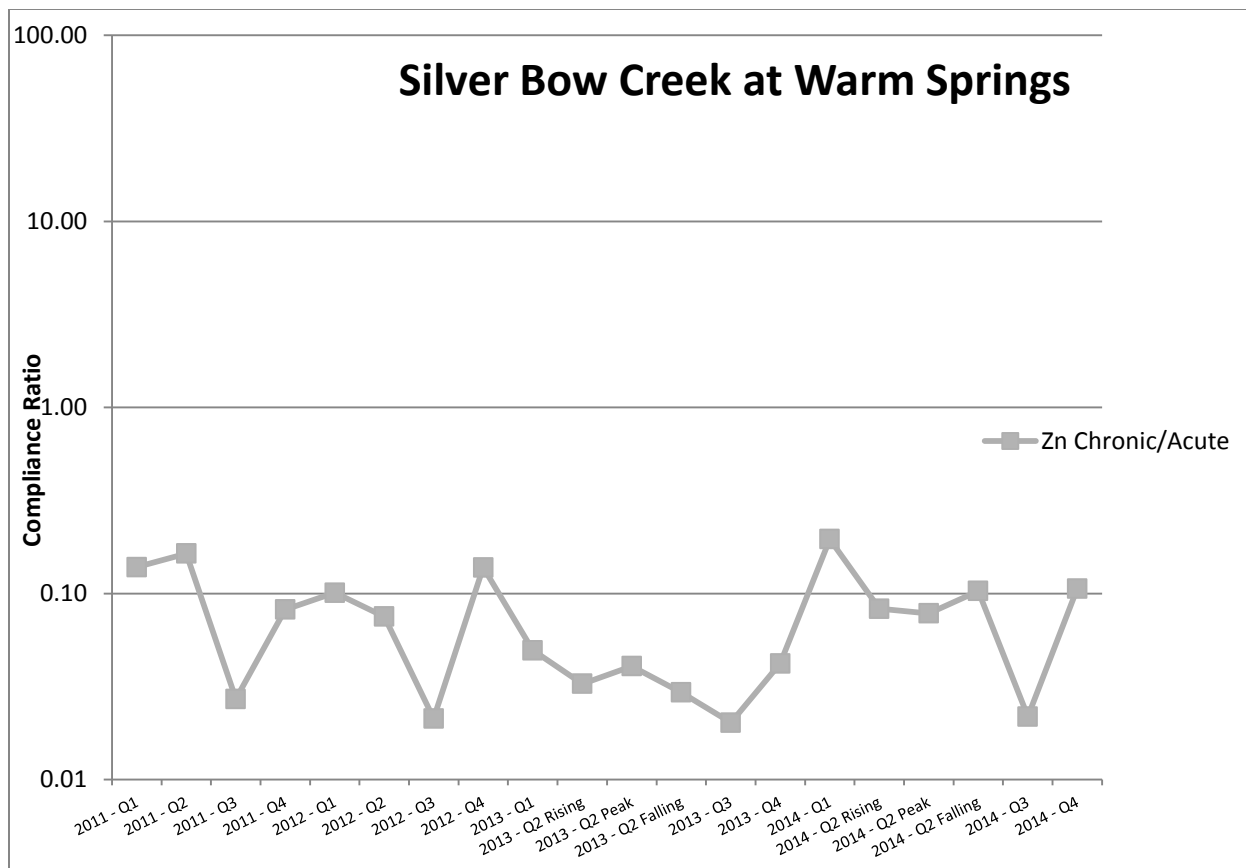
ND Not detected at analytical reporting limit.



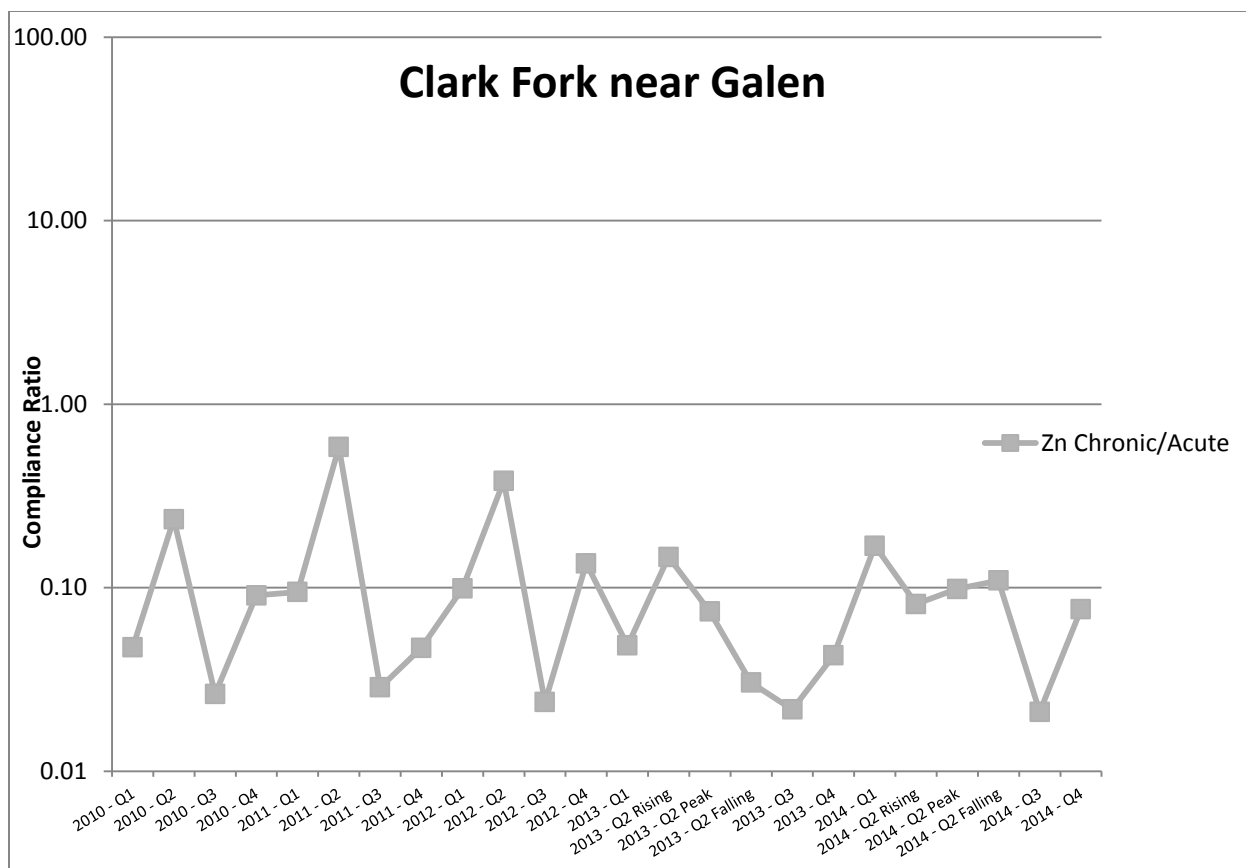
**Figure 2-67. Total recoverable (TR) and dissolved (Diss) zinc concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**



**Figure 2-68. Total recoverable (TR) and dissolved (Diss) zinc concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2014. No bars indicate concentrations below the analytical reporting limit. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**

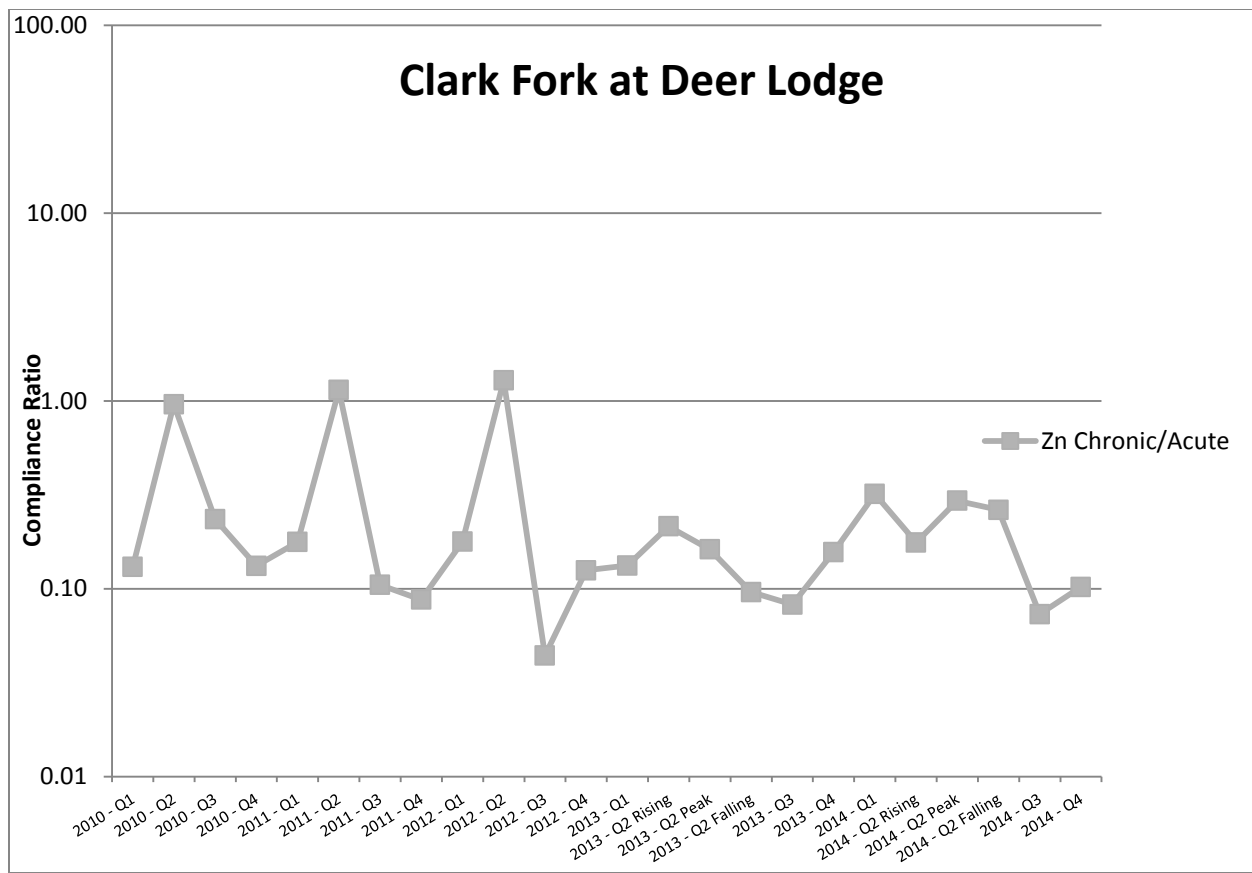


**Figure 2-69. Total recoverable zinc (Zn) compliance ratios for Silver Bow Creek at Warm Springs site, 2011-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b].**

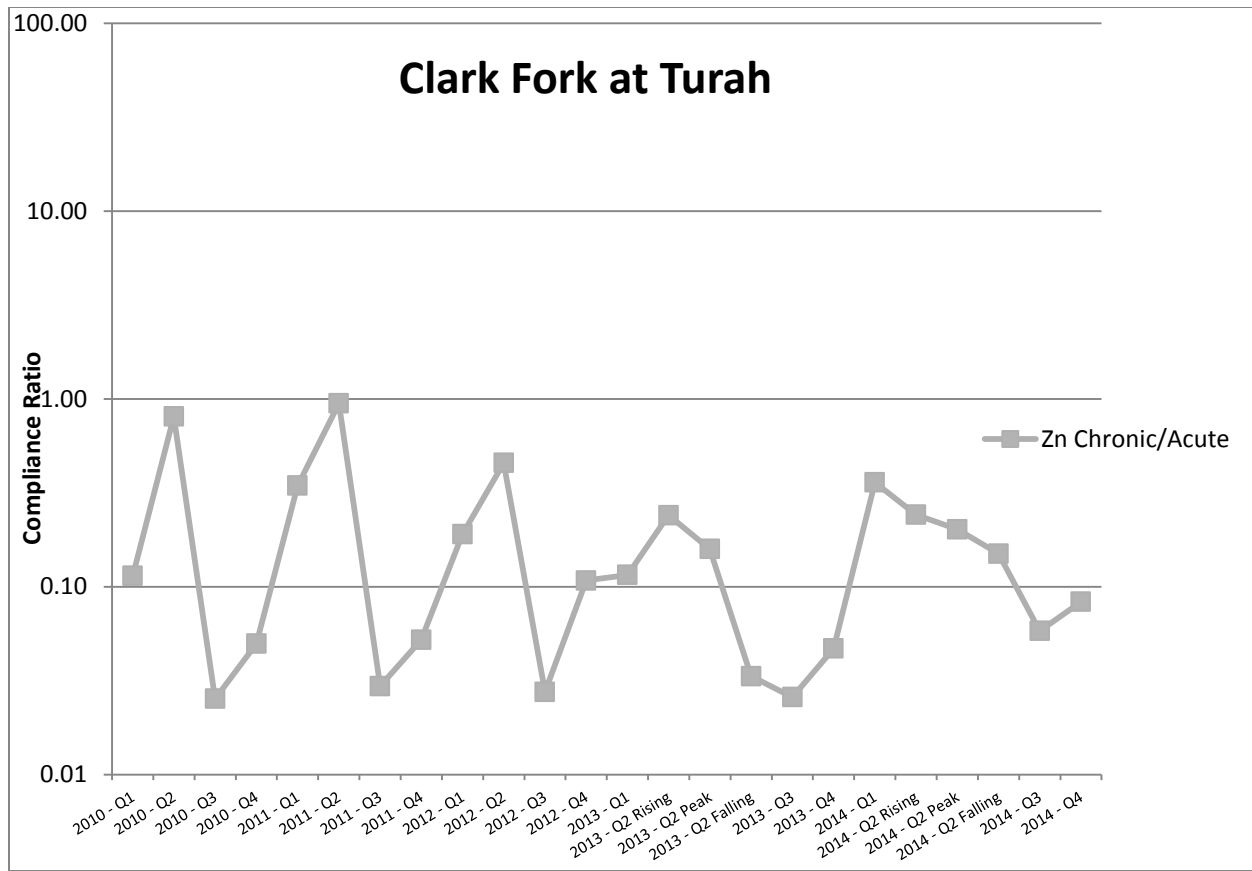


**Figure 2-70. Total recoverable zinc (Zn) compliance ratios for Clark Fork River near Galen site, 2010-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b].**

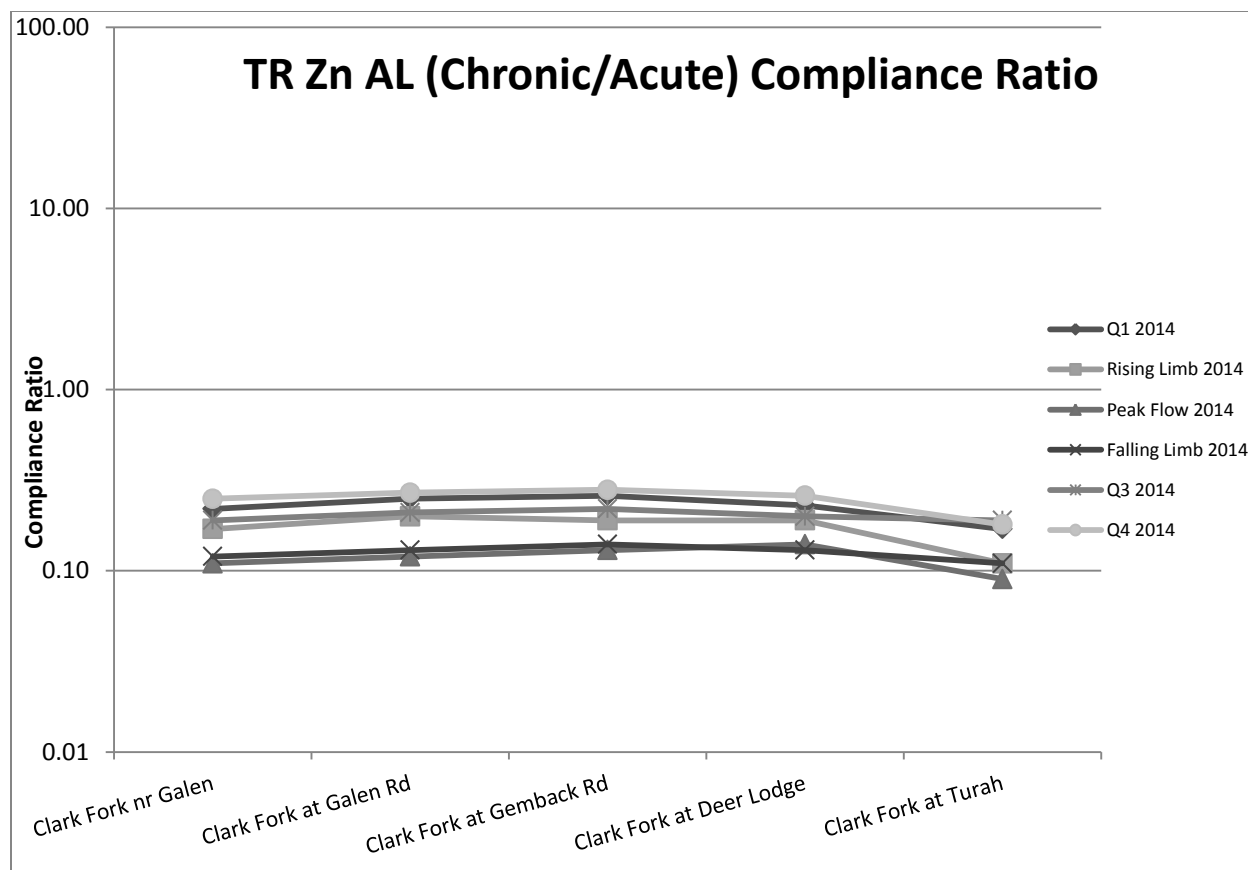




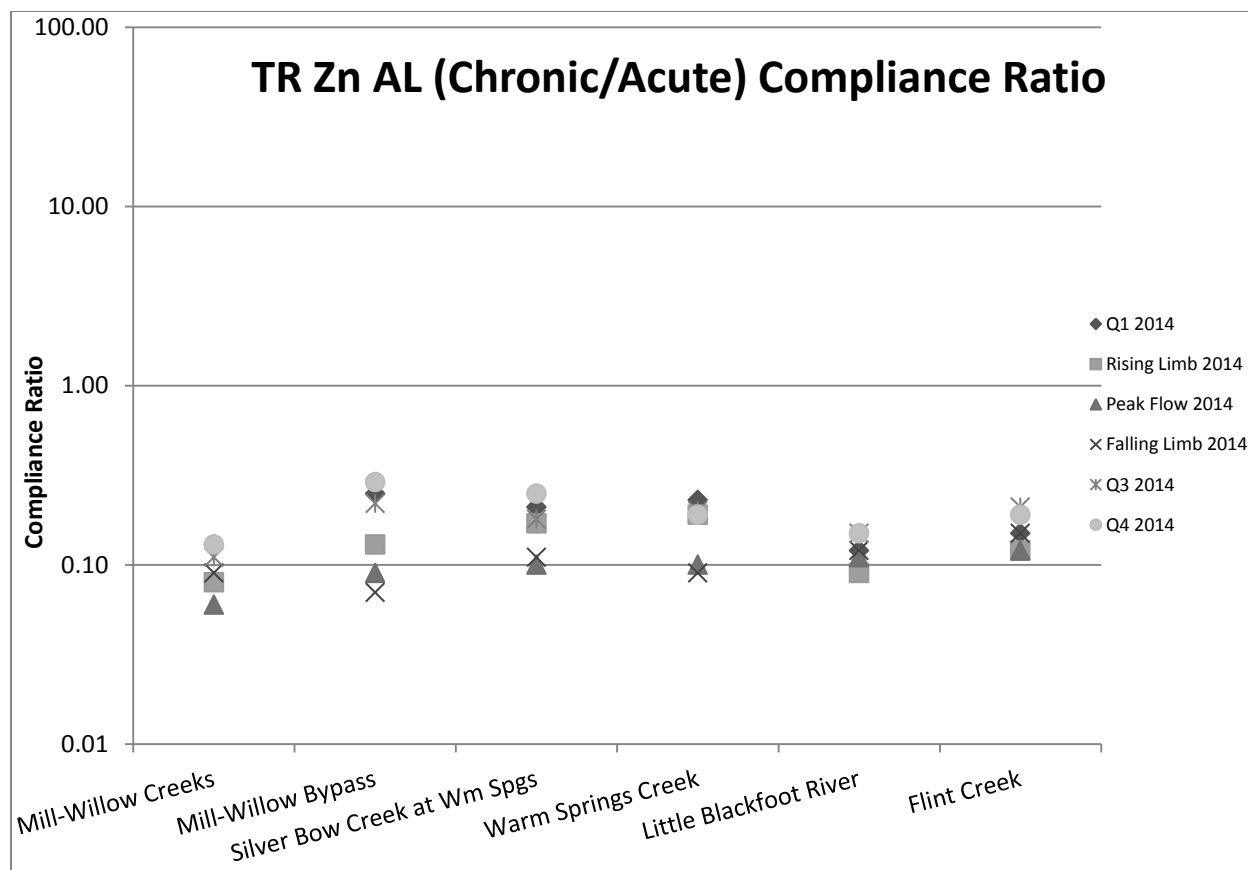
**Figure 2-71. Total recoverable zinc (Zn) compliance ratios for Clark Fork River at Deer Lodge site, 2010-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b].**



**Figure 2-72. Total recoverable zinc (Zn) compliance ratios for Clark Fork River at Turah site, 2010-2014. Compliance ratios are based on the aquatic life standards [MDEQ, 2012b].**



**Figure 2-73. Total recoverable (TR) zinc (Zn) compliance ratio in the Clark Fork River (CFR) mainstem sites, 2014. Compliance ratio is based on the chronic and acute aquatic life standard (ALS) [MDEQ, 2012b].**



**Figure 2-74. Total recoverable (TR) zinc (Zn) compliance ratio in Clark Fork River (CFR) tributary sites, 2013. Compliance ratio is based on the chronic and acute aquatic life standard (ALS) [MDEQ, 2012b].**

## 2.3.7 Other Metals

### 2.3.7.1 Mercury

Monitoring for mercury at CFROU monitoring stations began in 2012. In 2013-2014, mercury monitoring was reduced to two stations: Flint Creek near mouth and Clark Fork River near Drummond. In 2014, the minimum analytical reporting level for mercury was lowered from 0.000010 mg/L to 0.000005 mg/L.

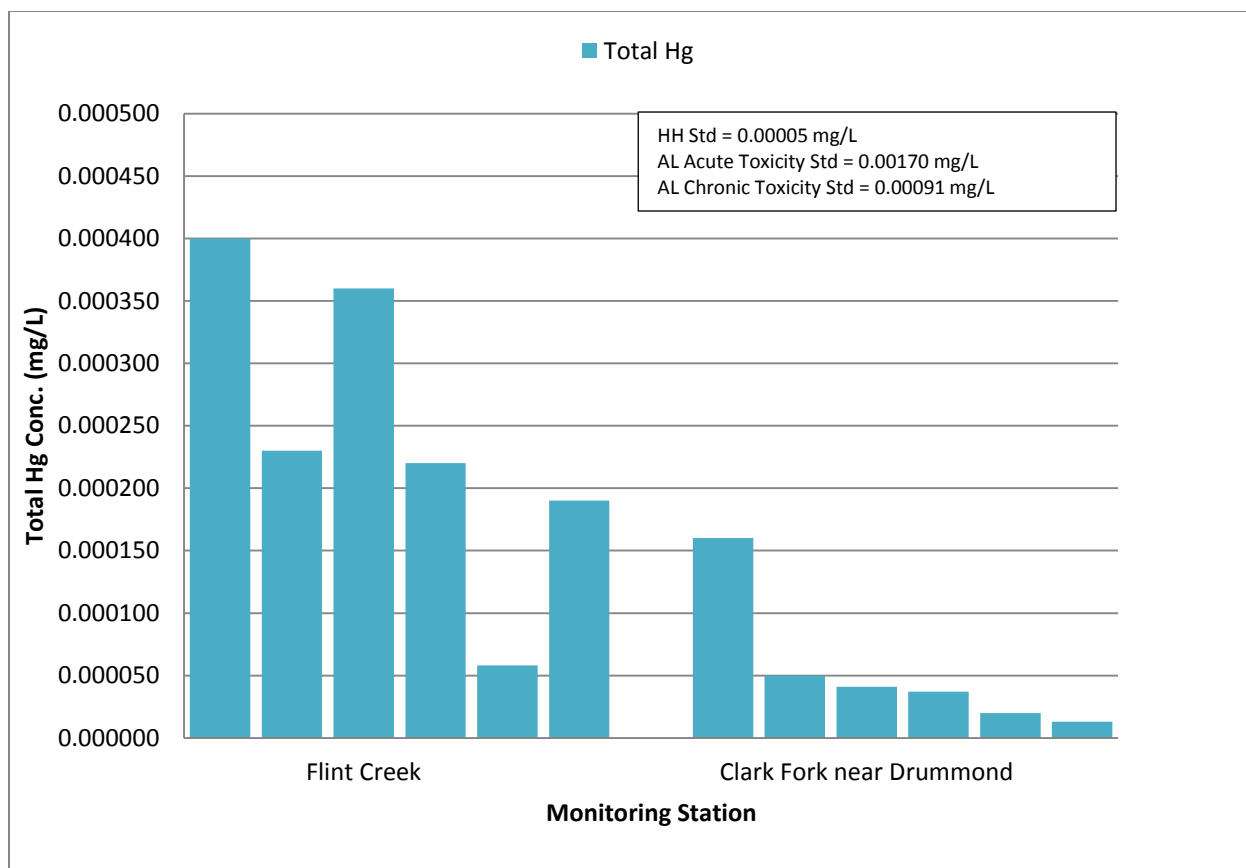
With the lower reporting levels, mercury was detected in 12 of the 12 (100%) samples collected in 2014 [Table 2-15]. The highest mercury concentrations at both monitoring sites in 2014 occurred during the Q1 monitoring event. The second highest mercury concentration occurred in Flint Creek during the Q2-Peak monitoring event [Figure 2-75]. Flint Creek mercury concentrations were consistently higher than the Clark Fork River near Drummond concentrations, with Flint Creek the likely source of mercury at the latter, downstream site.

All 2014 samples from Flint Creek exceeded the mercury HHSWS [Table 2-15]. One of six samples from the Clark Fork River near Drummond (Q1) exceeded the HHSWS in 2014; however, all three Q2 sample concentrations (ranging from 0.000037-0.000050 mg/L) approached or attained the HHSWS (0.000050 mg/L). Overall, mercury concentrations at these two stations in 2014 were within the range of concentrations observed at these stations in 2012-2013. The maximum concentration measured in 2014 was also similar to the highest concentration measured in 2013. In 2013, Flint Creek had four of six samples exceeding the HHSWS and the Clark Fork River near Drummond showed no excursions. In 2012, Flint Creek had two of four samples exceeding the HHSWS and the Clark Fork River near Drummond showed one of four excursions. Compliance ratios for mercury at the Flint Creek near mouth and Clark Fork River near Drummond sites in 2012-2014 did not demonstrate apparent upward or downward temporal trends [Figure 2-76; Figure 2-77].

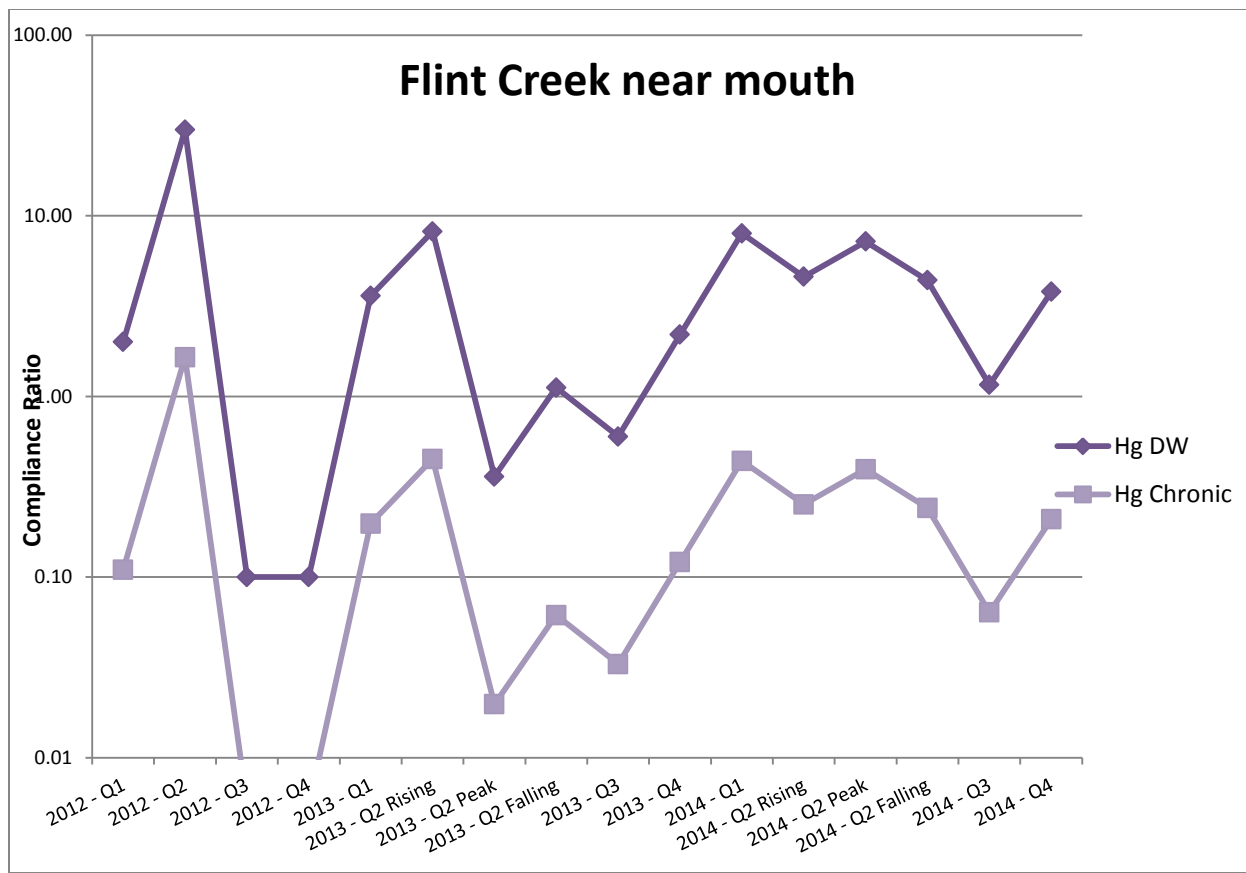
**Table 2-15. Total mercury concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-84F	Clark Fork River near Drummond	0.000160	0.000050	0.000041	0.000037	0.000020	0.000013
Tributary Sites							
FC-CFR	Flint Creek near mouth	0.000400	0.000230	0.000360	0.000220	0.000058	0.000190

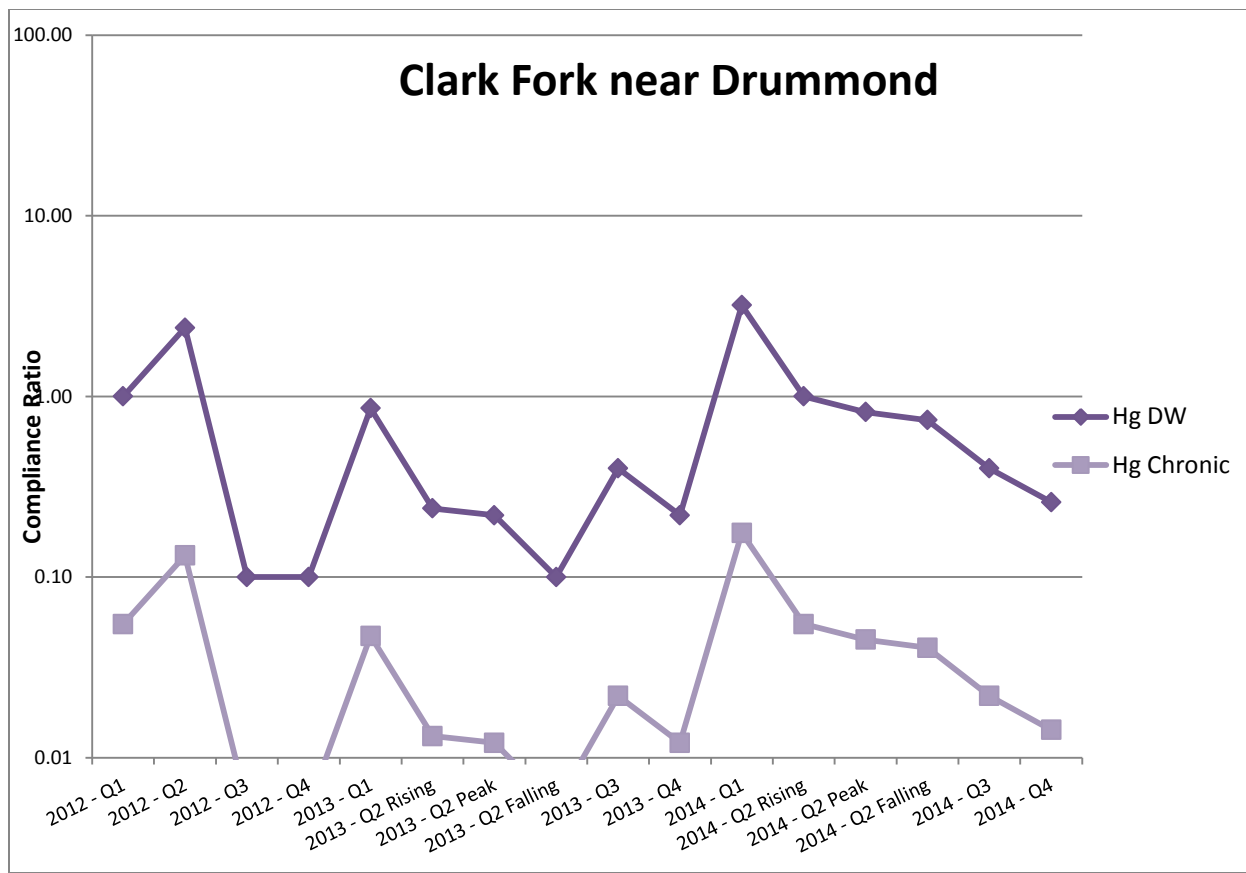
Exceeds human health surface water standard [MDEQ, 2012b].



**Figure 2-75. Total mercury (Hg) concentrations at sampling sites in the Clark Fork River Operable Unit, 2014. Applicable water quality standards are the aquatic life standards (ALS) and the human health surface water standard (HHSWS) [MDEQ, 2012b].**



**Figure 2-76. Total mercury (Hg) compliance ratios for Flint Creek near mouth site, 2012-2014. Compliance ratios are based on the chronic aquatic life standard and the human health surface water standard, or the drinking water standard (DW) [MDEQ, 2012b].**



**Figure 2-77. Total mercury (Hg) compliance ratios for Clark Fork River near Drummond site, 2012-2014. Compliance ratios are based on the chronic aquatic life standard and the human health surface water standard, or the drinking water standard (DW) [MDEQ, 2012b].**



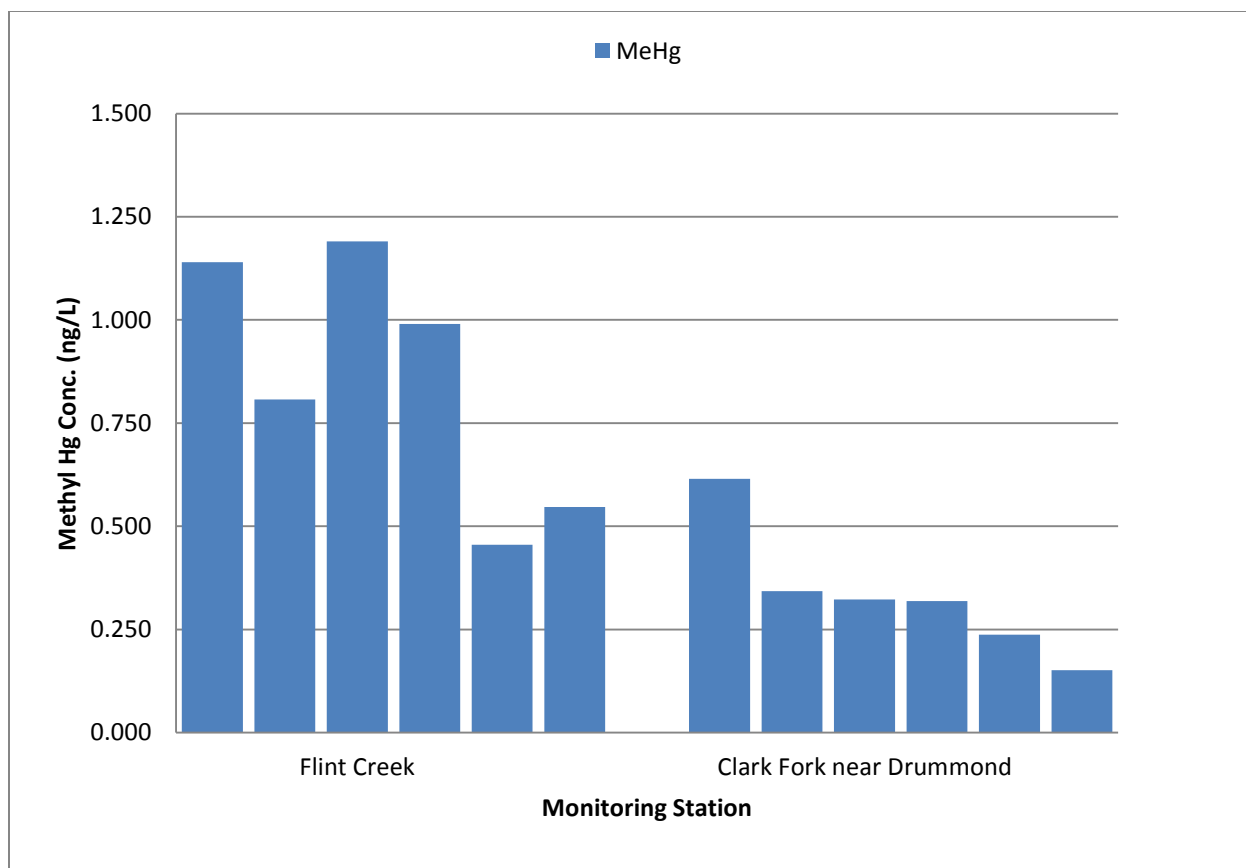
### 2.3.7.2 Methylmercury

In 2014, methylmercury was detected in all samples collected from each of the Flint Creek and Clark Fork River near Drummond stations [Table 2-16; Figure 2-78]. Like total mercury, these two sites are the only sites sampled for methylmercury within the CFROU network of stations. Methylmercury concentrations were highest during the Q2-Peak monitoring event in Flint Creek, and highest in Q1 at the Clark Fork River near Drummond site. Flint Creek consistently had methylmercury concentrations that were nearly two-fold to nearly four-fold the concentrations of the Clark Fork River near Drummond site [Table 2-16].

Methylmercury concentrations in 2014 were within the range of concentrations observed in samples from those sites in 2012 and 2013. However, the maximum 2014 methylmercury concentrations at each site were lower in 2014 than in either of 2012 or 2013.

**Table 2-16. Methylmercury concentrations (ng/L) at Clark Fork River Operable Unit monitoring stations, 2014.**

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-84F	Clark Fork River near Drummond	0.615	0.343	0.323	0.319	0.237	0.151
Tributary Sites							
FC-CFR	Flint Creek near mouth	1.140	0.807	1.190	0.990	0.455	0.547



**Figure 2-78. Methylmercury concentrations at sampling sites in the Clark Fork River Operable Unit, 2014.**

### 2.3.8 Data Validation

Data derived from laboratory analysis of surface water samples collected at upper Clark Fork River locations were validated through field quality control samples (i.e., field duplicates and field blanks) and laboratory control samples (lab duplicates, blanks, spikes, and reference and calibration standards). Analysis of field quality measures are described in Appendix A. Results of laboratory quality control measures are described in Appendix B.

Analysis results for surface water field duplicate samples were within acceptable limits for the majority of chemical parameters during all quarters of 2014. In total 288 field sample and field duplicate pairs were compared and 101 of those pairs had analyte concentrations which were less than five times the reporting limit and therefore relative percent difference (RPD) comparisons were not valid according to the project QAPP [DeArment et al., 2013]. Of the remaining 187 sample and duplicate pairs, 177 (95%) had RPDs <25%. Sample and duplicate pairs with RPD >25% were total mercury (three pairs with RPDs of 34%, 37%, and 74%), methylmercury (two pairs with RPDs of 36% and 40%), total nitrogen (three pairs with RPDs of 37%, 38%, and 71%), and total suspended sediment (two pairs with RPDs of 13% and 40%).

Analyte concentrations were below reporting limits (RLs) in 267 of 288 (93%) of the field blank samples (i.e., deionized water samples prepared in the same manner as field sample) in

2014. Analyte concentrations in field blanks which exceeded the reporting limits in 2014 included dissolved organic carbon (six samples with concentrations ranging from 0.3-0.5 mg/L; RL = 0.1 or 0.5 mg/L), chloride (one sample with concentration of 7 mg/L; RL = 1 mg/L), total nitrogen (two samples with concentrations of 0.08 and 0.11 mg/L; RL = 0.05 mg/L), total phosphorus (one sample with concentration of 0.05 mg/L; RL = 0.05 mg/L), total suspended sediment (two samples with concentrations of 3 mg/L and 3 mg/L; RL = 1 mg/L), and dissolved zinc (nine samples with concentrations ranging from 0.009-0.19 mg/L; RL = 0.008 mg/L).

## **2.4 DISCUSSION**

---

### **2.4.1 Streamflows**

---

Streamflows in the upper Clark Fork River watershed were normal or above normal at all sites during almost all monitoring periods in 2014. The streamflows were also higher than in 2013, but much lower than some prior years such as 2011. Higher streamflows presumably contributed to slightly higher COC concentrations in 2014 compared to 2013. Average to above average streamflows also almost certainly influenced other parameters such as water temperatures, nutrient levels, conductivity, turbidity, common ion concentrations, and total suspended sediment concentrations.

### **2.4.2 Field Parameters**

---

#### **2.4.2.1 Water Temperature**

Water temperature has considerable chemical and biological significance in riverine systems. Stream temperatures reflect seasonal changes in net solar radiation as well as daily changes in air temperature, and vary as a function of stream morphological characteristics, groundwater inputs, shading, the presence of particulate matter in the water column, and other variables. Optimal water temperatures for most trout species is approximately 12–14 C. Sustained temperatures in the 20–25 C temperature range can be fatal for trout.

Temperature monitoring results for the upper Clark Fork River monitoring stations during 2014 indicated modest seasonal and spatial variations that were generally within the preferred range for cold water organisms such as trout. The maximum recorded water temperature was 16.9 C at the Clark Fork River at Deer Lodge site. However, stream temperatures are extremely variable as a result of weather and diel variation and this monitoring program is not intended to capture extreme temperature swings. More detailed hourly temperature data collected by Montana Fish, Wildlife and Parks indicated that water temperatures in the Clark Fork River and tributaries are extremely stressful for trout, regularly exceeding 20 C and may occasionally exceed 25 C in the summer months at many of these sites (see Section 8.0).

#### 2.4.2.2 Acidity

Water pH measures the acidity of water as the concentration of hydrogen ions on a logarithmic scale. Acidity is influenced by water temperature, although the relationship is not linear, and typically shows a weak inverse relationship to streamflow as concentrations of base minerals tend to become diluted during runoff conditions. Acidity typically fluctuates on a diel cycle in relation to stream metabolism, with pH highest during the day. As dissolved carbon dioxide (a weak acid) levels increase during the night (because photosynthesis does not occur), pH levels decrease. Stream pH has direct and indirect effects on water chemistry and the biota of aquatic systems. Declines in pH below 6.5 may reduce salmonid egg production and hatching, and can reduce the emergence of some aquatic insects. The solubility of some metals varies with pH. This is important in systems such as the Clark Fork River where metal concentrations in sediments are elevated. Stream pH also affects a variety of other instream chemical equilibria, for example the proportion of ammonia present in the toxic (un-ionized) form.

The Montana Department of Environmental Quality has concluded that pH levels need to be maintained within the 6.5-9.0 range to protect aquatic life. Generally, pH measured in the Clark Fork River during 2014 monitoring events was within these recommended levels. However, pH in Silver Bow Creek immediately upstream from the Clark Fork River mainstem regularly exceeds 9.0 during the summer (S. Lubick, Pioneer-Technical Services, unpublished data). Two measurements from Silver Bow Creek at Warm Springs site had pH values of 9.38 and 9.48 in Q2-Falling and Q3, while two Q3 measurements in the Clark Fork River near Galen and at Gemback Road had values of 9.04 and 9.06, respectively. It is unclear if elevated daytime pH in Silver Bow Creek below the Warm Springs Ponds and at downstream Clark Fork River mainstem sites is the result of excessive liming, diel cycles related to high productivity from nutrient enrichment, or both [Nimmick et al., 2011; Chatham, 2012].

#### 2.4.2.3 Conductivity

Conductivity is a quantitative measure of the ability of an aqueous solution to convey an electrical current and is a function of water temperature and the concentration of dissolved ions in water. Conductivity provides an approximation of the concentration of dissolved solids in water as well as its potential suitability for uses that may be limited by excessive salinity. Conductivity also gives general insight into spatial and seasonal changes in water chemistry.

Elevated levels of conductivity reflecting high dissolved solids may limit some water uses, such as irrigation, or drinking water. Very low conductivity, as affected by watershed geology, may contribute to low productivity of associated biological systems. Conductivity tends to be inversely proportional to streamflow due to dilution from spring snowmelt runoff. Conductivity in the upper Clark Fork River in 2014 reflected seasonal variation consistent with annual snowmelt runoff. Conductivity in the Clark Fork River mainstem in 2014 ranged from 168-579  $\mu\text{S}/\text{cm}$ . In comparison, the USEPA states, “Studies of inland fresh waters indicate that streams supporting good mixed fisheries have a (conductivity) range between 150 and 500  $\mu\text{S}/\text{cm}$ ” [USEPA, 2015].

#### 2.4.2.4 Dissolved Oxygen

Dissolved oxygen refers to the amount of oxygen dissolved in water. The capacity of water to hold oxygen in solution is inversely proportional to water temperature. In addition to water temperature, instream dissolved oxygen concentrations are affected by respiration of organisms, photosynthesis of aquatic plants, the biochemical oxygen demand of substances in the water, and the dissolution of atmospheric oxygen in the water by rapid movement. Dissolved oxygen levels fluctuate seasonally and over diel cycles due to variation in rates of stream metabolism.

Acceptable levels of dissolved oxygen for the protection of aquatic life are defined in the Montana water quality standards [MDEQ, 2012b]. Values that apply to the upper Clark Fork River range from a high of 9.5 mg/L, measured as a seven-day mean concentration where sensitive early life stages are present, to a low of 4.0 mg/L measured as a one day minimum for settings where other than early life stages of aquatic life are present [MDEQ, 2012b].

Adequate levels of dissolved oxygen are required by biological stream communities and for the decomposition of organic matter in the stream. No dissolved oxygen measurements in the CFROU in 2014 indicated water quality or water use limitations associated with low oxygen concentrations (overall range of 8.3-15.2 mg/L). However, the lowest dissolved oxygen concentrations generally occur in the pre-dawn hours and monitoring occurred in the daytime at all sites.

#### 2.4.2.5 Turbidity

Turbidity refers to the amount of light that is absorbed or scattered by water, and is an optical property of water. Increasing turbidity or “cloudiness” in surface waters usually results from the presence of suspended silt or clay particles, organic matter, colored organic compounds, and microorganisms. Turbidity does not always correlate well with the weight of suspended matter in solution because of different particle sizes, weights and refractive properties of the substances that contribute to turbidity.

Elevated turbidity levels can impede recreational and aesthetic uses of water, and turbidity is an important parameter for drinking water. High turbidity adversely affects feeding, growth, and suitable habitat of salmonid fishes, and it may contribute to increases in surface water temperatures. The MDEQ has established maximum allowable increases above naturally occurring turbidity. The allowable increase is 10 nephelometric turbidity units (NTU) for C-2 class streams (Clark Fork River from Warm Springs Creek to Cottonwood Creek), and five units for C-1 (Clark Fork River from Cottonwood Creek to the Little Blackfoot River) and B-1 (remainder of Clark Fork) class streams [ARM 17.30.623, 2007; ARM 17.30.626–627, 2007].

Turbidity during the 2014 Q1 monitoring event was significantly elevated compared to other monitoring events presumably due to an early lowland snowmelt runoff event prior to sampling. Although the hydrograph had declined from earlier highs during the Q1 monitoring event, streamflows were still higher than normal for that time of the year. Turbidity was generally low during the other five monitoring events. One exception to this pattern was Mill-Willow Creek at Frontage Road which had elevated turbidity in Q4, the cause of which is unknown.

### 2.4.3 Total Suspended Sediment

---

Suspended sediment refers to sediment suspended in the water column, as opposed to sediment transported along the stream bottom, which is known as bedload. Suspended sediment in streams generally includes a range of particle sizes which will vary with watershed geology, stream velocity, bed form, and turbulence. Excess fine sediment interferes with most water uses and has particularly adverse effects on benthic invertebrate and salmonid fish growth and reproduction. Increased suspended sediment can reduce light penetration and affect primary production by aquatic plants, and may affect the morphology of alluvial stream channels. In the Clark Fork River system, transport of many of the COCs is directly correlated with suspended sediment.

Total suspended sediment concentrations during most 2014 sampling events at most sites were similar to prior years and generally as expected given streamflow conditions. Spatial and seasonal patterns were similar to those for turbidity, with highest total suspended sediment concentrations observed in Q1. Mill-Willow Creek at Frontage Road also had greatly elevated total suspended sediment in Q4, as was noted for turbidity. The source of that apparently episodic, localized event remains unknown.

### 2.4.4 Common Ions

---

Common ions describe basic water chemistry. Certain ions, such as sulfate, may indicate the presence of mine related contaminants. Calcium and magnesium ions contribute to water hardness, which helps to buffer the toxic effects of some metals. Aquatic life toxicity criteria for metal COCs vary directly in relation to hardness. Hardness mitigates metals toxicity by impeding the rate at which aquatic organisms absorb metals through the gills. Carbonate and bicarbonate alkalinity contribute to the buffering system of surface waters to resist changes in pH. Levels of water hardness and alkalinity also strongly influence the productivity of aquatic systems. Western freshwater fisheries typically have alkalinity of 100–200 mg/L. In 2014, the Clark Fork mainstem alkalinity ranged from 68–170 mg/L. Based on previous monitoring, calcium is the dominant cation at the upper Clark Fork River monitoring network stations.

Water hardness at the Clark Fork River mainstem stations in 2014 would be categorized as “hard” to “very hard” except during major runoff conditions. In comparison, most rivers in western Montana have “moderately hard” to “hard” water [USGS, 2015a]. The moderately elevated water hardness in the Clark Fork River relative to other regional rivers is likely beneficial overall for aquatic life because water hardness mitigates toxicity of heavy metals [USEPA, 1986]. Moderate alkalinity in the upper mainstem Clark Fork River reflect a well buffered system, with good potential for fish production barring other limitations. Sulfate is the second most prevalent anion in the upper Clark Fork River watershed, behind bicarbonate.

### 2.4.5 Nutrients

---

Numeric water quality standards have been adopted for nutrients in the Clark Fork River from the Warm Springs Creek confluence to the Blackfoot River confluence, a river section

which encompasses most of the CFROU (ARM 17.30.631). The standards apply only to the summer season (June 21 through September 21). The standards for this segment of the Clark Fork River are 0.300 mg/L for total nitrogen and 0.020 mg/L for total phosphorus (ARM 17.30.631). The standards do not apply to sample sites located on tributaries to the Clark Fork River. Instead, summertime base numeric nutrient standards for the Middle Rockies Ecoregion apply to the tributaries during the July 1 to September 30 time period. These standards are 0.300 mg/L for total nitrogen and 0.030 mg/L for total phosphorus [MDEQ, 2014b].

Total nitrogen concentrations were highest during the Q1 and Q4 monitoring events. The maximum total nitrogen concentrations were observed in the Clark Fork River at Deer Lodge and in Silver Bow Creek at Warm Springs in Q1. The Clark Fork River at Deer Lodge site exceeded the total nitrogen water quality standard in Q2-Falling and Q3. No other mainstem or tributary sites exceeded the relevant total nitrogen standards during 2014 monitoring events.

Concentrations of total phosphorus were highest in the Clark Fork River at Turah, Silver Bow Creek at Warm Springs, and Flint Creek near its mouth, all during the Q1 2014 monitoring event. All of the Clark Fork River mainstem monitoring sites, plus Silver Bow Creek at Warm Springs and Flint Creek near its mouth, exceeded the summertime total phosphorus water quality standard in either or both of the applicable Q2-Falling (late-June) and Q3 (September) monitoring events.

Ammonia concentrations exceeded the chronic toxicity aquatic life standard in Silver Bow Creek at Warm Springs during the Q1 2014 monitoring event. Since no ammonia was detected upstream in the Mill-Willow Bypass, we assume the high level of ammonia in Silver Bow Creek originated from the Warm Springs Pond discharge. The streamflow in Mill-Willow Bypass on March 19 was 22.63 cfs, compared to 143.63 cfs in Silver Bow Creek at Warm Springs. Therefore, the Pond 2 discharge streamflow was approximately 121 cfs. These exceedances occurred in the spring and may have occurred in association with dimictic mixing (lake overturning) in the Warm Springs Ponds although. Ammonia had not previously been detected at any of the mainstem Clark Fork River monitoring stations in any other monitoring event since 2011.

#### **2.4.6 Contaminants of Concern**

---

Surface water monitoring data collected in 2014 represent the fifth year of monitoring in the CFROU. Remediation activities in the CFROU began in early 2013. Active remediation was in progress in the uppermost 1.6 mile reach of the Clark Fork River (Phase 1 of Reach A), immediately downstream from the Warm Springs confluence, through 2013. The Phase 1 cleanup activities were completed on April 4, 2014. Additional vegetation was planted in April, May and in the fall of 2014. This portion of the river, from just below the Warm Springs Ponds and running 1.2 miles north of the Morel Road Bridge, is closed to the public until September 15, 2015. This closure includes the floodplain and streambanks.

Overall, Reach A, extending from the Warm Springs Creek confluence to the Little Blackfoot River confluence, has the largest volume of streamside tailings in the CFROU. In particular, the uppermost portion of the river located upstream from the town of Deer Lodge has been identified as an area of relatively heavy COC loading to the Clark Fork River [Sando et al.,



2014]. Construction work for Phases 5 and 6 began in summer 2014. Phases 5 and 6 involve two private landowners and cleanup on working ranches. The remediation project will consist of tailings removal on 4.5 river miles and is scheduled to last 400 calendar days. As of December 2014, 50,000 cubic yards of contaminated material had been removed from the Clark Fork River floodplain and over 5,000 linear feet of stream banks had been rebuilt. In addition, internal haul roads have been completed and on-site borrow areas have been developed. This phase will continue through winter 2015 with an anticipated completion date of Fall 2015. MDEQ is currently working with private landowners and the Grant-Kohrs Ranch on the Preliminary Design Plans for Phases 2, 7, 15 and 16. These plans begin to lay out the design for the phases where future remediation work will be conducted.

Monitoring from 2010-2012 represented baseline conditions in the CFROU, immediately prior to the start of remediation. Because remedial activities were just beginning in 2013, it was considered unlikely that monitoring in 2013 would demonstrate much change in COC levels in the river. The 2014 monitoring was the first year following complete cleanup of the Phase 1 project area.

In 2014, exceedances of performance goals were rare for all COCs except arsenic and copper. Of 30 samples collected in the Clark Fork River in 2014 (from five sites during six sample periods) no samples (0%) had zinc concentrations exceeding the performance goal, only one sample (3%) had cadmium concentrations exceeding the performance goal, and only four (13%) had lead concentrations exceeding the performance goal.

Arsenic commonly exceeded the performance goals in 2014 in mainstem sites in Reach A. Of 24 samples collected in the Clark Fork River in Reach A (four sites during six sample periods), 96% exceeded the dissolved arsenic and 46% exceeded the total recoverable arsenic performance goals [USEPA, 2004]. Silver Bow Creek and the Mill-Willow Creek were clearly sources of arsenic to the Clark Fork River as 94% (17 of 18) samples from those sites exceeded the dissolved arsenic and 78% (14 of 18) exceeded the total recoverable performance goals in those sites [USEPA, 2004]. These results support findings of the USGS monitoring program. Recent analysis by the USGS identified the Warm Springs Ponds, the Mill-Willow Bypass, and groundwater in the vicinity of the Warm Springs Ponds as substantial arsenic sources to the upper Clark Fork River [Sando et al., 2014].

In addition to arsenic contamination in the Clark Fork River mainstem in 2014, total recoverable copper exceeded the chronic ALS in the mainstem Clark Fork River sites in 95% (19 of 20) of the samples collected in Q1 and Q2, but only at Deer Lodge in Q3 and Q4. In Q1 and Q2, total recoverable copper exceeded the acute ALS in 70% (14 of 20) of the samples. These results support conclusions of Sando et al. [2014] that the Clark Fork River reach upstream from Deer Lodge is a major source of copper loading and copper concentrations throughout the river are strongly related to streamflows.

#### **2.4.7 Other Metals**

---

Monitoring data continues to implicate Flint Creek as a primary source of mercury and methylmercury to the Clark Fork River. Mercury concentrations in Flint Creek exceeded the HHSWS [MDEQ, 2012b] during all sample periods, by as much as 8.0 times in Q1. In the Clark



Fork River near Drummond, the mercury HHSWS was only exceeded in Q1. Methylmercury concentrations were typically 2-3 times higher in Flint Creek compared to the Clark Fork River near Drummond.

#### **2.4.8 Data Validation**

---

Generally, this monitoring program has satisfied the data quality objectives and data quality indicators specified in the QAPP [DeArment et al., 2013]. However, quality control procedures have consistently demonstrated that trace level contamination of dissolved field samples with zinc occurs. We continue to suspect that the field filtering apparatus is responsible for the zinc contamination and over the last two years we have implemented additional steps in an attempt to reduce zinc contamination in the dissolved samples. Beginning in Q4 2012, all field filters were rinsed with deionized water prior to filtration of dissolved samples. However, this approach did not reduce the frequency of dissolved zinc contamination in 2013. In 2014, all dissolved sample bottles, field filters, and syringes were triple rinsed with laboratory pure deionized water stored only in sterilized glass bottles in a further attempt to reduce zinc contamination in filtered samples. This approach also does not appear to have reduced zinc contamination in the dissolved samples; zinc was still detected at concentrations above the reporting limits in 75% (9 of 12) of the field blanks in 2014. This rate of zinc detections in the dissolved blanks was higher than in prior years and this was partially due to a reduced analytical reporting limit for zinc in 2014 (from 0.01 mg/L in 2013 to 0.008 mg/L in 2014). However, even at the prior reporting limit (0.01 mg/L) 58% (7 of 12) of the dissolved field blank samples in 2014 would have had detectable levels of zinc. It is worth noting that although the contamination of dissolved samples with zinc introduces a slight positive bias (i.e., reported dissolved zinc concentrations are higher than what actually occurs in the river), all field sample dissolved and total recoverable zinc concentrations were well below the performance goals in 2014 indicating that the zinc contamination in the dissolved samples is minimal relative to the action levels.

## 3.0 SEDIMENT

### 3.1 INTRODUCTION

No specific remediation performance standards were established within the CFROU ROD for concentrations of COC metals in instream sediments [USEPA, 2004]. In lieu of performance standards the “threshold effect concentration” (TEC) and “probable effect concentration” (PEC), consensus-based sediment quality guidelines for benthic organisms [MacDonald et al., 2000], provide useful reference values for instream sediment quality [Table 3-1]. At metal COC concentrations above the TEC, benthic organisms may be affected by that COC. At metal COC concentrations above the PEC, benthic organisms are likely to be affected by that COC.

Remedial actions within the CFROU to remove floodplain tailings deposits and reduce streambank erosion are expected to result in reduced COC concentrations in instream sediments within the Clark Fork River. Therefore, instream sediment COC concentrations will be monitored in the CFROU prior to, during, and following remediation. This report reviews spatial and temporal trends in instream sediment metals concentrations in the CFROU during the 2014 and prior monitoring years.

**Table 3-1. Reference values for contaminant of concern (COC) concentrations (expressed as dry weight concentrations [DW]) in instream sediments within the Clark Fork River Operable Unit. The threshold effect concentration (TEC) and probable effect concentration (PEC) were described in MacDonald et al. [2000].**

Contaminant of Concern	Threshold Effect Concentration (mg/kg-DW)	Probable Effect Concentration (mg/kg-DW)
Arsenic	9.79	33
Cadmium	0.99	4.98
Copper	31.6	149
Lead	35.8	128
Zinc	121	459

### 3.2 METHODS

#### 3.2.1 Monitoring Locations

Instream sediment was monitored at 14 CFROU sites in 2014 [Table 3-2; Figure 3-1]. The monitoring network includes six sites on the Clark Fork River mainstem and eight sites on tributary streams [Table 3-2]. The monitoring site locations in 2014 were the same as the monitoring site locations in 2013. However, monitoring sites changed between 2012 and 2013 to provide a more detailed spatial representation of the Clark Fork River mainstem in Reach A. Additionally, some sites were removed from the monitoring network to avoid duplication of

water quality sampling efforts by the USGS. A record of changes to this monitoring program since monitoring began in 2010 is provided in Appendix A of the project sampling and analysis plan [Naughton et al., 2014].

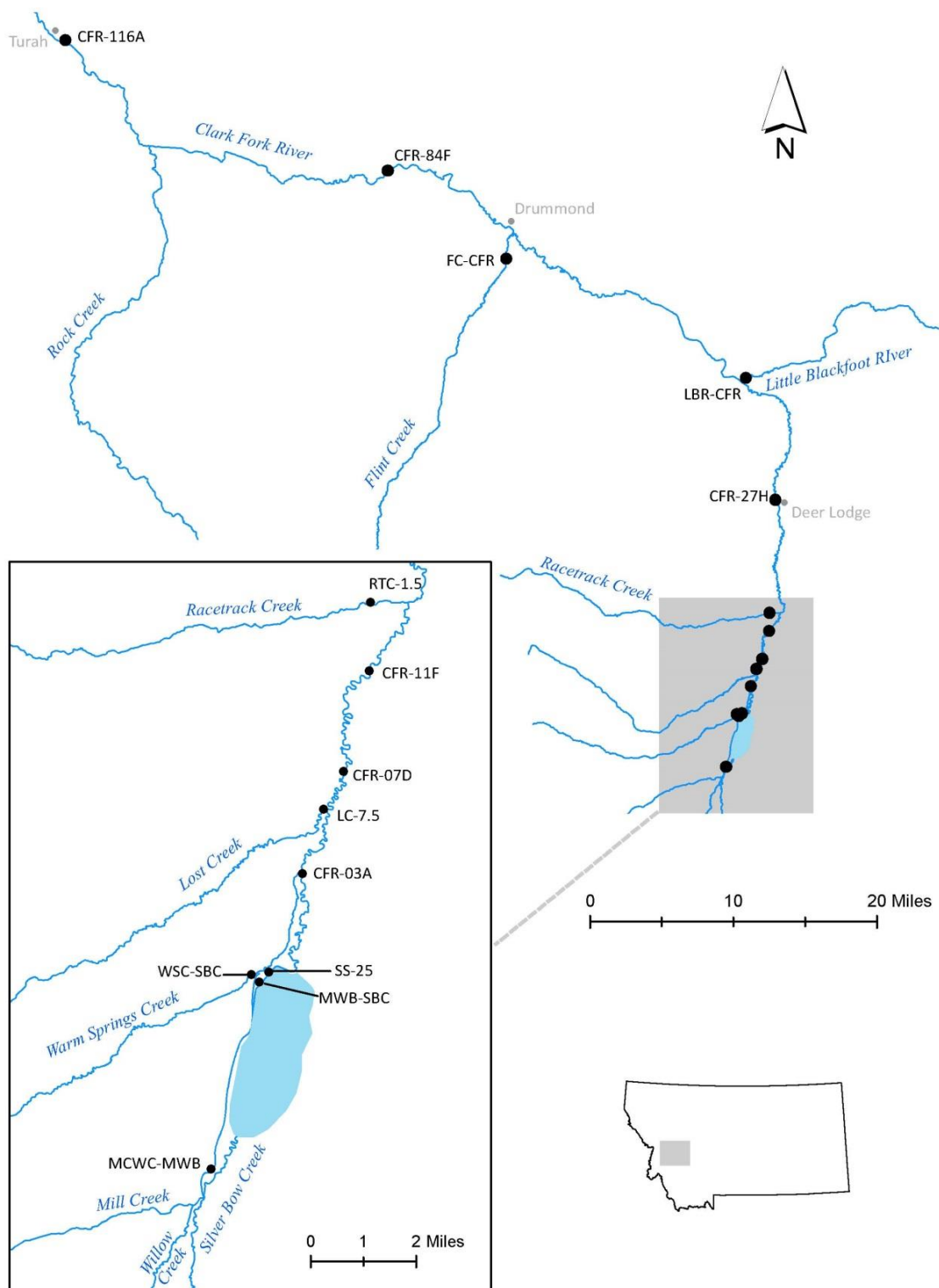
**Table 3-2. Instream sediment sampling locations in the Clark Fork River Operable Unit, 2014.**

Site ID	Site Location	Co-located USGS Streamflow Gauge	Location (GPS coordinates, NAD 83)	
			Latitude	Longitude
Mainstem Sites				
CFR-03A	Clark Fork River near Galen	12323800	46.20877	-112.76740
CFR-07D	Clark Fork River at Galen Road	none	46.23725	-112.75302
CFR-11F	Clark Fork River at Gemback Road	none	46.26520	-112.74430
CFR-27H	Clark Fork River at Deer Lodge	12324200	46.39796	-112.74283
CFR-84F	Clark Fork River near Drummond	12331800	46.71204	-113.33137
CFR-116A	Clark Fork River at Turah	12334550	46.82646	-113.81424
Tributary Sites				
SS-25	Silver Bow Creek at Warms Springs	12323750	46.18123	-112.77917
MCWC-MWB	Mill-Willow Creek at Frontage Road	none	46.12649	-112.79876
MWB-SBC	Mill-Willow Bypass near mouth	none	46.17839	-112.78270
WSC-SBC	Warms Springs Creek near mouth	12323770	46.18041	-112.78592
LC-7.5 <sup>9</sup>	Lost Creek near mouth	12323850	46.21862	-112.77384
RTC-1.5 <sup>10</sup>	Racetrack Creek near mouth	none	46.28395	-112.74921
LBR-CFR <sup>11</sup>	Little Blackfoot River near Garrison	12324590	46.51964	-112.79312
FC-CFR	Flint Creek near mouth	12331500	46.62891	-113.15151

<sup>9</sup> In 2013, LC-7 (GPS Location: 46.22665, -112.76017) was replaced LC-7.5. Site LC-7 was replaced because it appeared to be located within the Clark Fork River floodplain.

<sup>10</sup> In 2013, RTC-1 (GPS Location: 46.28406, -112.74484) was replaced by RTC-1.5. Site RTC-1 was replaced because IT appeared to be located within the Clark Fork River floodplain.

<sup>11</sup> Site LBR-CFR was replaced by site LBR-CFR-02 (GPS Location: 46.53710, -112.72443) on June 24, 2014.



**Figure 3-1. Instream sediment sampling locations in the Clark Fork River Operable Unit, 2014.**

### 3.2.2 Monitoring Schedule

---

At least one surface water monitoring event occurred during each calendar quarter of 2014. Instream sediment samples were collected during the first quarter (Q1) and third quarter (Q3) surface water monitoring events. Each quarterly monitoring event occurred near the end of each quarter, except during the second quarter (Q2). The first monitoring event (Q1) occurred in the late winter, prior to spring runoff, from March 18-19. Three monitoring events were conducted in Q2 to capture the rising (Q2-Rising), peak (Q2-Peak), and falling (Q2-Falling) portions of the spring runoff hydrograph. The Q2 monitoring events were conducted on May 13-14 (Q2-Rising), June 10-11 (Q2-Peak), and June 24-25 (Q2-Falling). The late summer (Q3) monitoring event was scheduled during low streamflow conditions on September 16-17. The late fall (Q4) monitoring event occurred on December 1-2.

### 3.2.3 Monitoring Parameters

---

Instream sediment samples were analyzed for wet weight (WW) and dry weight (WW) total extractable metal (arsenic, cadmium, copper, lead, and zinc) concentrations.

### 3.2.4 Sample Collection and Analysis

---

Sediment samples were collected by compositing subsamples from at least five deposition zones in wadeable locations at each monitoring site. Sediment was scooped from the streambed with a plastic spoon following the MDEQ standard operating procedure [MDEQ, 2012a]. The fine fraction (particle diameter <0.065 mm) portion of each sample was isolated from each composite sample by wet sieve in the laboratory shortly after collection and retained for analysis of metal concentrations. Each sample was analyzed for total extractable wet weight concentrations (mg/kg-WW) and dry weight concentrations (mg/kg-DW) of arsenic, cadmium, copper, lead, and zinc following methods identified in Table 3-3. The relative proportion (by weight) of the fine fraction sediment in each sample was also determined. Sediment samples were analyzed by Energy Laboratories (Helena, Montana). Prior to 2013, each sediment sample was sieved into three size fractions (<0.065 mm, 0.065–1 mm, and 1–2 mm), and each size fraction was independently analyzed for metal concentrations.

From 2010-2013, all CFROU sediment metals samples have been analyzed on a wet weight (WW) basis. Wet weight analyte concentrations are normally lower than dry weight (DW) analyte concentrations because the sample drying process reduces the total mass of the sample without reducing the mass of the analyte. The TEC and PEC sediment performance goals are expressed on a DW basis. In 2014, the sediment samples were analyzed for both WW and DW concentrations to allow direct comparison with the TEC and PEC reference values. In addition, analysis of both WW and DW concentrations in the CFROU in 2014 will provide data to inform estimation of DW concentrations from measured WW concentrations when the corresponding DW concentration was not measured (i.e., all CFROU sediment samples from 2010-2013). This analysis was conducted using the CFROU and Streamside Tailings Operable Unit data [Ingman

et al., 2015a]. Wet weight COC concentrations from 2014 monitoring in the CFROU are presented in Appendix D.

**Table 3-3. Sediment analysis methods for determination of metals concentrations in the Clark Fork River Operable Unit, 2014.**

Parameter	Category	Method
Arsenic	Contaminant of Concern	SW6020 or SW6010B
Cadmium		SW6020 or SW6010B
Copper		SW6020 or SW6010B
Lead		SW6020 or SW6010B
Zinc		SW6020 or SW6010B

### 3.2.5 Data Analysis

Data were analyzed to assess spatial and temporal patterns in sediment COC concentrations. In addition, COC concentrations at each sample site were compared to the TEC and PEC reference values [Table 3-1] to assess exceedances.

Analysis of both WW and DW concentrations in the CFROU in 2014 provided data to inform estimation of DW concentrations from measured WW concentrations when the corresponding DW concentration was not measured (i.e., all CFROU sediment samples from 2010-2013). This analysis was conducted using the CFROU and Streamside Tailings Operable Unit data in 2014 [Ingman et al., 2015a].

### 3.2.6 Data Validation

Data quality objectives (DQOs) were established in the CFROU quality assurance project plan (QAPP) for “data representativeness”, “comparability”, “completeness”, “sensitivity”, “precision”, “bias”, and “accuracy” [DeArment et al., 2013]. Methods for field and laboratory quality assurance and quality control (QA/QC) procedures are also described in detail in the project QAPP. A completed QA/QC checklist, summary tables of field duplicate and field blank results, and assessments of data quality objectives are included in Appendix A.

Variability in sediment metals concentrations among samples was assessed by comparing field duplicate samples to field samples. Field duplicate samples were collected at the same location and at the same time as field samples and were processed and analyzed by the same methods. The relative percent difference (RPD) between the concentration in the field duplicate and field sample pair was determined for each metal. Two field duplicate samples were collected during each sampling event and RPD statistics were calculated for each field duplicate and field sample pair.

### 3.3 RESULTS

#### 3.3.1 Sample Size Fraction

The proportion of sediment by size fraction in each 2014 CFROU sediment sample is displayed in Table 3-4.

**Table 3-4. Proportion of each sample collected in the Clark Fork River Operable Unit composed of fine fraction (<0.065 mm) sediment particles, 2014.**

Site ID	Site Location	Sample proportion (%)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	31.8	6.9
CFR-07D	Clark Fork River at Galen Road	15.7	3.5
CFR-11F	Clark Fork River at Gembach Road	6.2	7.7
CFR-27H	Clark Fork River at Deer Lodge	33.4	1.2
CFR-116A	Clark Fork at Turah	41.4	26.7
Tributary Sites			
SS-25	Silver Bow Creek at Warm Springs	3.6	3.5
MCWC-MWB	Mill-Willow Creek at Frontage Road	2.0	1.8
MWB-SBC	Mill-Willow Bypass near mouth	2.3	1.2
WSC-SBC	Warm Springs Creek near mouth	2.9	22.8
LC-7.5	Lost Creek near mouth	11.6	3.0
RTC-1.5	Racetrack Creek near mouth	0.6	1.1
LBR-CFR	Little Blackfoot River near Garrison	8.4	2.4

### 3.3.2 Contaminants of Concern

---

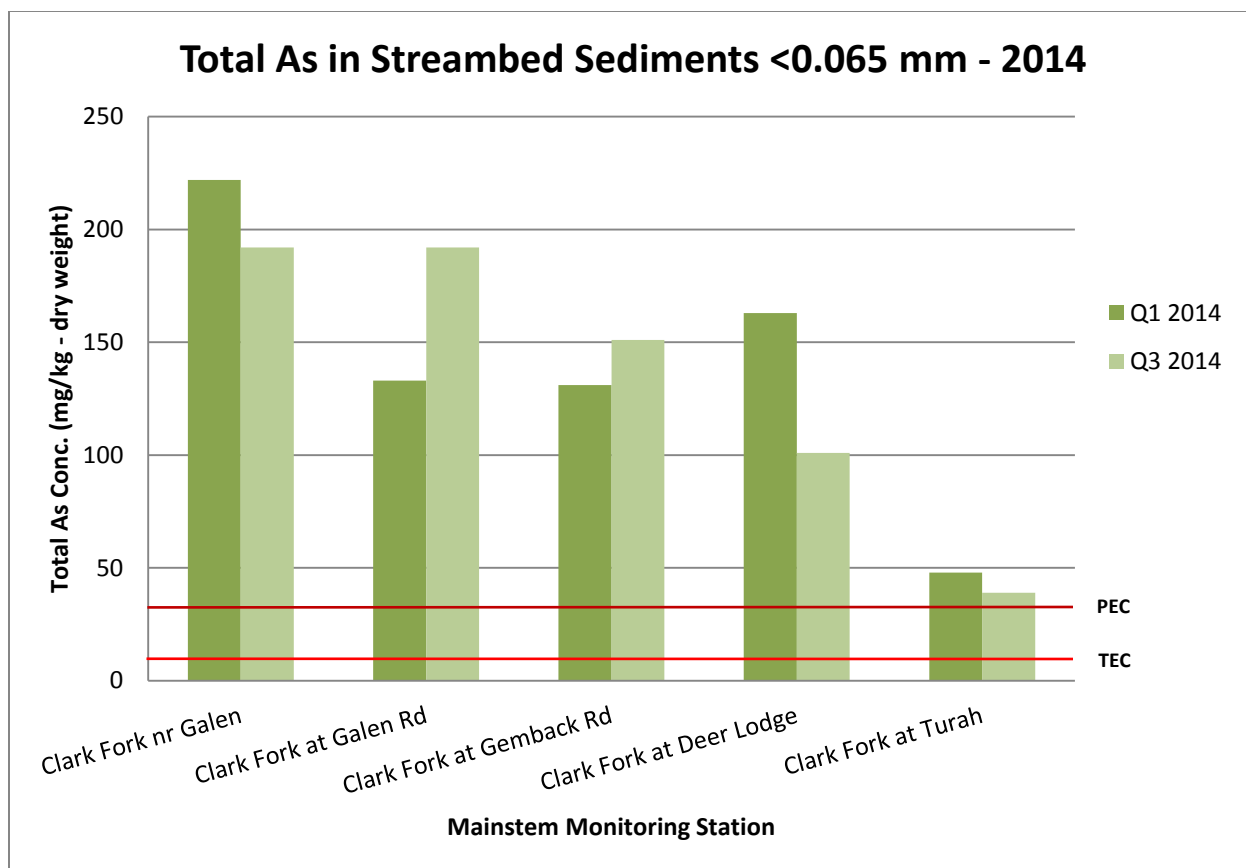
#### 3.3.2.1 Arsenic

The spatial trend for sediment arsenic concentrations at mainstem Clark Fork River monitoring sites was a decrease in concentrations from the near Galen site to the Turah site [Figure 3-2]. This spatial pattern was in contrast to the trend observed in 2013, when concentrations increased from near Galen to Deer Lodge, then declined at Turah [Ingman et al., 2015b]. Among the tributary stations that were monitored in 2014, the Mill-Willow Bypass showed the highest sediment arsenic concentrations, followed by Silver Bow Creek at Warm Springs and Mill-Willow Creek at the Frontage Road [Figure 3-3]. Mill-Willow Bypass had similar sediment arsenic concentrations to the Clark Fork near Galen, and these two sites represented the highest values observed among the sites examined in 2014. The Little Blackfoot River had the lowest sediment arsenic concentrations of all the sites.

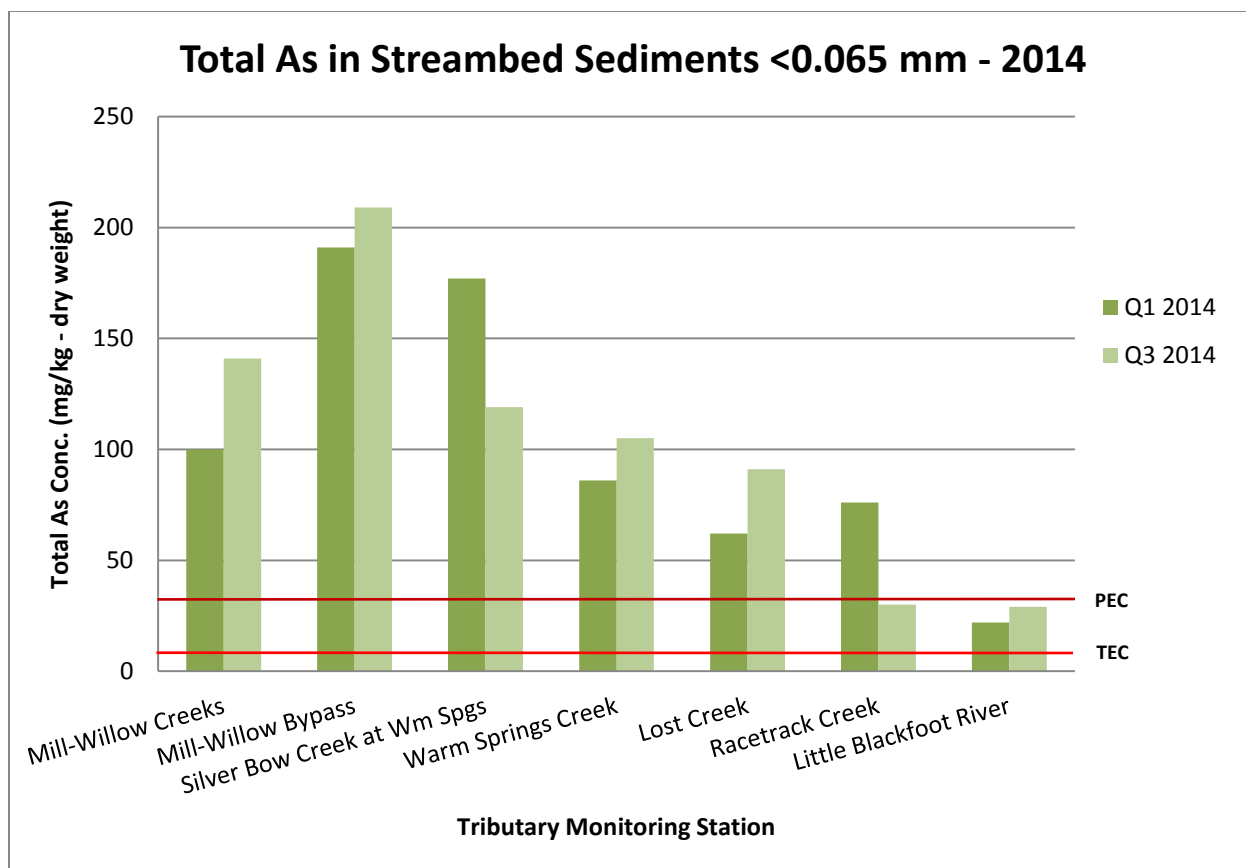
There was no clear seasonal pattern for sediment arsenic concentrations at the mainstem and tributary monitoring stations in 2014. Concentrations were generally similar during each of the Q1 and Q3 monitoring events, with some exceptions.

Dry weight sediment arsenic concentrations exceeded the dry weight based TEC and PEC monitoring benchmarks at all mainstem Clark Fork River sites, and at all of the tributary sites except the Little Blackfoot River and Racetrack Creek, during both 2014 monitoring events [Table 3-5]. The Little Blackfoot River exceeded the TEC but not the PEC during both 2014 monitoring events. Racetrack Creek exceeded the PEC during the Q1 event, and the TEC during the Q3 event. Of the five COC sediment metals evaluated, arsenic showed the highest overall frequency of exceedances of the PEC at the CFROU monitoring sites during the 2014 monitoring events.





**Figure 3-2. Total arsenic concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**



**Figure 3-3. Total arsenic concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**

**Table 3-5. Total arsenic concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.**

Site ID	Site Location	Sample concentration (mg/kg-DW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	222	192
CFR-07D	Clark Fork River at Galen Road	133	192
CFR-11F	Clark Fork River at Gemback Road	131	151
CFR-27H	Clark Fork River at Deer Lodge	163	101
CFR-116A	Clark Fork at Turah	48	39
Tributary Sites			
SS-25	Silver Bow Creek at Warm Springs	177	119
MCWC-MWB	Mill-Willow Creek at Frontage Road	100	141
MWB-SBC	Mill-Willow Bypass near mouth	191	209
WSC-SBC	Warm Springs Creek near mouth	86	105
LC-7.5	Lost Creek near mouth	62	91
RTC-1.5	Racetrack Creek near mouth	76	30
LBR-CFR	Little Blackfoot River near Garrison	22	29

	Exceeds threshold effect concentration [MacDonald et al., 2000].
	Exceeds probable effect concentration [MacDonald et al., 2000].

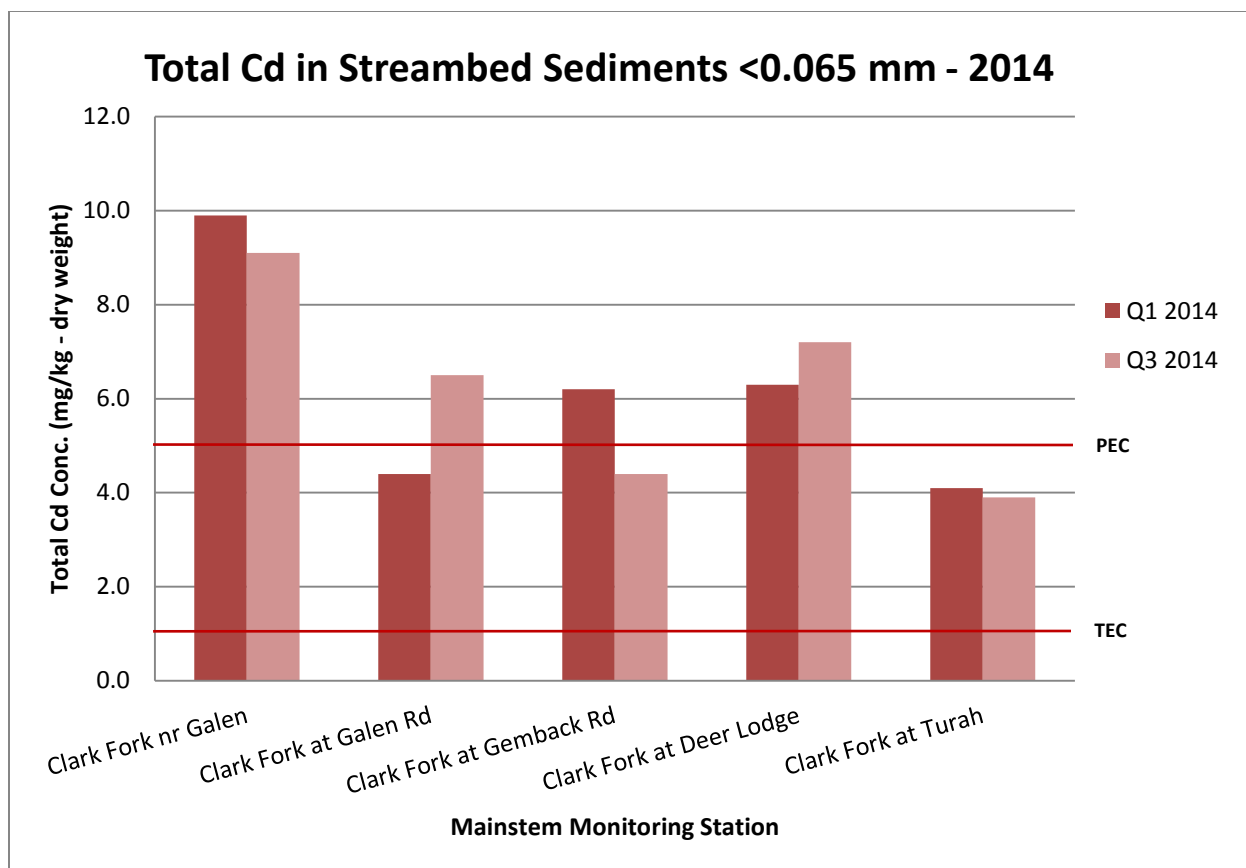
### 3.3.2.2 Cadmium

The spatial trend for sediment cadmium concentrations at mainstem Clark Fork River monitoring sites was variable with no consistent trend. Highest concentrations were observed at the uppermost site near Galen. Lower and similar concentrations were observed at the next two sites at Galen Road and Gemback Road. Intermediate concentrations were measured at the Deer Lodge site, and lowest mainstem concentrations were measured at the Turah site [Figure 3-4].

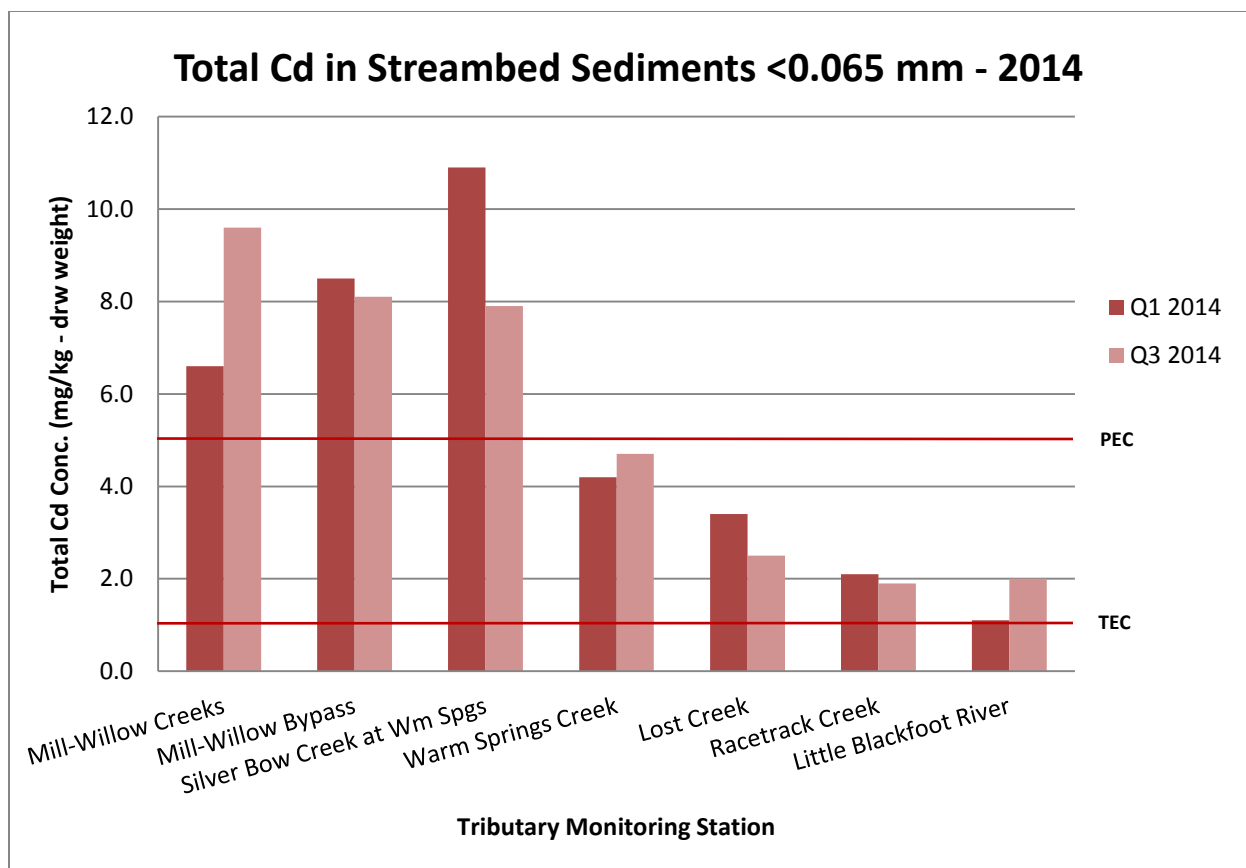
Among the tributary stations monitored in 2014, the upper three sites on Mill-Willow Creek at Frontage Road, Mill-Willow Bypass, and Silver Bow Creek at Warm Springs showed the highest sediment cadmium concentrations [Figure 3-5]. These three tributary sites had similar sediment cadmium concentrations to the Clark Fork near Galen, and these four sites collectively represented the highest values observed among the 12 sites examined in 2014. The Little Blackfoot River had the lowest sediment cadmium concentrations of all the sites, followed by Racetrack Creek.

There was no clear seasonal pattern for sediment cadmium concentrations at the mainstem and tributary monitoring stations in 2014. Concentrations were generally similar during each of the Q1 and Q3 monitoring events.

Sediment cadmium concentrations exceeded the TEC reference values at all mainstem Clark Fork River sites, and at all of the tributary sites, during both 2014 monitoring events [Table 3-6]. All of the mainstem Clark Fork River sites, except Turah, exceeded the PEC during at least one of the two monitoring events. The upper three tributary sites (Mill-Willow Creek, Mill-Willow Bypass, and Silver Bow Creek at Warm Springs) exceeded the PEC during both 2104 monitoring events. Of the five COC sediment metals evaluated, cadmium showed the lowest overall frequency of exceedances of the PEC at the CFROU monitoring sites during the 2014 monitoring events.



**Figure 3-4. Total cadmium concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**



**Figure 3-5. Total cadmium concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**

**Table 3-6. Total cadmium concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.**

Site ID	Site Location	Sample concentration (mg/kg-WW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	9.9	9.1
CFR-07D	Clark Fork River at Galen Road	4.4	6.5
CFR-11F	Clark Fork River at Gembach Road	6.2	4.4
CFR-27H	Clark Fork River at Deer Lodge	6.3	7.2
CFR-116A	Clark Fork at Turah	4.1	3.9
Tributary Sites			
SS-25	Silver Bow Creek at Warm Springs	10.9	7.9
MCWC-MWB	Mill-Willow Creek at Frontage Road	6.6	9.6
MWB-SBC	Mill-Willow Bypass near mouth	8.5	8.1
WSC-SBC	Warm Springs Creek near mouth	4.2	4.7
LC-7.5	Lost Creek near mouth	3.4	2.5
RTC-1.5	Racetrack Creek near mouth	2.1	1.9
LBR-CFR	Little Blackfoot River near Garrison	1.1	2.0

	Exceeds threshold effect concentration [MacDonald et al., 2000].
	Exceeds probable effect concentration [MacDonald et al., 2000].

### 3.3.2.3 Copper

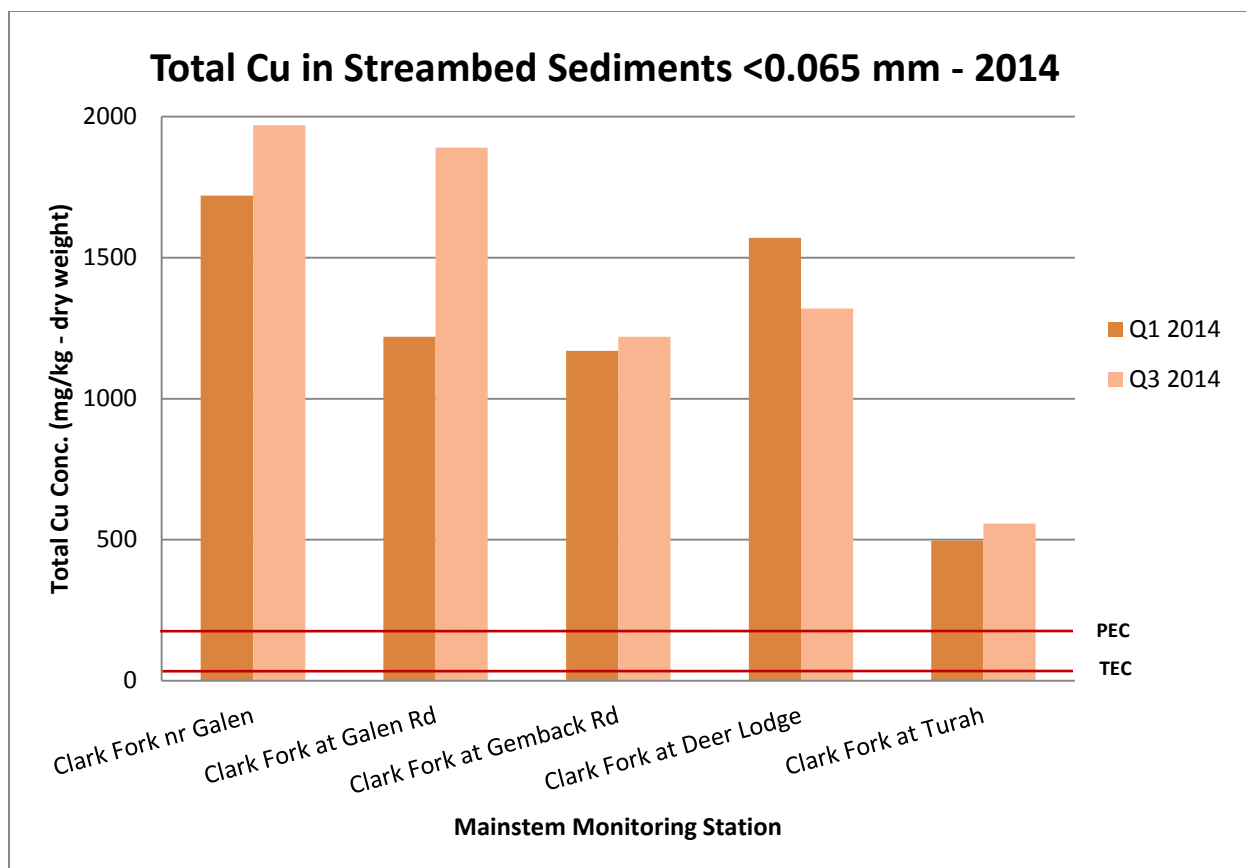
The spatial trend for sediment copper concentrations at mainstem Clark Fork River monitoring sites was similar to that observed for cadmium. Highest concentrations were observed at the uppermost site near Galen. Lower and similar concentrations were observed at the next two sites at Galen Road and Gemback Road. Intermediate and only slightly higher concentrations were measured at the Deer Lodge site, and lowest mainstem concentrations were measured at the Turah site [Figure 3-6].

Among the tributary stations monitored in 2014, Warm Springs Creek near its mouth and Silver Bow Creek at Warm Springs showed the highest sediment copper concentrations [Figure 3-7]. The Little Blackfoot River had the lowest sediment copper concentrations of all the sites, followed by Racetrack Creek. Overall, the tributary sites had substantially lower sediment copper concentrations than all of the mainstem Clark Fork sites except Turah.

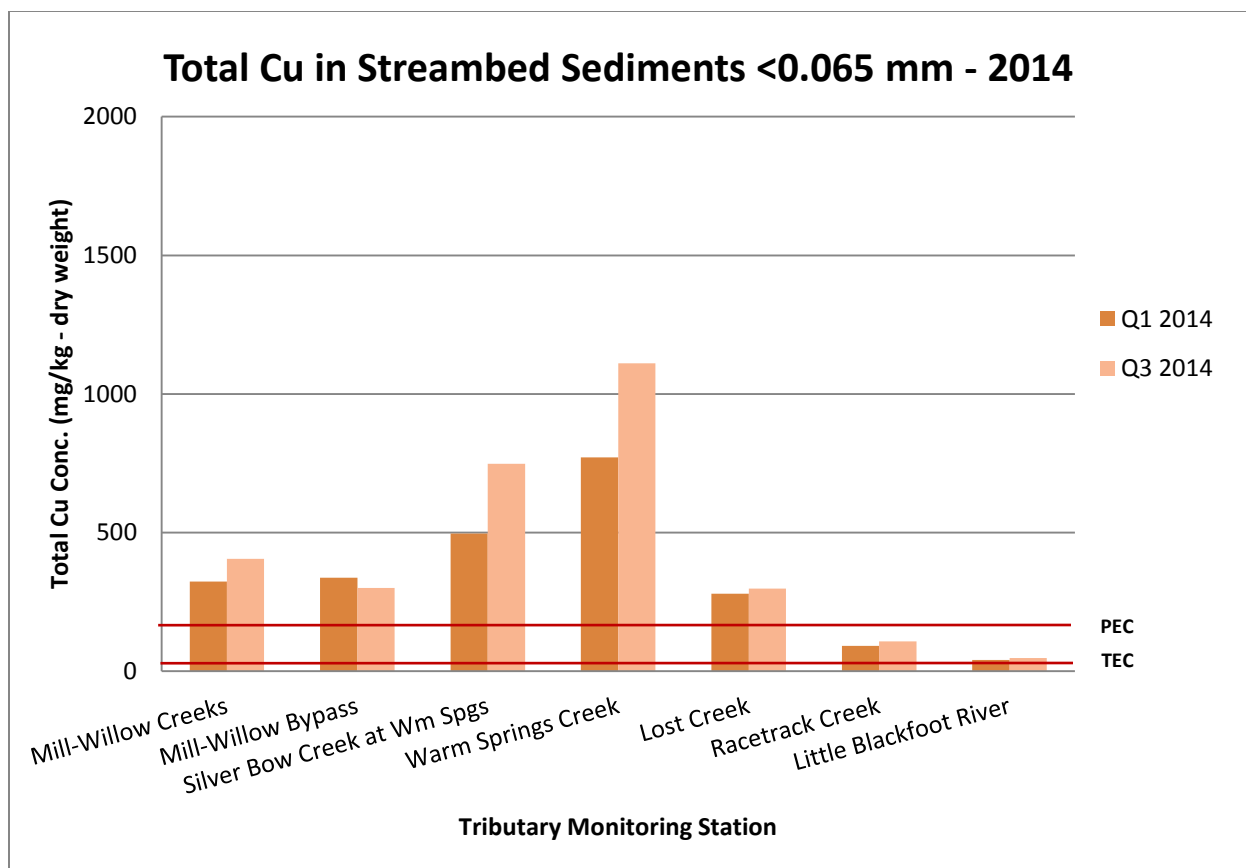
There was no clear seasonal pattern for sediment copper concentrations at the mainstem and tributary monitoring stations in 2014. Concentrations were generally similar during each of the Q1 and Q3 monitoring events, with some exceptions. The Clark Fork River site at Galen Road showed an approximately 55% higher sediment copper concentration in Q3 versus Q1. Warm Springs Creek and Silver Bow Creek at Warm Springs also showed appreciably higher concentrations in Q3 compared to Q1.

Dry weight sediment copper concentrations exceeded both the TEC and PEC by a large margin at all mainstem Clark Fork River sites during both 2014 monitoring events [Figure 3-7]. All of the tributary monitoring sites exceeded the TEC during both 2014 monitoring events, and all of the tributaries exceeded the PEC in both quarters, except the Little Blackfoot River and Racetrack Creek. Of the five COC sediment metals evaluated, copper showed the second highest overall frequency of exceedances of the PEC at the CFROU monitoring sites during the 2014 monitoring events.





**Figure 3-6. Total copper concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**



**Figure 3-7. Total copper concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**

**Table 3-7. Total copper concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.**

Site ID	Site Location	Sample concentration (mg/kg-DW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	1720	1970
CFR-07D	Clark Fork River at Galen Road	1220	1890
CFR-11F	Clark Fork River at Gemback Road	1170	1220
CFR-27H	Clark Fork River at Deer Lodge	1570	1320
CFR-116A	Clark Fork at Turah	497	557
Tributary Sites			
SS-25	Silver Bow Creek at Warm Springs	497	748
MCWC-MWB	Mill-Willow Creek at Frontage Road	323	405
MWB-SBC	Mill-Willow Bypass near mouth	337	300
WSC-SBC	Warm Springs Creek near mouth	771	1110
LC-7.5	Lost Creek near mouth	279	298
RTC-1.5	Racetrack Creek near mouth	92	108
LBR-CFR	Little Blackfoot River near Garrison	41	47

Exceeds threshold effect concentration [MacDonald et al., 2000].

Exceeds probable effect concentration [MacDonald et al., 2000].

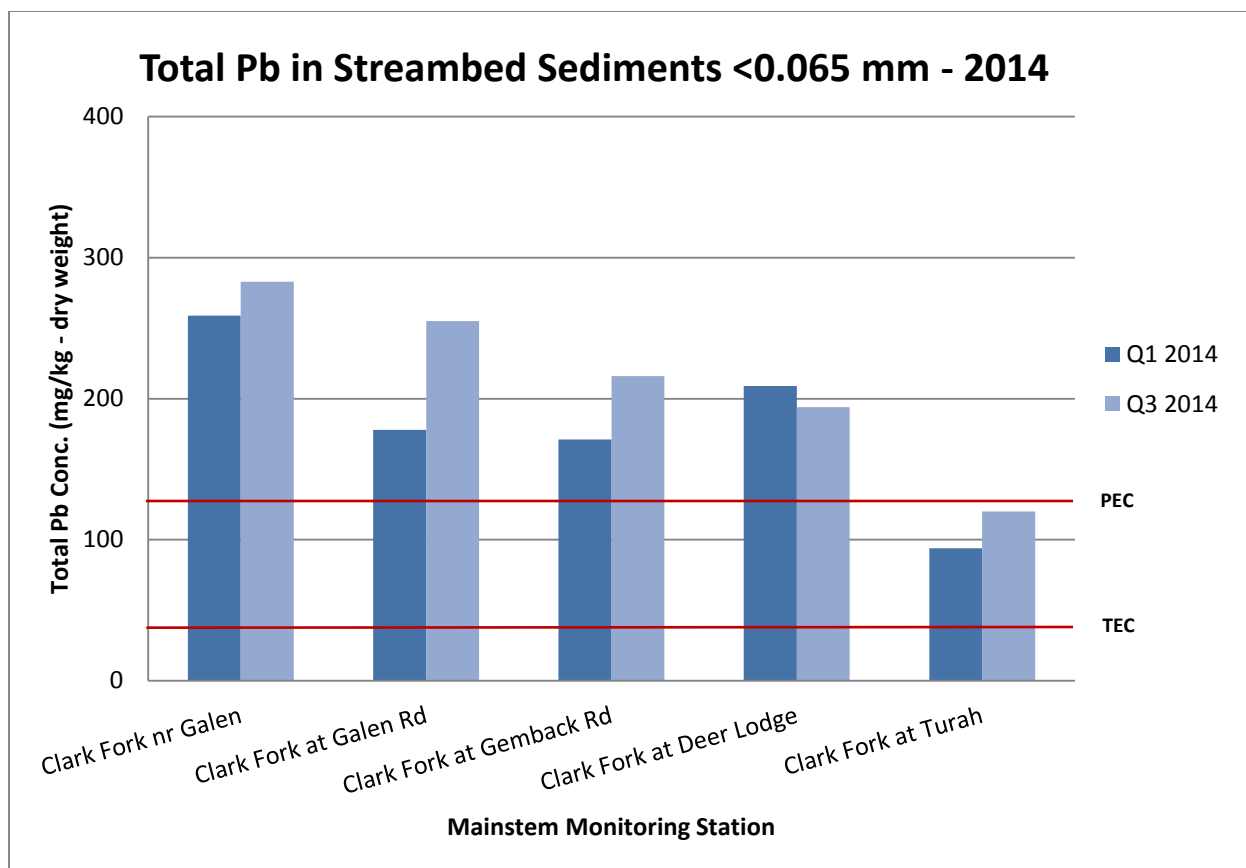
### 3.3.2.4 Lead

The spatial trend for sediment lead concentrations at mainstem Clark Fork River monitoring sites was similar to that observed for copper and cadmium. Highest concentrations were observed at the uppermost site near Galen. Lower and similar concentrations were observed at the next two sites at Galen Road and Gemback Road. Sediment lead concentrations at the Deer Lodge site were slightly higher than those two upstream sites in Q1 but slightly lower in Q3. Lowest mainstem concentrations were measured at the Turah site [Figure 3-8].

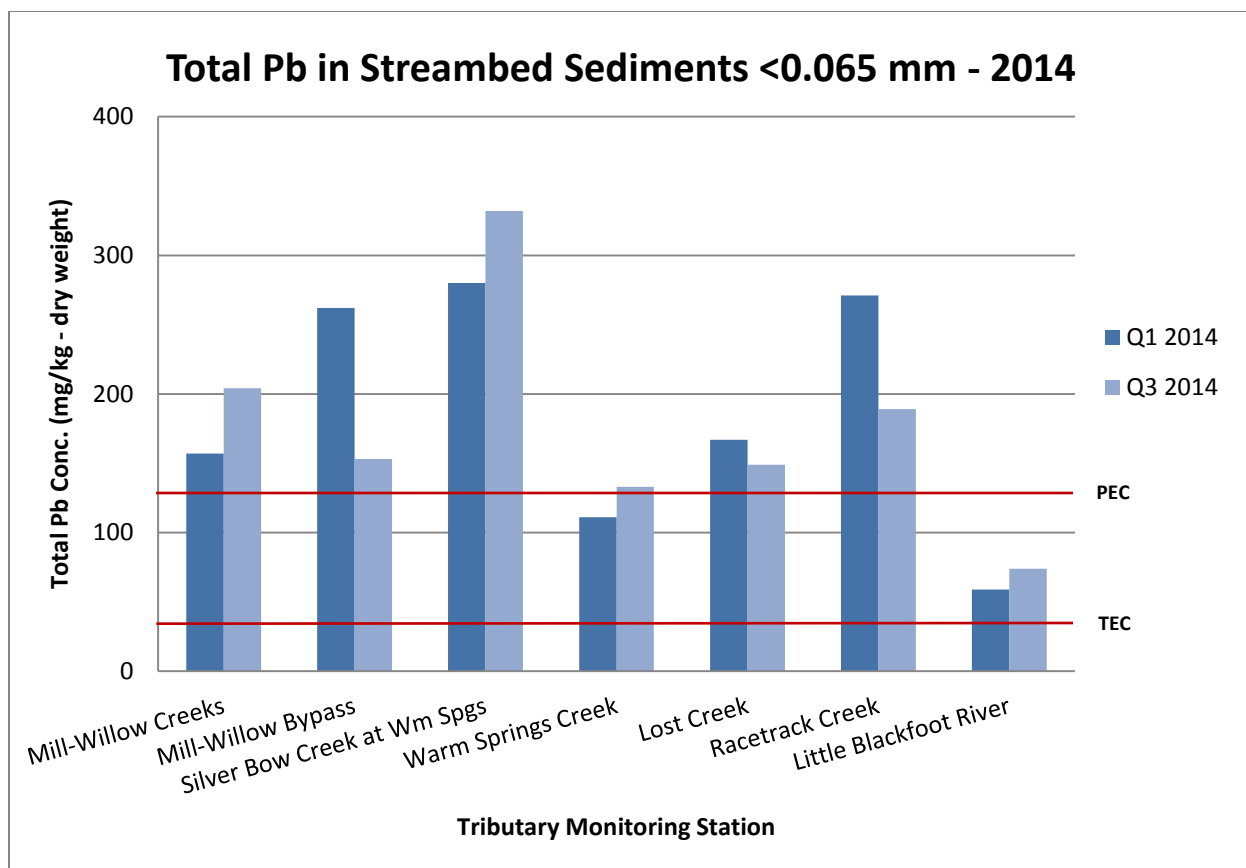
Among the tributary stations monitored in 2014, Silver Bow Creek at Warm Springs and Racetrack Creek near its mouth showed the highest sediment lead concentrations [Figure 3-9]. The Little Blackfoot River had the lowest sediment lead concentrations of all the sites, followed by the Clark Fork at Turah. Overall, Silver Bow Creek at Warm Springs, followed by the Clark Fork at Galen, had the highest sediment lead concentrations of the CFROU monitoring sites.

There was no clear seasonal pattern for sediment lead concentrations at the mainstem and tributary monitoring stations in 2014. Concentrations were generally similar during each of the Q1 and Q3 monitoring events, with some exceptions. The Mill-Willow Bypass site showed an approximately 42% lower sediment lead concentration in Q3 versus Q1. Eight CFROU monitoring sites showed slightly higher sediment lead concentrations in Q3 versus Q1, compared to four of 12 sites showing lower concentrations in Q3 compared to the Q1 monitoring event.

Dry weight sediment lead concentrations exceeded both of the dry weight based TEC and PEC reference values at all mainstem Clark Fork River sites except Turah during both 2014 monitoring events [Table 3-8]. The Turah site exceeded the TEC during both monitoring events, but not the PEC. All of the tributary monitoring sites also exceeded the TEC during both 2014 monitoring events. Mill-Willow Creek, Mill-Willow Bypass, Silver Bow Creek at Warm Springs, Warm Springs Creek, Lost Creek, and Racetrack Creek also exceeded the PEC during one (Warm Springs Creek) or both of the two monitoring events. Of the five COC sediment metals evaluated, lead showed the third highest overall frequency of exceedances of the PEC at the CFROU monitoring sites during the 2014 monitoring events.



**Figure 3-8. Total lead concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**



**Figure 3-9. Total lead concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**

**Table 3-8. Total lead concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.**

Site ID	Site Location	Sample concentration (mg/kg-WW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	259	283
CFR-07D	Clark Fork River at Galen Road	178	255
CFR-11F	Clark Fork River at Gembach Road	171	216
CFR-27H	Clark Fork River at Deer Lodge	209	194
CFR-116A	Clark Fork at Turah	94	120
Tributary Sites			
SS-25	Silver Bow Creek at Warm Springs	280	332
MCWC-MWB	Mill-Willow Creek at Frontage Road	157	204
MWB-SBC	Mill-Willow Bypass near mouth	262	153
WSC-SBC	Warm Springs Creek near mouth	111	133
LC-7.5	Lost Creek near mouth	167	149
RTC-1.5	Racetrack Creek near mouth	271	189
LBR-CFR-02	Little Blackfoot River near Garrison	59	74

	Exceeds threshold effect concentration [MacDonald et al., 2000].
	Exceeds probable effect concentration [MacDonald et al., 2000].

### 3.3.2.5 Zinc

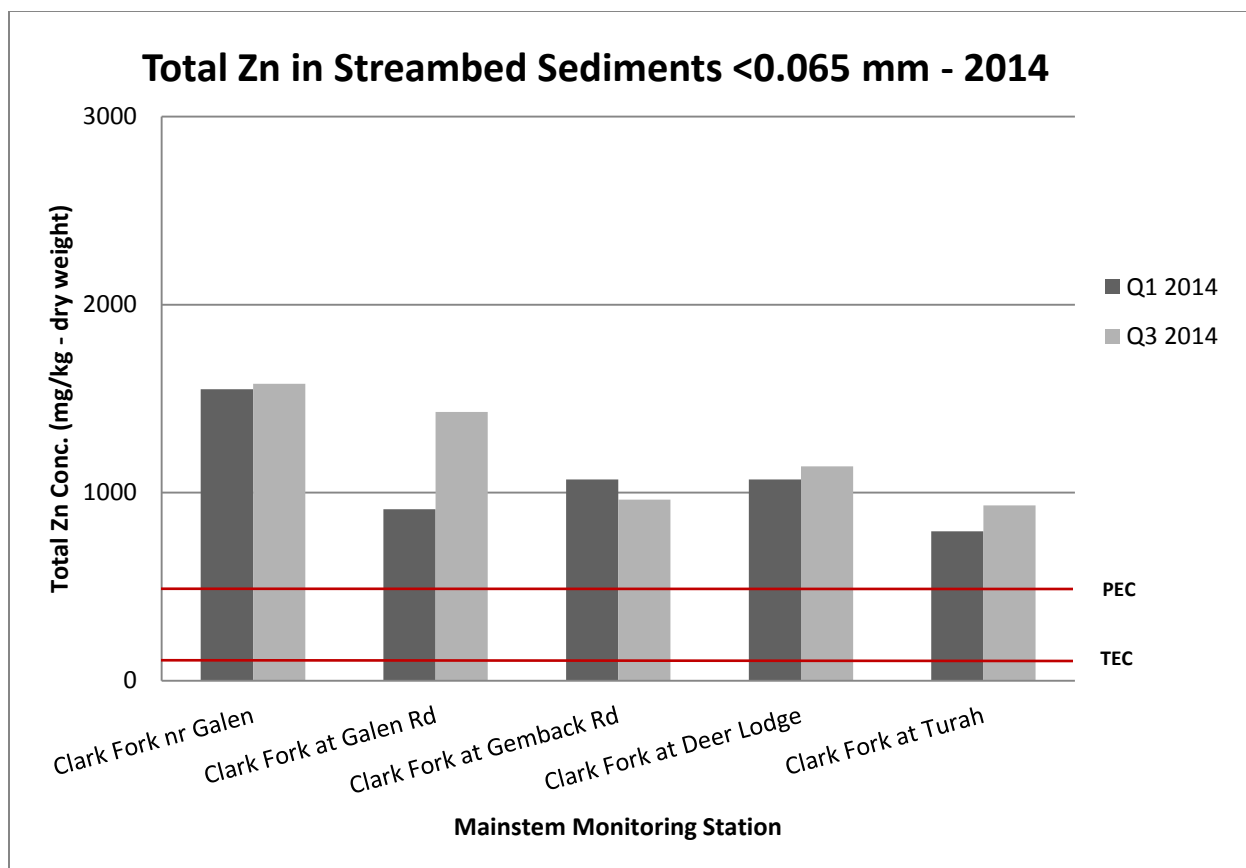
The spatial trend for sediment zinc concentrations at mainstem Clark Fork River monitoring sites in 2014 showed highest concentrations at the near Galen site, slightly lower concentrations at Galen Road, Gemback Road and Deer Lodge, and lowest concentrations at Turah [Figure 3-10]. The relative differences in sediment metals concentrations between sites were smaller for zinc than for the other COC metal and metalloids.

Among the tributary stations, Silver Bow Creek at Warm Springs had the highest sediment zinc concentrations by far [Figure 3-11]. Mill-Willow Bypass had the second highest sediment zinc concentrations. The Little Blackfoot River and Racetrack Creek had the lowest sediment lead concentrations of all the sites. Overall, Silver Bow Creek at Warm Springs, followed by the Clark Fork at Galen, had the highest sediment zinc concentrations of the CFROU monitoring sites.

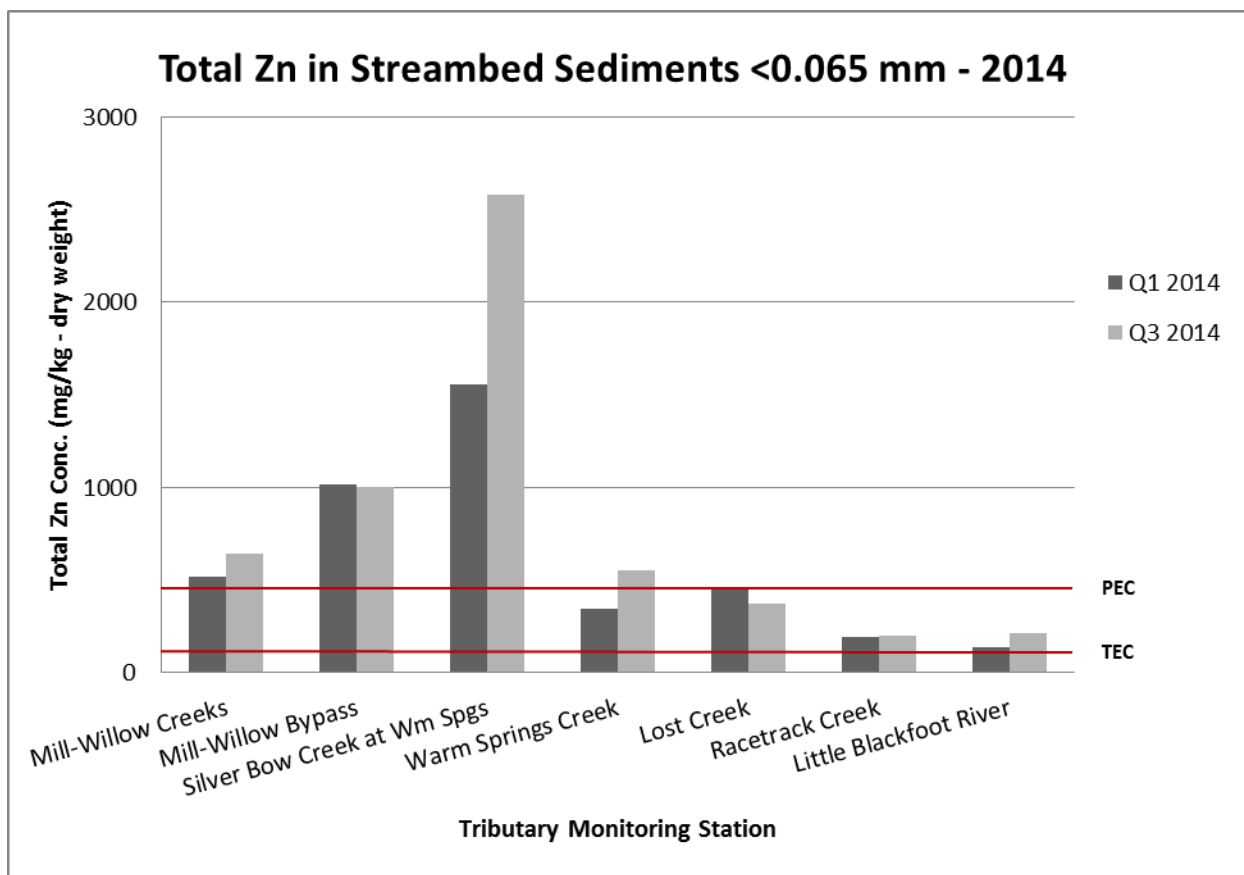
Like the other four COC metals and metalloids, there was no clear seasonal pattern for sediment zinc concentrations at the mainstem and tributary monitoring stations in 2014. Concentrations were very similar during each of the Q1 and Q3 monitoring events at nearly all of the stations, with two exceptions. The Clark Fork at Galen Road site showed an approximately 57% higher sediment zinc concentration in Q3 versus Q1 [Figure 3-10]. The Silver Bow Creek at Warm Springs site showed an approximately 65% higher sediment zinc concentration in Q3 versus Q1 [Figure 3-11].

Dry weight sediment zinc concentrations exceeded both of the TEC and PEC reference values at all mainstem Clark Fork River sites during both 2014 monitoring events [Table 3-9]. All of the tributary monitoring sites exceeded the TEC during both 2014 monitoring events. Mill-Willow Creek, Mill-Willow Bypass, Silver Bow Creek at Warm Springs, Warm Springs Creek, and Lost Creek also exceeded the PEC during at least one of the two monitoring events. Of the five COC sediment metals evaluated, zinc showed the fourth highest overall frequency of exceedances of the PEC at the CFROU monitoring sites during the 2014 monitoring events.





**Figure 3-10. Total zinc concentrations (dry weight) in Clark Fork River mainstem sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**



**Figure 3-11. Total zinc concentrations (dry weight) in Clark Fork River tributary sediment samples, 2014. Red lines represent the “threshold effect concentration” (TEC) and the “probable effect concentration” (PEC) [MacDonald et al., 2000].**

**Table 3-9. Total zinc concentrations (mg/kg dry weight) in fine fraction (<0.065 mm) instream sediment samples from the Clark Fork River Operable Unit, 2014.**

Site ID	Site Location	Sample concentration (mg/kg-WW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	1550	1580
CFR-07D	Clark Fork River at Galen Road	912	1430
CFR-11F	Clark Fork River at Gemback Road	1070	963
CFR-27H	Clark Fork River at Deer Lodge	1070	1140
CFR-116A	Clark Fork at Turah	795	933
Tributary Sites			
SS-25	Silver Bow Creek at Warm Springs	1560	2580
MCWC-MWB	Mill-Willow Creek at Frontage Road	519	640
MWB-SBC	Mill-Willow Bypass near mouth	1020	1000
WSC-SBC	Warm Springs Creek near mouth	343	550
LC-7.5	Lost Creek near mouth	464	375
RTC-1.5	Racetrack Creek near mouth	191	201
LBR-CFR-02	Little Blackfoot River near Garrison	134	213
	Exceeds threshold effect concentration [MacDonald et al., 2000].		
	Exceeds probable effect concentration [MacDonald et al., 2000].		

### 3.3.3 Data Validation

All RPD comparisons between the field sample and field duplicate pairs concentrations for each COC in each analysis type (i.e., wet weight and dry weight) were below the project target (40%) specified in the SAP [DeArment et al., 2013]. Mean RPD among all pairs ( $n = 30$ ) was 6.1% (range: 0-16.3%). Mean RPD of wet weight pairs ( $n = 15$ ) was 6.7% (range: 0-14.6%). Mean RPD of dry weight pairs ( $n = 15$ ) was 5.5% (range: 0-16.3%). Mean RPD of the wet weight samples in prior years was 9.7% in 2010, 9.9% in 2011, 9.6% in 2012, and 11.7% in 2013.

## 3.4 DISCUSSION

### 3.4.1 Sample Size Fraction

Variability in sediment metals concentrations at any given monitoring site during any particular sampling event may be influenced by channel morphology and depositional processes. These factors may cause variability in the size composition of the sample, which in turn influences the concentrations of metals in the sample as size fraction is strongly related (inversely) to metal concentration in sediment samples in the CFROU. The proportion of sediment in the fine size fraction (<0.065 mm) was highly variable among sites and among

sample periods, and even among field sample and duplicate sample pairs collected at the same site during the same monitoring event. Sediment samples in the CFROU were analyzed in only the fine size fraction to minimize variability due to size fraction.

### **3.4.2 Contaminants of Concern**

---

The highest dry weight sediment COC metals concentrations tended to be found at the upper river mainstem monitoring location at Galen Road, with second highest concentrations typically observed at Deer Lodge. The lowest mainstem sediment metals concentrations were consistently observed in the Clark Fork at Turah. Clark Fork tributaries in the CFROU monitoring network showed elevated sediment metals concentrations in Mill-Willow Creek at Frontage Road (arsenic, cadmium, copper, lead and zinc), the Mill-Willow Bypass (arsenic, cadmium, copper, lead and zinc), Silver Bow Creek at Warm Springs (arsenic, cadmium, copper, lead and zinc), Warm Springs Creek (arsenic, copper, lead and zinc), Lost Creek (arsenic, copper, and lead), and Racetrack Creek (arsenic and lead). The lowest overall concentrations of sediment metals were found in the Little Blackfoot River.

Concentrations of arsenic, copper, and zinc exceeded the PEC (the higher of the two reference values) at all of the Clark Fork mainstem monitoring stations during both the Q1 and Q3 2014 monitoring events. Concentrations of cadmium and lead exceeded the PEC at all of the Clark Fork mainstem monitoring stations except Turah during one or both of the Q1 and Q3 2014 monitoring events. Among the tributary monitoring stations, concentrations of arsenic and lead exceeded the PEC at all of the sites except the Little Blackfoot River during one or both of the Q1 and Q3 2014 monitoring events. Concentrations of copper and zinc exceeded the PEC at all of the tributary sites except the Little Blackfoot River and Racetrack Creek during one or both of the Q1 and Q3 2014 monitoring events. Concentrations of cadmium exceeded the PEC during both the Q1 and Q3 monitoring events at the Mill-Willow Creek, Mill-Willow Bypass, and Silver Bow Creek at Warm Springs tributary monitoring sites but not at the other tributary sites.

Examining COC metals exceedances at all CFROU monitoring stations during the two 2014 monitoring events, arsenic showed the highest frequency of exceedances of the PEC (21 of 24 site measurements). Copper showed the second highest frequency of exceedances of the PEC (20 of 24 samples), lead showed the third highest frequency of exceedances of the PEC (19 of 24 samples), zinc showed the fourth highest frequency of exceedances of the PEC (18 of 24 samples), and cadmium showed the lowest frequency of exceedance of the PEC (12 of 24 samples)

### **3.4.3 Data Validation**

---

All RPDs from field sample and field duplicate pairs in 2014 were within 40% thus satisfying the project goal for “overall precision”. A complete analysis of data validation procedures and results is described in Appendix A.

## 4.0 GEOMORPHOLOGY

---

### 4.1 INTRODUCTION

---

Geomorphology monitoring was performed in Phase 1, Reach A of the Clark Fork River Operable Unit (CFROU) in 2014 to evaluate progress toward attainment of project performance targets, to assess ongoing maintenance needs, and to inform adaptive management decisions for design of other phases of the CFROU [Sacry et al., 2012]. The remedial design for Phase 1 covered the upstream-most 1.6 mile section of the CFROU [Sacry et al., 2012]. Geomorphology monitoring in 2014 represents the first year of monitoring in Phase 1.

Remediation in Phase 1 was intended primarily to reduce exposure of metal contaminants in floodplain tailings to humans and the environment. Approximately 330,000 cubic yards of contaminated materials were removed from the floodplain and streambanks of Phase 1 and approximately 189,000 cubic yards of clean soil and vegetative material were used to reconstruct and revegetate the floodplain and streambanks [Bartkowiak et al., 2013]. In Phase 1, no instream sediments were removed from the streambed and channel alignment was not altered. However, the streambanks on both sides of the channel were treated and the floodplain was reconstructed in 2013. Types of remedial streambank treatments included single (SVSL) and double (DVSL) vegetated soil lifts, brush trenches (BT), and preserve vegetation (PV). Descriptions of each streambank treatment type are provided in Section 5.0. Vegetative treatments on the floodplain were begun in 2013 and continued in 2014. Thus, only a portion of the vegetative treatments on the floodplain had been completed at the time geomorphology monitoring occurred in 2014.

Geomorphic and vegetative treatments are expected to have reciprocal benefits. Throughout Phase 1, the floodplain elevation was lowered because the river had been entrenched due to excessive floodplain aggradation [Sacry et al., 2012]. Lowering the floodplain elevation was intended to facilitate water, nutrient, and sediment exchange between the river and floodplain. Increased connectivity of the river and floodplain will likely facilitate growth of riparian and floodplain vegetation, which would result in improved streambank and floodplain stability. Additionally, dissipation of streamflows across the floodplain during high discharge periods will reduce scour and channel incision, promoting connectivity of the stream channel and floodplain over the long term.

The overall goal for geomorphology in Phase 1 is for minimal geomorphic adjustment in the short term (i.e., first 15 years after reconstruction) as streamside and floodplain vegetation becomes reestablished [Sacry et al., 2012]. Over the longer term, the goal is to allow for dynamic equilibrium [Sacry et al., 2012]. This monitoring program is intended to evaluate progress toward attainment of performance targets related to the short term goal for geomorphology in Phase 1.

## 4.2 METHODS

---

Geomorphology monitoring in Phase 1 was guided by the Phase 1 geomorphology and vegetation monitoring plan [Sacry et al., 2012] as amended in 2014 [Sacry et al., 2014].

### 4.2.1 Monitoring Locations

---

Geomorphology monitoring occurred throughout Phase 1, Reach A of the CFROU in 2014 [Figure 1-1].

### 4.2.2 Monitoring Schedule

---

The frequency of geomorphology monitoring for Phase 1 of the CFROU varies by monitoring metric [Sacry et al., 2012]. The 2014 monitoring season was the first year (Year 1) of monitoring for Phase 1. Additional monitoring will occur in Phase 1 in 2018 (Year 5), 2023 (Year 10), and 2028 (Year 15). For some metrics, monitoring will be required in Phase 1 only when the streamflow exceeds the bankfull design level (522 cfs) [Sacry et al., 2012].

Prior to data collection activities, a site visit occurred on May 21, 2014 to review conditions, monitoring protocols, and consider adaptations to the protocols based on recent conditions. The site visit included project managers from the Montana Department of Environmental Quality (MDEQ), members of the design team, and monitoring field staff.

Field data was collected during three site visits. On May 28, 2014, a survey of flood inundation area was conducted. Channel cross-section dimensions were measured on July 22, 2014 by Brown and Associates. The remainder of the field data was collected from August 19-20, 2014.

### 4.2.3 Monitoring Parameters

---

Monitoring metrics, and performance targets for those metrics, were selected by the design team and are described in Sacry et al. [2012] and amended in Sacry et al. [2014]. The monitoring metrics, performance targets, and timeline for monitoring are identified in Table 4-1. The monitoring metrics selected by the design team provide an assessment of stream channel dimensions, pool density and depth, floodplain connectivity and stability, and secondary channel stability. The timeframe for evaluation of performance targets varies by monitoring metric. For example, channel slope and sinuosity are not required for evaluation of performance targets in Year 1 but are required in Years 5, 10, and 15 [Table 4-1]. Additionally, some monitoring metrics (floodplain connectivity, floodplain stability, and secondary channel stability) are only to be monitored during years in which streamflows exceed the bankfull design level [Table 4-1]. Additional monitoring metrics will be evaluated in future monitoring years (Year 5, 10, and 15) including the longitudinal channel profile, channel planform, streambank erosion, and channel migration rate.

**Table 4-1. Performance targets for geomorphic monitoring metrics in Phase 1 of the Clark Fork River Operable Unit following remediation [Source: Sacry et al., 2012].**

Monitoring Metric	Year (post-remediation)			
	1	5	10	15
Cross-Sectional Area (square feet)	119-179	119-179	119-179	119-179
Bankfull Width (feet)	44-66	44-66	44-66	44-66
Mean Bankfull Depth (feet)	2.2-3.2	2.2-3.2	2.2-3.2	2.2-3.2
Width-Depth Ratio	18-27	18-27	18-27	18-27
Channel Slope (%)	-	0.17-0.19	0.17-0.19	0.17-0.19
Channel Sinuosity	-	2.20-2.44	2.20-2.44	2.20-2.44
Pool Density (pools/mile)	≥14.3	≥14.3	≥14.3	≥14.3
Residual Pool Depth (feet)	≥2.4	≥2.4	≥2.4	≥2.4
Bank Erosion and Channel Migration Rate (feet/year) <sup>12</sup>	-	≤0.8/1.3	≤0.8/1.3	≤0.8/1.3
Floodplain Connectivity (%) <sup>13</sup>	18-38	-	-	-
Floodplain Stability <sup>14</sup>				
Secondary Channel Stability (cfs) <sup>15</sup>	47-57			

#### 4.2.4 Sample Collection and Analysis

The following sections describe methods for measurement of each monitoring metric.

##### 4.2.4.1 Channel Cross-Sections

Prior to remediation (in 2009), a total of 16 stream channel cross-sections were surveyed using standard methods described by Harrelson [1994] and a survey-grade GPS unit. Each cross-section was resurveyed in 2014 to compare changes in cross-sectional area over time. These cross-sections will be resurveyed according to the schedule identified in Table 4-1.

For each cross-section, at least ten points (i.e., spatial coordinates including latitude, longitude, and elevation) were surveyed (accuracy ±3 cm) within the bankfull channel including points at the water edge, thalweg, and all substantial slope inflection points within the channel. For each channel cross-section surveyed, the bankfull width, mean bankfull depth, cross-

<sup>12</sup> The higher value applies in any year when streamflow exceeds the 10-year discharge (1,090 cfs).

<sup>13</sup> Floodplain connectivity will be assessed only during the first year when the bankfull design streamflow (522 cfs) is met.

<sup>14</sup> River channel remains free of any secondary channels which develop connectivity at both the upstream and downstream end of the primary channel when the bankfull design streamflow (522 cfs) is met.

<sup>15</sup> Secondary channel stability will be assessed only during the first year when the bankfull design streamflow (522 cfs) is met.

sectional area, and channel width to depth ratio was calculated. Photographs were collected at each cross-section including upstream and downstream views, and views from each streambank.

#### **4.2.4.2 Channel Slope and Sinuosity**

Channel slope and sinuosity were not evaluated in Year 1. In subsequent monitoring years these metrics will be determined by surveying a longitudinal profile of the stream channel throughout Phase 1. The longitudinal profile will include consistent measurement of survey points for the left and right channel bankfull indicators, water surface, and thalweg. A survey grade GPS will be used with a maximum spacing between survey points of 100-feet and points will be spaced more closely where the channel curves and secondary channels occur. The longitudinal profile will extend at least 300 feet upstream into Warm Springs Creek from the confluence with the Clark Fork River to include the Warm Springs Creek channel and floodplain that lies within the Clark Fork River 100-year floodplain. The longitudinal profile for lower Warm Springs Creek will be monitored for slope alterations, as any adjustments to this slope will be an indicator of channel profile adjustment on the Clark Fork River.

Channel sinuosity will be calculated as the proportion of stream channel length to valley length. The stream channel length will be calculated from the longitudinal profile. The floodplain valley length will be determined by aerial imagery.

Channel slope will be calculated as the ratio of the difference in river elevation to the stream channel length. The change in elevation and channel lengths will be determined from the longitudinal profile.

#### **4.2.4.3 Pool Density**

Pools were identified in the field and survey points were collected at the point of maximum depth for each pool. Pool density was calculated as the frequency of pools per mile.

#### **4.2.4.4 Residual Pool Depth**

Residual pool depths were calculated for each pool as the difference between the maximum pool depth and the depth at each pool's hydraulic control (i.e., the pool tail crest; Lisle [1987]). The maximum pool depth and hydraulic control depth for each pool was measured manually.

#### **4.2.4.5 Streambank Erosion and Channel Migration Rate**

Streambank erosion and channel migration rates were not evaluated in Year 1. Lateral channel migration rate will be evaluated by comparing repeat longitudinal surveys. Streambank erosion rates will be evaluated by comparing repeat cross-sections.

#### **4.2.4.6 Floodplain Connectivity**

Floodplain connectivity was monitored by a field survey of the flood inundation area when streamflow was near the design bankfull streamflow level. When streamflow in the project area



was at the design level a surveyor paced the perimeter of all standing surface water and tracked the area with a conventional GPS unit (accuracy  $\pm 5\text{m}$ ). From this survey, GIS shapefile polygons were created and the total area inundated was calculated from those polygons. The inundated area was then compared to the entire Phase 1 area to determine the proportion of the floodplain inundated at the design streamflow level.

#### **4.2.4.7 Floodplain Stability**

Floodplain stability was monitored in conjunction with the flood inundation survey when the design bankfull streamflow was exceeded. In addition, following the spring runoff period, areas where secondary channels formed were reassessed to evaluate evidence channel formation including headcut development at points of secondary channel return to the main channel, or continuous rill development on the floodplain surface.

#### **4.2.4.8 Secondary Channel Stability**

Secondary channel stability was evaluated in conjunction with the floodplain connectivity assessment to identify as-built connectivity of engineered secondary channels. At each engineered secondary channel, the streamflow was estimated visually.

### **4.2.5 Data Analysis**

---

For channel dimension monitoring metrics (i.e., cross-sectional area, bankfull width, mean bankfull depth, and width to depth ratio), and mean residual pool depth, all measurements were averaged throughout Phase 1 and the mean of those measurements was compared to the performance target. The Phase 1 flood inundation area and project area were calculated using GIS software.

## **4.3 RESULTS**

---

### **4.3.1 Channel Cross-Sections**

---

The mean for each channel dimension monitoring metric was within the performance target range in 2014 [Table 4-2]. Mean cross-sectional area in Phase 1 was 163 square feet (standard deviation [SD] = 72 square feet). Mean bankfull width in Phase 1 was 60 feet (SD = 22 feet). Mean bankfull depth was 2.7 feet (SD = 0.6 feet). Mean width to depth ratio was 23 (SD = 9).

Although the mean of each channel dimension metric was within the performance target range, multiple individual measurements for each metric were outside the target range [Table 4-2]. One cross-section (XS7) appeared to be an outlier with a cross-sectional area, bankfull width, and width to depth ratio of 3.0, 3.4, and 2.7 standard deviations above the mean for each metric, respectively [Table 4-2].

**Table 4-2. Cross-section monitoring results for geomorphic monitoring in Phase 1 of the Clark Fork River Operable Unit, 2014.**

<b>Cross-section</b>	<b>Instream Feature Type</b>	<b>Bank Treatment (left)<sup>16</sup></b>	<b>Bank Treatment (right)</b>	<b>Cross-Sectional Area (square feet)</b>	<b>Bankfull Width (feet)</b>	<b>Mean Bankfull Depth (feet)</b>	<b>Width/Depth Ratio</b>
XS1	riffle	DVSL	DVSL	79	34.9	2.3	15.3
XS2	pool	BT	DVSL	243	69.6	3.5	20.0
XS3	pool	DVSL	PV	150	57.6	2.6	22.1
XS4	riffle	PV	BT	169	66.3	2.6	25.9
XS5	riffle	BT	PV	122	50.6	2.4	21.1
XS6	riffle	PV	DVSL	121	58.7	2.1	28.4
XS7	pool	BT	DVSL	380	133.8	2.8	47.1
XS8	pool	BT	PV	191	50.2	3.8	13.2
XS9	pool	BT	PV	128	54.3	2.4	22.9
XS10	pool	DVSL	BT	125	44.1	2.8	15.6
XS11	pool	DVSL	BT	221	68.2	3.2	21.1
XS12	riffle/run	PV	PV	107	47.6	2.2	21.2
XS13	pool	DVSL / BT	DVSL	180	51.0	3.5	14.5
XS14	riffle	DVSL	DVSL	111	67.7	1.6	41.5
XS15	pool	BT	DVSL	141	47.7	3.0	16.1
XS16	riffle	PV	PV	132	52.9	2.5	21.1
<b>Performance Target Range</b>				<b>119-179</b>	<b>44-66</b>	<b>2.2-3.2</b>	<b>18-27</b>
<b>Mean</b>				<b>163</b>	<b>60</b>	<b>2.7</b>	<b>23</b>
<b>Standard Deviation</b>				<b>72</b>	<b>22</b>	<b>0.6</b>	<b>9</b>

<sup>16</sup> Treatment abbreviations: single vegetated soil lift (SVSL), double vegetated soil lift (DVSL), brush trench (BT), and preserve vegetation (PV).

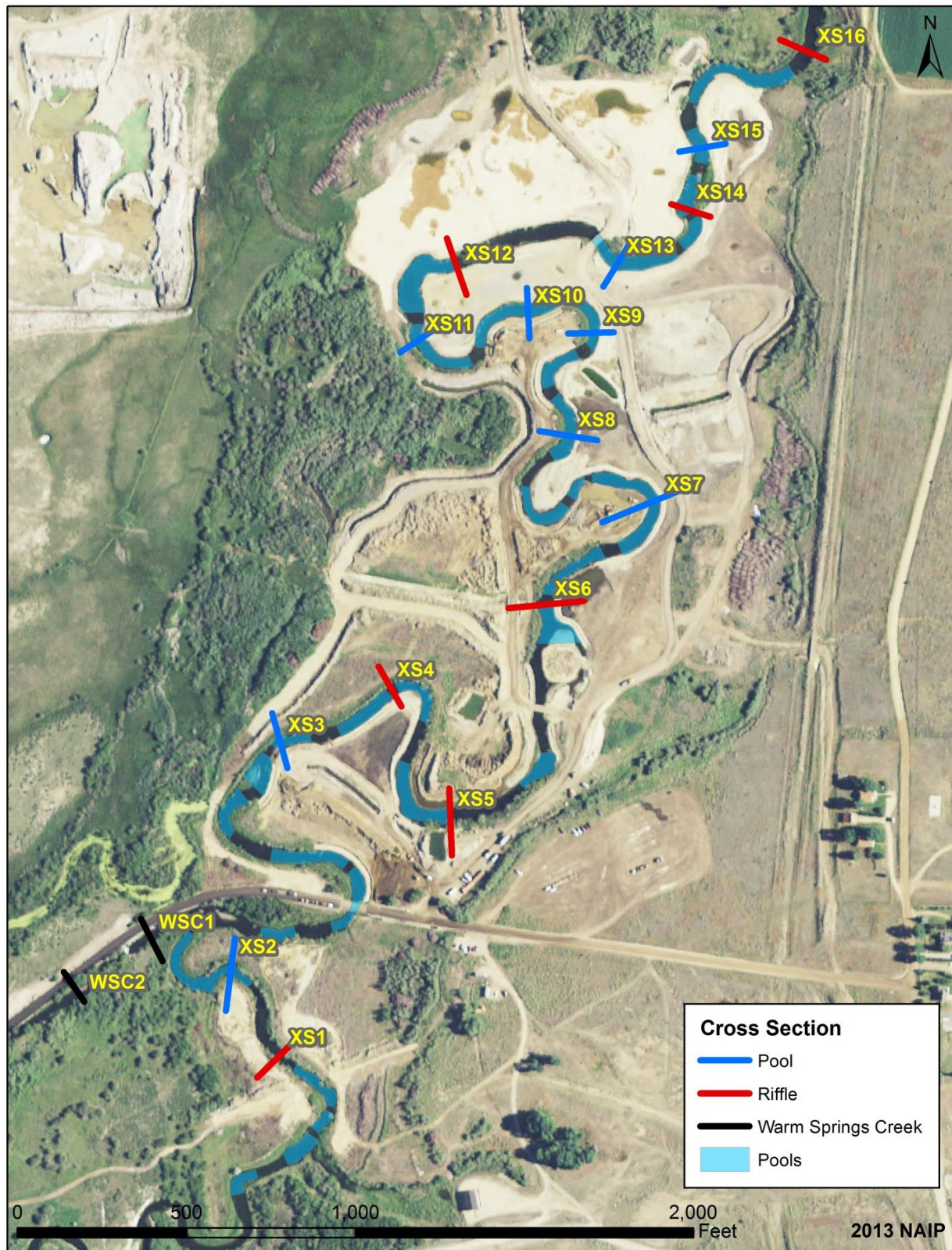


Figure 4-1. Channel cross-sections for geomorphic monitoring in Phase 1 of the Clark Fork River Operable Unit, 2014.

### **4.3.2 Slope and Sinuosity**

---

Slope and sinuosity was not monitored in 2014. These metrics will be monitored in 2018 (Year 5).

### **4.3.3 Pool Density and Residual Pool Depth**

---

In 2014, the channel length of the Clark Fork River in Phase 1 was 8,560 feet (1.62 miles) [Sacry et al., 2012] and 30 pools were identified in that river section [Figure 4-2]. Therefore, pool density in 2014 was 18.5 pools/mile (30 pools/1.62 miles). The performance target for pool density for Year 1 is at least 14.3 pools/mile. Therefore, the performance target for pool density was achieved in 2014.

Mean residual pool depth in Phase 1 was 3.3 feet (SD = 0.9 feet) which exceeded the Year 1 performance target of at least 2.4 feet [Table 4-3]. During the survey (August 20, 2014), streamflow at the nearest USGS gauge (USGS station number 12323800) was approximately 100 cfs. Maximum pool depths ranged from 3.0 feet to 6.7 feet and pool tail crest depths ranged from 0.8 feet to 2.6 feet. All of the identified pools appeared to be formed by lateral scour along the meandering river channel.





Figure 4-2. Pools identified in Phase 1 of the Clark Fork River Operable Unit, 2014.

**Table 4-3. Residual pool depths in Phase 1 of the Clark Fork River Operable Unit, 2014.**

<b>Pool ID</b>	<b>Pool Tail Crest Depth (feet)</b>	<b>Maximum Pool Depth (feet)</b>	<b>Residual Pool Depth (feet)</b>
14-1	1	3.5	2.5
14-2	1.5	3.7	2.2
14-3	1.3	3	1.7
14-4	1.2	3.9	2.7
14-5	1.8	4.6	2.8
14-6	1.3	4.4	3.1
14-7	2	6.7	4.7
14-8	1.3	4.4	3.1
14-9	1.3	5.6	4.3
14-10	2.2	4.6	2.4
14-11	1.3	4.9	3.6
14-12	1.5	3.9	2.4
14-13	2.6	5.6	3
14-14	1.3	4.8	3.5
14-15	1.3	5.4	4.1
14-16	0.8	3.5	2.7
14-17	1.5	5.1	3.6
14-18	1.2	6	4.8
14-19	2	4	2
14-20	2	4.5	2.5
14-21	1.1	4	2.9
14-22	1	5.8	4.8
14-23	1.7	4.7	3
14-24	1.3	4	2.7
14-25	1	5.9	4.9
14-26	1.6	4	2.4
14-27	1.7	5.8	4.1
14-28	2	5.5	3.5
14-29	1.5	5.4	3.9
14-30	1.5	5.2	3.7
<b>Performance Target</b>			<b>≥2.4</b>
<b>Mean</b>			<b>3.3</b>
<b>Standard Deviation</b>			<b>0.9</b>



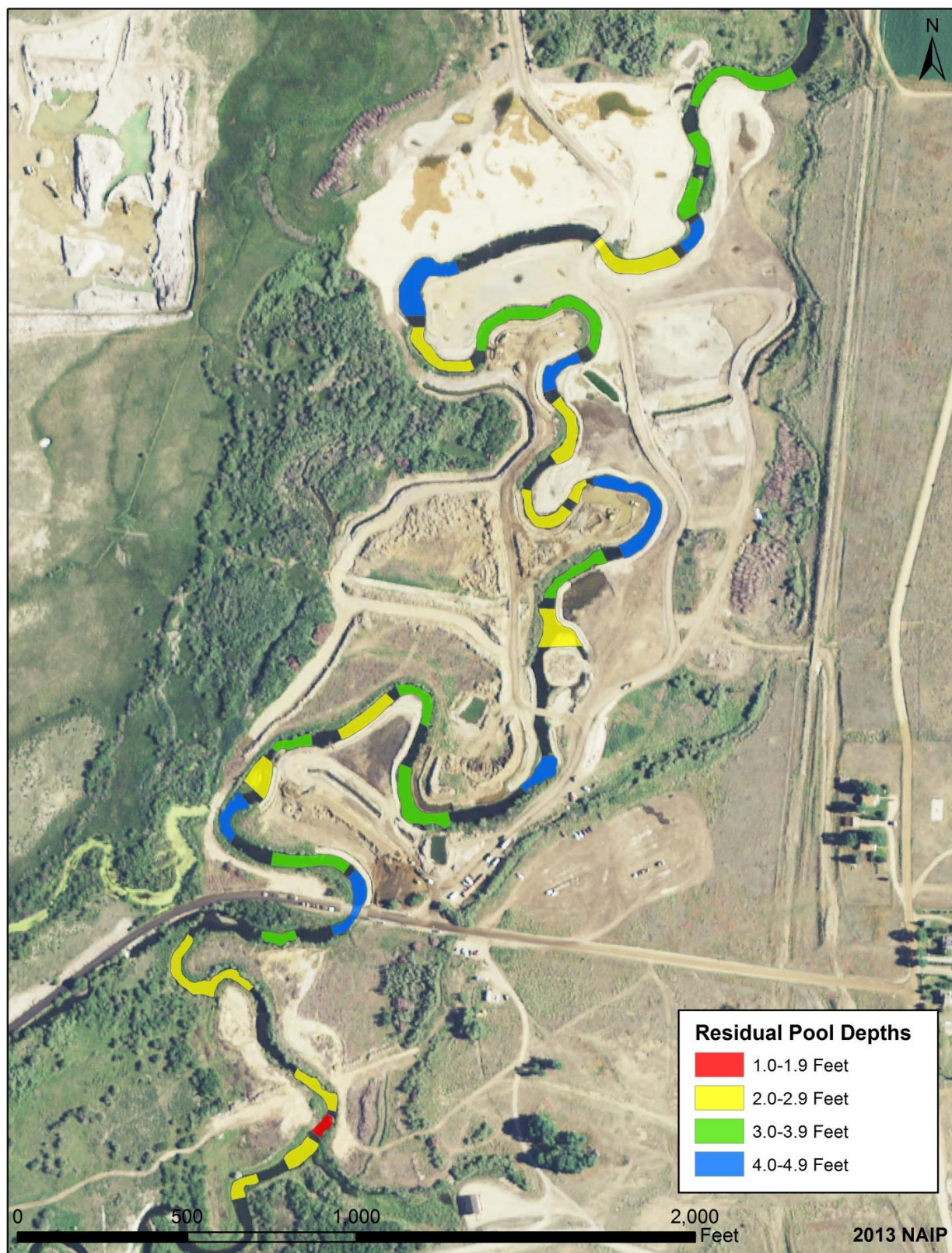


Figure 4-3. Pool depth in the Clark Fork River Operable Unit, 2014. Pool lengths are approximated.

#### **4.3.4 Bank Erosion and Channel Migration Rate**

---

Bank erosion and channel migration rates were not evaluated in Year 1 because no time had yet elapsed from which erosion and migration rates could be determined. The channel cross-sections and longitudinal profiles in Phase 1 will be re-surveyed in Years 5, 10, and 15 and those results will be compared to results obtained in 2014 to assess bank erosion rates and channel migration rates.

The locations of the channel cross-sections in 2013 relative to the streambank treatments are displayed in [Figure 4-4]. Of the 16 surveyed cross-sections, only one (XS16) does not include a treated streambank on either side of the channel [Figure 4-4]. All of the other cross-sections included a reconstructed streambank on at least one side of the channel and most include a reconstructed streambank on both sides of the channel [Figure 4-4].



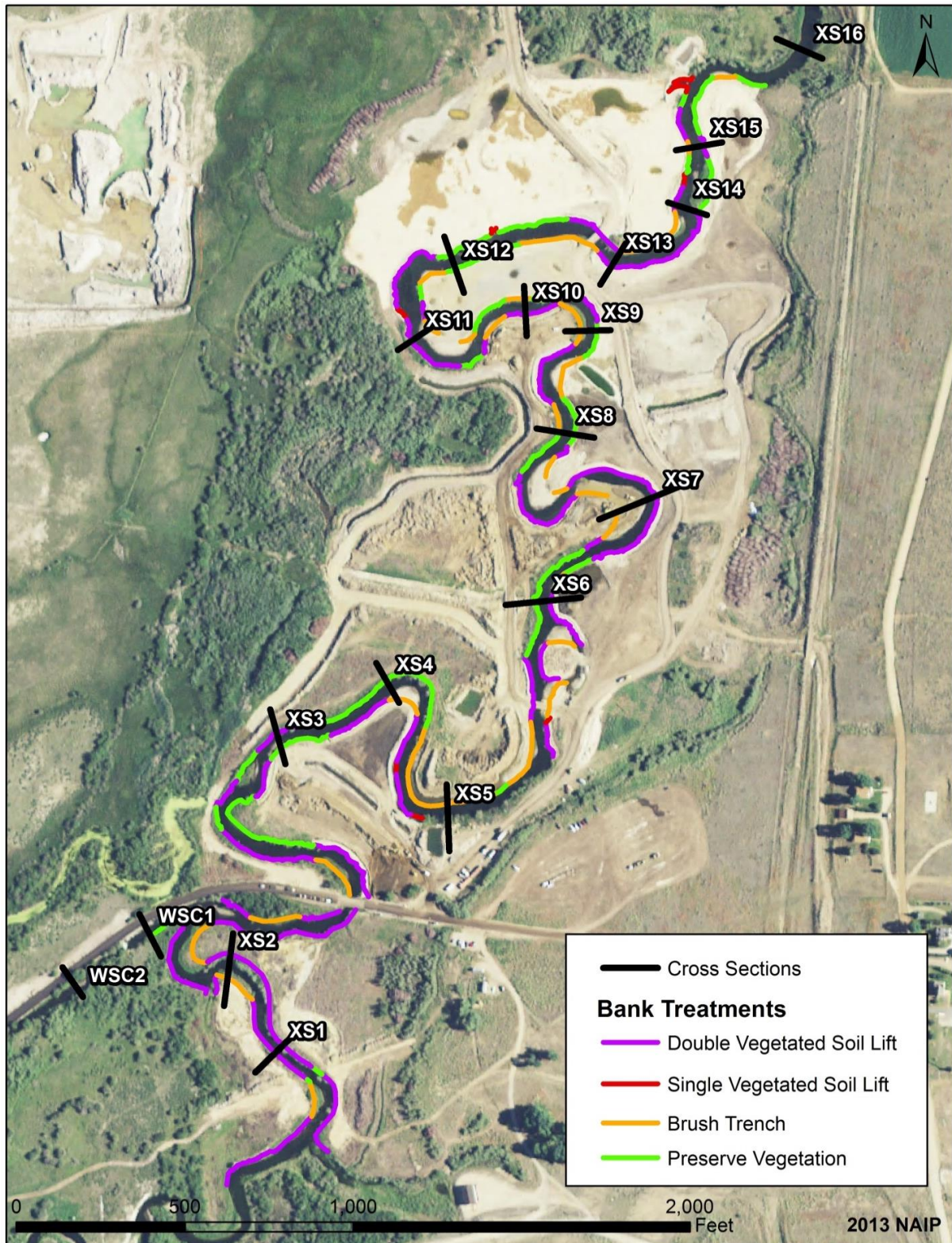


Figure 4-4. Streambank treatments and channel monitoring cross-sections in the Clark Fork River Operable Unit, 2014.

#### 4.3.5 Floodplain Connectivity

---

In 2014, peak annual streamflow in the Clark Fork River near the Phase 1 project area [Figure 4-5] was 556 cfs (107% of the design bankfull streamflow) and occurred on May 27, 2014 [Figure 4-6]. The design bankfull streamflow for the river in Phase 1 is 522 cfs [Sacry et al., 2012]. Floodplain connectivity was assessed on May 28, 2014 from approximately 3:00 pm to 7:00 pm. During that period, mean streamflow at USGS 12323800 was 508 cfs, or 97.3% of the design bankfull streamflow. Based on the inundation survey [Figure 4-7], 51% of the floodplain area (32.1 acres inundated out of a total floodplain area of 63.2 acres) was inundated which exceeded the performance target range of 18-38% floodplain inundation at the design bankfull streamflow [Table 4-1].



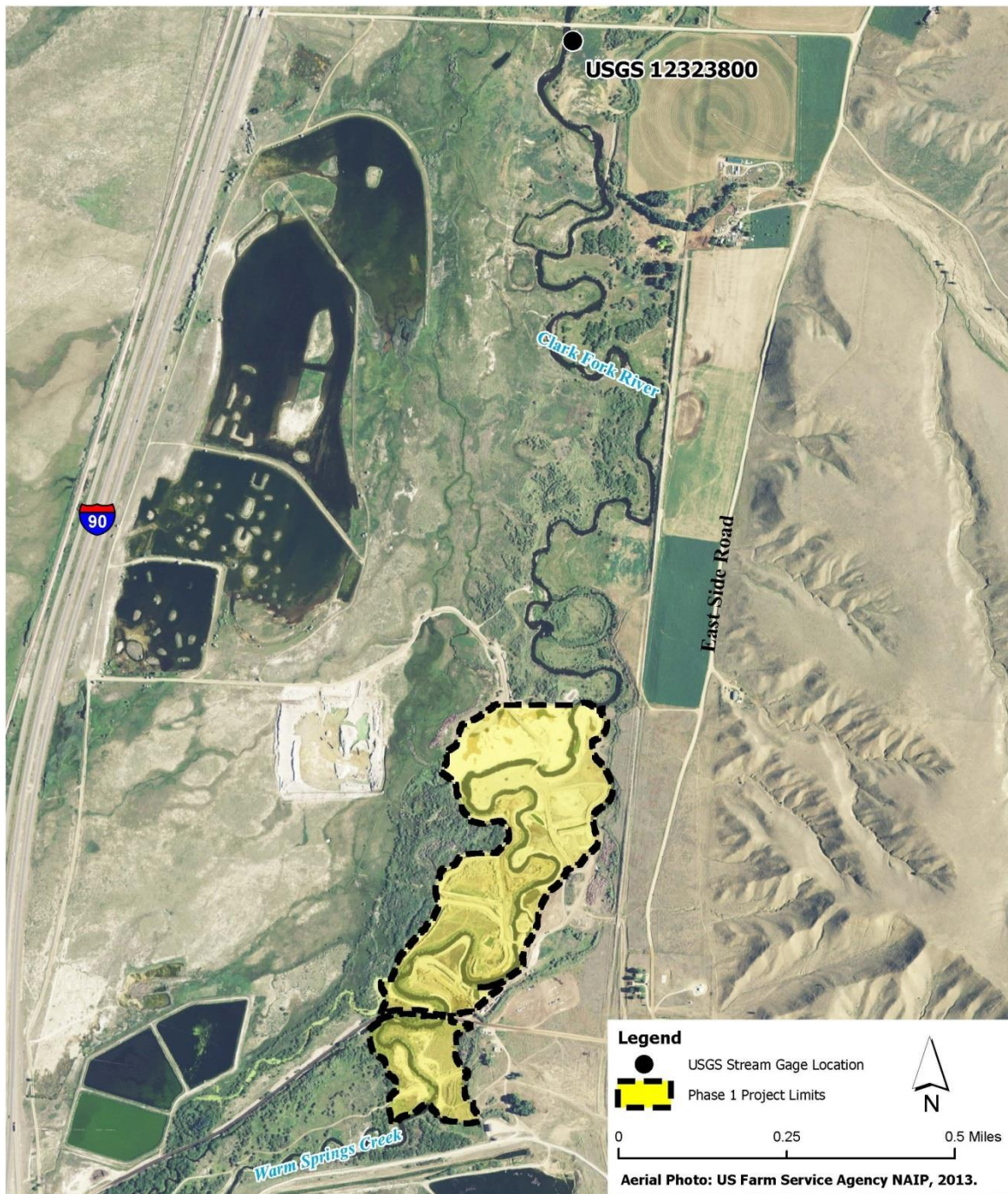


Figure 4-5. Location of nearest USGS streamflow gage (USGS 12323800) to Phase 1 project area in the Clark Fork River Operable Unit, 2014.

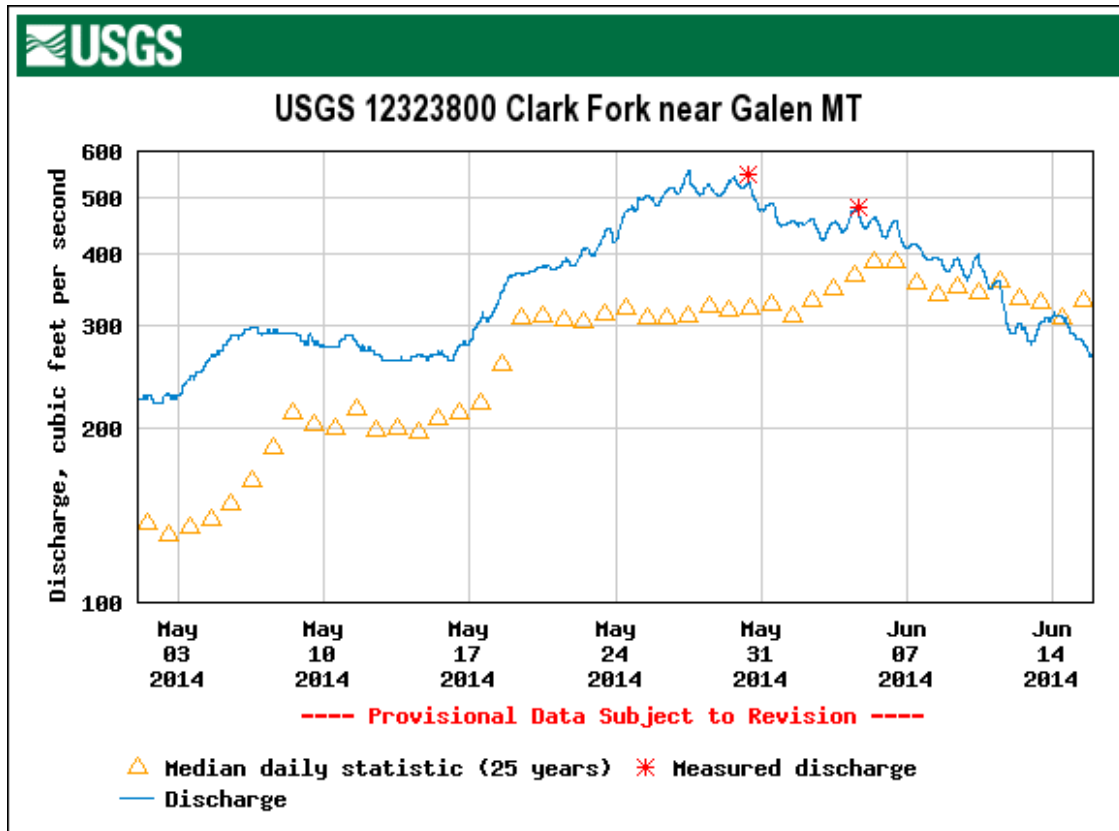
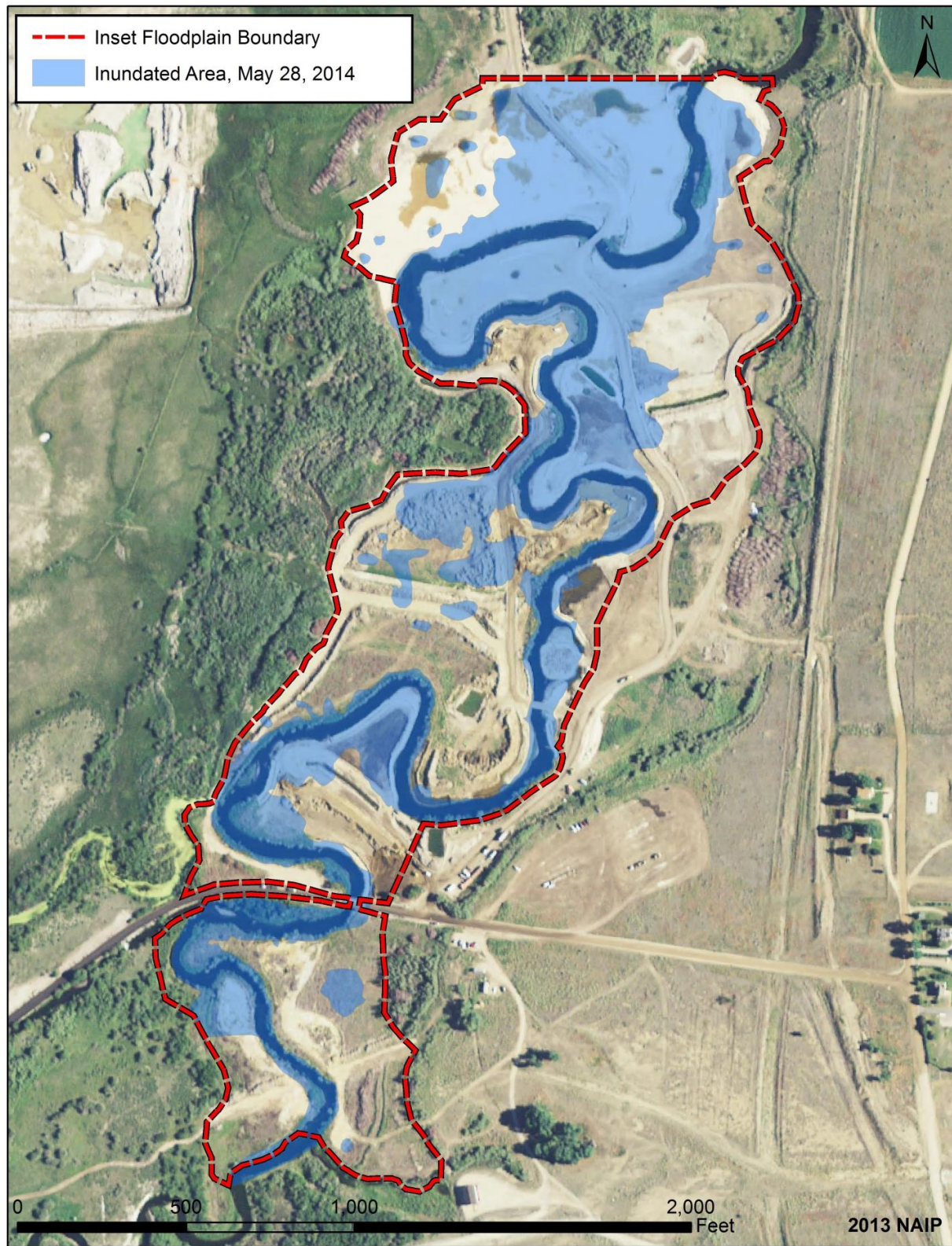


Figure 4-6. Streamflow in the Clark Fork River near the Phase 1 project site during the spring snowmelt runoff period of 2014 [Source: USGS, 2015b].





**Figure 4-7. Inundated area of the Phase 1 floodplain of the Clark Fork River on May 28, 2014. Streamflow in the Clark Fork River at Galen (USGS 12323800) during the survey was 508 cfs compared to a bankfull design streamflow of 522 cfs.**

#### 4.3.6 Floodplain Stability

---

During the 2014 spring runoff event, two overflow channels developed on the floodplain. The approximate locations of these overflow channels (“Overflow Channel 1” and “Overflow Channel 2”) are identified in Figure 4-8. The point where each overflow channel left the main river channel (the “inlet”) occurred along the same double vegetated soil lift (DVSL) streambank treatment [Figure 4-8]. The inlet of Overflow Channel 1 formed near the boundary between the DVSL and the upstream preserve vegetation (PV) treatment [Figure 4-8; Figure 4-9] whereas the inlet of Overflow Channel 2 formed just downstream in the center of that same DVSL [Figure 4-8; Figure 4-10]. The point of return (or “outlet”) of Overflow Channel 1 was in a DVSL treatment [Figure 4-8; Figure 4-11] and the outlet of Overflow Channel 2 was in a brush trench treatment [Figure 4-8; Figure 4-12].

Both overflow channels were identifiable as rill features on the floodplain following the runoff period. No headcutting was observed at outlet of either overflow channel during the field survey on August 20, 2014. Vegetation along the streambank appeared stable at the inlet and outlet of each overflow channel. A small sediment deposit was observed along the streambank and in the main channel at the outlet of Overflow Channel 1.



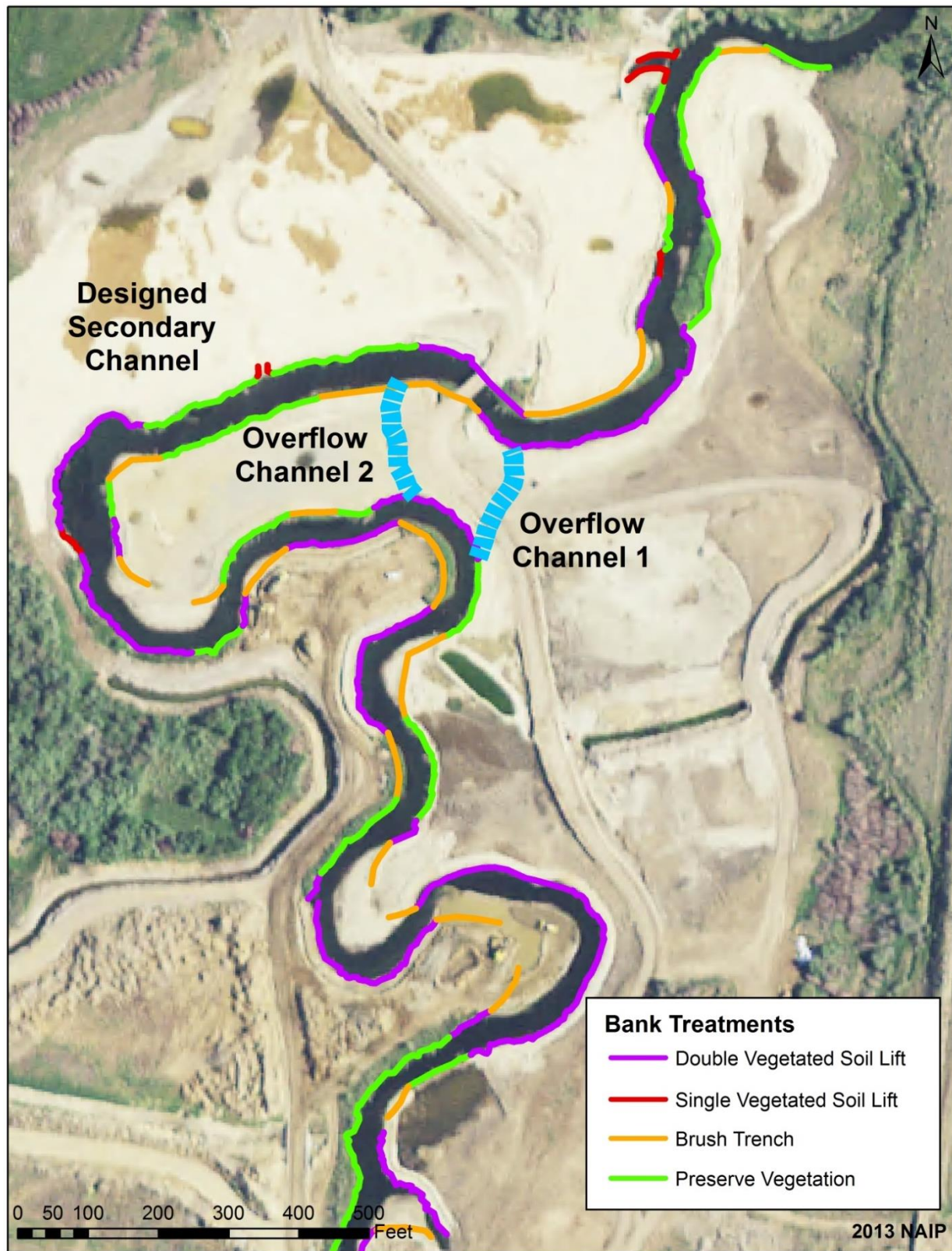


Figure 4-8. Overflow channels which developed in Phase 1 of the Clark Fork River Operable Unit in 2014 during the spring snowmelt runoff period.



**Figure 4-9. View of Overflow Channel 1 inlet on August 20, 2014 (upper panel) and on May 28, 2014 (lower panel) in Phase 1 of the Clark Fork River Operable Unit. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014 and 508 cfs on May 28, 2014.**





**Figure 4-10. View of Overflow Channel 2 inlet (upper panel) and facing down the channel from the inlet (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014.**



**Figure 4-11. Views of Overflow Channel 1 facing up the channel from the outlet (upper panel) and at the outlet (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014.**





**Figure 4-12. View of Overflow Channel 2 facing up the channel from the outlet (upper panel) and at the outlet (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014.**

#### 4.3.7 Secondary Channel Stability

---

One secondary channel was included in the Phase 1 design [Figure 4-8]. The design for this secondary channel was to carry no more than 10% (i.e.,  $\leq 52$  cfs) of the total streamflow of the mainstem channel at the design bankfull streamflow [Sacry et al., 2012]. During the floodplain inundation survey (May 28, 2014), when the Clark Fork River was approximately 508 cfs, streamflow in the designed secondary channel was visually estimated at less than 5 cfs. At that time the entire floodplain area surrounding the designed secondary channel was inundated by floodwater. The designed secondary channel had no surface water streamflow on May 21, 2014 or on August 20, 2014 [Figure 4-13]. On May 21, 2014 mean daily streamflow in the Clark Fork River was 384 cfs and on August 20, 2014 mean daily streamflow was 100 cfs. The streambank height at the inlet of the designed secondary channel was approximately 1.6 feet above the surface water elevation of the main channel on August 20, 2014 [Figure 4-14]. It appeared that any surface water carried by the secondary channel during periods of high streamflow was dissipated across the floodplain rather than carried in a focused channel back into the main channel [Figure 4-15]. This was reflected in an extensive inundated portion of the floodplain on the west side of the river channel at the downstream (north) end of the project area [Figure 4-7].



**Figure 4-13. Views of designed secondary channel inlet in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014.**





**Figure 4-14. View of designed secondary channel elevation at inlet in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014.**





**Figure 4-15. View of designed secondary channel where the channel passes through browse protection fence (upper panel) and after passing through the fence (lower panel) in Phase 1 of the Clark Fork River Operable Unit on August 20, 2014. Mean daily streamflow at the Clark Fork River at Galen site [USGS, 2015b] was 100 cfs on August 20, 2014.**

## 4.4 DISCUSSION

---

The results of geomorphic monitoring of Phase 1 in 2014 indicate that the project met some Year 1 performance targets but did not meet all of the targets. All monitoring metrics for channel dimension (i.e., cross-sectional area, bankfull width, mean bankfull depth, and width to depth ratio), pool density, and residual pool depth were within the specified target ranges. Additionally, the secondary channel stability performance target was met because the secondary channel did not carry more than 10% of the streamflow of the main channel when streamflows reached the design bankfull level. Performance targets that were not met included floodplain connectivity and floodplain stability. Performance targets for channel slope, sinuosity, bank erosion rate, and channel migration rate were not scheduled for monitoring in Year 1 (2014) but will be evaluated in Year 5 (2018).

Failure to meet the performance target for channel connectivity was the result of an over-connected river channel and floodplain, rather than the disconnected pre-project channel and floodplain. The proportion of the Phase 1 floodplain inundated when streamflows in the mainstem channel reached the design bankfull level was estimated at 51%, which exceeded the performance target range of 18% to 38%. However, there is some degree of uncertainty in the inundated area estimate due to practical survey constraints. For example, within areas considered completely inundated there were numerous “islands” of the floodplain that were uninundated. The surveyor could not account for these small island areas within the standing water perimeter and inclusion of those areas as resulted in an overestimation of the inundated area. Additionally, at the time of the inundation survey streamflows in the project area were falling from a maximum level of 556 cfs the previous day. It seems likely that some of the inundated area was the result of remnant flooding from that time period.

The inundated area reflects high connectivity of the channel and floodplain. Over the long term this high degree of connectivity will likely promote vegetative growth, result in increased floodplain and streambank stability, and will presumably provide multiple ecological benefits. However, in the short term excessive connectivity will result in increased avulsion risk and contribute to reduced floodplain stability [Sacry et al., 2012]. The increased risk of avulsion was apparent as two overflow channels formed during the runoff period, resulting in failure to meet the floodplain stability performance target. Although the bankfull streamflows were achieved, maximum streamflows in 2014 reached only 107% of the design level indicating that the flood conditions were relatively mild. These overflow channels have the potential to capture the mainstem channel and therefore monitoring during subsequent years when streamflows approach or exceed the design bankfull streamflow may be necessary. Following monitoring in 2014, additional treatments were implemented to reduce avulsion risk in these overflow channels.



## 5.0 VEGETATION

---

### 5.1 INTRODUCTION

---

This report describes results of vegetation monitoring in 2014 for the revegetated streambanks and floodplain of Phase 1 in Reach A of the Clark Fork River Operable Unit (CFROU) in 2014. Data were collected for specific monitoring metrics to evaluate progress toward attainment of vegetation performance targets for the remedy and restoration of Phase 1. Major remediation of the floodplain of Phase 1 was completed in December 2013 [Bartkowiak et al., 2013]. In total over 330,000 cubic yards of floodplain waste material was removed and 189,000 cubic yards of rock and vegetative material was used to rebuild the floodplain [Bartkowiak et al., 2013]. Revegetation activities in Phase 1 began in fall of 2013 [Bartkowiak et al., 2013] and not all of these activities were complete in Phase 1 at the time monitoring occurred in August 2014. All streambank treatments were complete at the time of monitoring in August 2014. The majority of the woody shrub and tree plantings that were planned for Phase 1 were planted in the fall of 2013 and the majority of the shrub and herbaceous species seeding occurred in the spring and summer of 2014. Additional vegetation plantings and seeding occurred in the fall of 2014 in Phase 1 following the August monitoring period. Seeding success will be monitored in floodplain transect cover plots in 2015. Survival of woody plants that were planted after monitoring in August 2014 will be monitored in 2015.

### 5.2 METHODS

---

The protocol for monitoring vegetation in Phase 1 of Reach A of the CFROU was developed by Geum Environmental Consulting and Applied Geomorphology in consultation with MDEQ [Sacry et al., 2012]. Some alterations of the original monitoring protocol were recommended based on a site visit on May 28, 2014 [Sacry et al., 2014]. Alterations to the original protocol included the following, which are discussed in greater detail in a memo from Geum to MDEQ on July 29, 2014:

- The frequency of vegetation monitoring was reduced for most monitoring metrics. Planned monitoring in year 2 and 3 (post-planting) was discontinued. Performance targets for those years were also discontinued.
- Vegetation transect monitoring was not implemented in 2014. Transect monitoring will be conducted in Phase 1 in 2015.
- The density metric was eliminated.
- Streambank canopy cover was sampled every 50 feet rather than every 30 feet.
- The requirement for overall number of plants sampled in floodplain monitoring plots for woody plant survival and browse intensity were adjusted to reduce sampling effort.

## 5.2.1 Monitoring Locations

---

Vegetation monitoring occurred in Phase 1 of Reach A of the CFROU in 2014 [see Section 1.0]. Monitoring occurred in streambank cover monitoring plots in each vegetated soil lift treatment and floodplain plant survival monitoring plots within floodplain planting units.

### 5.2.1.1 Streambank Monitoring

All streambank treatment types were monitored. Types of streambank treatments included single vegetated soil lifts (SVSL) [Figure 5-1], double vegetated soil lifts (DVSL) [Figure 5-2], brush trenches [Figure 5-3], and preserve vegetation [Figure 5-4]. Streambank treatments were identified in the field by referring to the as-built design overview [Figure 5-6; Figure 5-7]. The origin (i.e., upstream end) and terminus (i.e., downstream end) of each streambank treatment was marked<sup>17</sup>. For vegetated soil lift treatments, additional markers were placed every 50 feet (following the river edge) from the treatment origin to mark the location of each cover plot<sup>18</sup>. Streambank distances were measured manually with a tape.

For each SVSL and DVSL streambank treatment, vegetation monitoring occurred in discrete 19.5 square foot plots selected based on a stratified sampling design. Monitoring plots were placed every 50 feet beginning at the upstream origin of each treatment [Figure 5-5]. Monitoring plots were rectangular (6.5x3.0 feet) and oriented parallel to the river edge, beginning at the boundary between the vegetated soil lift and the backfill [Figure 5-5]. For SVSL and DVSL treatments which were less than 50 feet in length, a single 6.5x3.0 foot plot was established at the mid-point of the treatment.

For each brush trench and preserved vegetation streambank treatment, vegetation was monitored throughout the length of the treatment.

---

<sup>17</sup> The origin and terminus of each streambank treatment was marked by placing a 36x5/8 inch steel reinforcing bar (rebar) stake approximately 24 inches below the soil surface. Each rebar stake was capped and marked with identifying information. Streambank survey stakes were placed approximately 18 inches behind the wetted edge of the river.

<sup>18</sup> The 50-foot survey markers for the vegetated soil lift treatment cover plots were marked with rebar stakes offset 6.5 feet behind the plot origin (boundary between the vegetated soil lift and the backfill), perpendicular to the river bank.



**Figure 5-1. Single vegetated soil lift streambank treatment in Phase 1 of the Clark Fork River Operable Unit.**





**Figure 5-2. Double vegetated soil lift streambank treatment in Phase 1 of the Clark Fork River Operable Unit.**

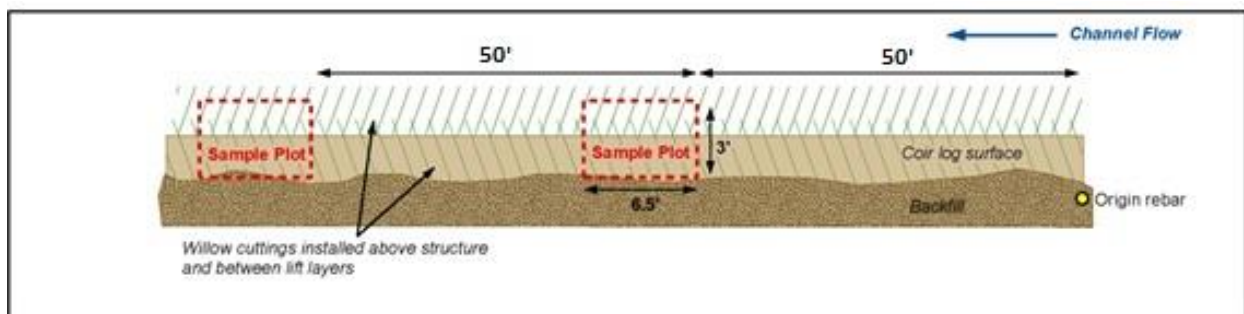


**Figure 5-3. Brush trench streambank treatment in Phase 1 of the Clark Fork River Operable Unit.**





**Figure 5-4. Preserve vegetation streambank treatment in Phase 1 of the Clark Fork River Operable Unit.**



**Figure 5-5. Streambank cover monitoring plot locations for single and double vegetated soil lift streambank treatments in Phase 1 of the Clark Fork River Operable Unit [Source: Sacry et al., 2012].**

### 5.2.1.2 Floodplain Monitoring

Floodplain plant survival monitoring plots were selected using a stratified random sample design intended to include a minimum of 10% of the woody plantings in Phase 1 and characterize the range of vegetation cover types and browse treatments used in Phase 1 [Sacry 2014; Sacry et al., 2012; 2014]. Floodplain cover types comprised one sampling stratum and included “floodplain riparian shrub”, “outer bank riparian shrub”, and “riparian wetland” cover types. Browse treatment type comprise a potential second sampling stratum which was separated into either individual browse protectors or fenced exclosures. The characteristics of each planting unit were identified by referring to the as-built design overviews.

Planting units in which a survival monitoring plot was to be placed were specifically identified prior to completing field work to set up plots. In addition to the sampling strata described above, planting units from across the entire site were selected for monitoring and are well distributed across Phase I. In order to achieve the desired number of plants to be monitored for survival, a majority of the plots are located within planting units that had a high number of plants within them. Extremely small planting units with less than 15 plants were generally not selected. Once a planting unit was selected for monitoring, a rectangular monitoring plot was placed around a portion of that planting unit. All woody plants within each monitoring plot were surveyed to determine survival. The size and location of each monitoring plot within each selected planting unit was selected conveniently in order to include the minimum required number of woody plants to meet the objectives of the monitoring program (i.e., monitor 10% of all woody plants and monitor the range of floodplain vegetation cover types and browse treatments)<sup>19</sup>.

### 5.2.2 Monitoring Schedule

---

The annual frequency of vegetation monitoring for Phase 1 of the CFROU varies by monitoring metric but all vegetation monitoring should occur during the growing season [Sacry et al., 2012]. The 2014 monitoring season was the first year of monitoring for Phase 1. Prior to data collection activities, a site visit occurred on May 28, 2014 to review conditions, monitoring protocols, and consider adaptations to the protocols based on recent conditions. The site visit included project managers from the Montana Department of Environmental Quality (MDEQ), members of the design team, and monitoring field staff. All vegetation field sampling occurred during the 2014 growing season in August 2014. Monitoring plots were installed from August 12-15, 2014, and plots were monitored from August 25-29, 2014. Field activities were conducted by a monitoring team of 4-5 people.

---

<sup>19</sup> Floodplain plant survival monitoring plot corners were marked with 36x5/8 inch steel reinforcing bar (rebar) stakes driven approximately 24 inches into the soil. Each rebar stake was capped and marked with identifying information. Prior to monitoring each floodplain plant survival monitoring plot, survey string was placed around the outside of the plot stakes to delineate plot boundaries.

### 5.2.3 Monitoring Parameters

#### 5.2.3.1 Performance Targets

Data described in this report is intended to evaluate progress toward attainment of vegetation performance targets following remediation of Phase 1 in Reach A of the CFROU. In addition, results of this monitoring will inform adaptive management decisions for ongoing remediation and restoration actions in other Phases of the CFROU. This report describes conditions in Phase 1 during the summer of 2014, one year after remedial activities were completed, and evaluates progress toward attainment of the performance targets [Table 5-1]. The monitoring metrics used to evaluate the performance targets reflect desired project goals and were recommended by Sacry et al. [2012] for streambank and floodplain vegetation. Performance targets for noxious weeds and wetlands were specified in the CFROU ROD [USEPA, 2004].

**Table 5-1. Performance targets for vegetation monitoring metrics in Phase 1 of the Clark Fork River Operable Unit following remediation [Source: Sacry et al., 2012].**

Objective	Monitoring Metric	Year (post-remediation)				
		1	3	5	10	15
Streambanks	Woody plant canopy cover (%)			40	50	80
Floodplain	Woody plant survival (%)	80 <sup>20</sup>				
Floodplain	Woody plant canopy cover (%)			30	50	
Floodplain	Total native cover (%)	20 <sup>21</sup>		80	80	80
Noxious weeds <sup>22</sup>	Noxious weed cover (%)	<5 <sup>23</sup>	<5	<5	<5	<5
Wetlands	Wetland area (acres)				0.47	
Wetlands	Functional effective wetland area (FEWA) score				2.3	

#### 5.2.3.2 Other Factors

Natural recruitment of native vegetation will likely be an important component of the revegetation of Phase 1 [Sacry et al., 2012]. However, there is no performance target for natural recruitment of native vegetation in Phase 1 because multiple stochastic factors (e.g., proximity to seed sources, weather patterns, river hydrology), rather than management actions, are likely to influence natural recruitment [Sacry et al., 2012].

<sup>20</sup> In 2014, Year 1 woody plant survival was monitored in those floodplain planting units that had been completed as of the time of monitoring in August. Additional plantings will occur in floodplain planting units in the fall of 2014 and survival in those planting units will be monitored during the growing season in 2015.

<sup>21</sup> Will be monitored during the growing season of 2015.

<sup>22</sup> Noxious weeds include those listed by the state of Montana [MDA, 2015].

<sup>23</sup> Will be monitored during the growing season of 2015.



The intensity of vegetation browse by herbivorous animals is not a performance target but will likely influence attainment of all other vegetation performance targets [Sacry et al., 2012]. Browse intensity will therefore be monitored as a factor that may help explain why certain performance targets were, or were not, met.

## **5.2.4 Sample Collection and Analysis**

---

### **5.2.4.1 Streambank Monitoring**

Within each SVSL and DVSL streambank treatment, an overall assessment was made to describe the conditions of the streambank and treatment, identify potential maintenance needs, and identify any additional notable characteristics of that portion of the streambank or treatment. Surveyors took upstream and downstream photographs (one landscape and one portrait view) at the origin, terminus, and every 50 feet within each treatment<sup>24</sup>. Within each streambank cover monitoring plot of the SVSL and DVSL treatments, surveyors estimated woody plant canopy cover, measured the height of woody vegetation (minimum and maximum), identified the presence of all herbaceous and woody plant species, took photographs of the plot (one landscape view and one portrait view), and made note of any special characteristics of the plot. To estimate percent leaf cover a surveyor stood over the monitoring plot and visually estimated the proportion of the 19.5 square foot plot that was shaded by leaves from woody vegetation. Percent leaf cover was estimated to the nearest 10%. If the surveyor estimated the percent leaf cover was less than 10%, the surveyor estimated leaf cover to the nearest 1%. In estimating leaf cover, the surveyor disregarded cover from woody plant stems. All percent leaf cover estimates were made by the same surveyor to eliminate variation due to surveyor bias.

For each brush trench and preserve vegetation treatment, an overall assessment was made to describe overall treatment stability, the extent to which the treatment captured wood in the channel, shrub vigor, and any additional surveyor observations of the treatment. Shrub vigor was generally rated as low, moderate, or high based on the surveyors observations. Surveyors also took upstream and downstream photographs (one landscape and one portrait view) at the origin and terminus of each treatment.

### **5.2.4.2 Floodplain Monitoring**

For each woody plant rooted within each floodplain plant survival monitoring plot, plant species, plant survival, browse intensity, and origin of the woody plant was determined. Plants which were rooted partially on the plot boundaries were considered within the plot if at least 50% of the plant's roots were assumed to be inside the plot. Each plant was marked after being counted to avoid being counted more than once.

Within each floodplain monitoring plot, all herbaceous and noxious species were identified. Additional notes were made for each monitoring plot such as the likely causes of plant

---

<sup>24</sup> All survey photographs were taken from a specific survey marker location with a tripod at a height of 4 feet.

mortality, potential needs for maintenance, potential water stress, and identification of possible insect infestations or diseases.

### 5.2.5 Data Analysis

---

The woody plant cover and maximum stem height estimates from each streambank cover monitoring plot was tabulated and the average (mean) value was calculated for all plots in Phase 1. To compare plant cover and maximum stem height between single and double vegetated soil lift streambank treatments, cover and maximum stem height were compared between each group with *t*-tests.

Survival in each floodplain plant survival monitoring plot was tabulated and the average value was calculated for all plots in Phase 1. Average woody plant survival among all floodplain monitoring plots was then compared to the Year 1 performance target [Table 5-1]. In addition, *t*-tests were used to compare survival among floodplain cover types.

## 5.3 RESULTS

---

### 5.3.1 Streambank Monitoring

---

In total, average percent cover of woody vegetation was estimated in 147 streambank cover monitoring plots distributed among 47 vegetated soil lift treatments. Streambank treatments are depicted in Figure 5-6 and Figure 5-7. Among all streambank cover monitoring plots, woody vegetation cover was 15.2% (standard deviation [SD] = 12.0%) [Table 5-2]. There was no evidence that average cover differed between single and double vegetated soil lift treatment types (*p*-value from two-tailed *t*-test = 0.8664; *t*-statistic = 0.1692) [Figure 5-8]. Among all streambank cover monitoring plots, average minimum willow height was 2.4 inches (SD = 1.1 inches) and average maximum height was 27.6 inches (SD = 10.3 inches). As with cover, there was also no evidence that the maximum willow height differed between single and double vegetated soil lift treatment types (*p*-value from two-tailed *t*-test = 0.4935; *t*-statistic = 0.6907).

For some of the streambank cover monitoring plots where percent cover was below 10% or where the majority of above ground stems were dead, the base of the willow cuttings were sprouting new stems approximately 1-3 feet behind the bioengineered bank. Figure 5-9 illustrates two extremes in cover; a streambank treatment with low canopy cover and little sprouting behind the bank and another with relatively high canopy cover and substantial sprouting behind the bank.

Streambank cover monitoring plots were not established along brush trench and preserve vegetation treatments. However, all treatments were photographed and general observations regarding treatment stability and the overall vigor of woody vegetation was noted. Of the 54 brush trench and preserve vegetation segments, 92% were rated as “moderate” to “high” for shrub vigor and overall treatment stability. Streambank treatments that were rated “low” for shrub vigor included:

- LB-S-11: a preserve vegetation treatment which was stable but comprised entirely of herbaceous vegetation [Figure 5-7];
- LB-N-22: a preserve vegetation treatment with bank erosion and comprised primarily of herbaceous vegetation including reed canary grass and sedges [Figure 5-7];
- RB-N-08: a brush trench treatment with above ground stems which were primarily dead but plants were re-sprouting from the base suggesting roots are taking hold and woody vigor will likely improve over time [Figure 5-6]; and
- RB-N-36: a brush trench treatment with above ground stems which were primarily dead but plants were re-sprouting from the base suggesting roots are taking hold and woody vigor will likely improve over time [Figure 5-7].

In addition to the brush trench treatments installed on or near the streambanks, additional brush trenches were installed 10 feet behind and oriented parallel to many of the DVSL and SVSL treatments. Photographs and general observations were made at each brush trench. Woody vigor was “moderate” to “high” at the majority of the trenches [Figure 5-10].

With regard to toe material scour and treatment undercutting, all bioengineered streambank treatments were determined to be stable during the August monitoring period, with nine treatments showing evidence of undercutting. Those treatments where undercutting was observed include: LBN-44, LBN-48, LBN-51, RBN-5, RBN-23, RBN-30, RBN-44, and RBN-47 [Figure 5-6; Figure 5-7]. At none of these locations was undercutting determined to be having an adverse effect on treatment integrity.

Three willow species were observed in the streambank cover monitoring plots [Table 5-3]: Booth willow, Drummond willow, and sandbar willow. Sandbar willow was observed in nearly all streambank cover monitoring plots (97.3%) and Booth willow was observed in the majority of the streambank cover monitoring plots (57.0%). Drummond willow was observed in a small proportion of the streambank cover monitoring plots (5.4%). The only other shrub identified was Wood’s rose in one (0.7%) streambank cover monitoring plot. In addition to the shrubs, 19 forbs, grasses, or grass allies (i.e., “grass-like” plants such as sedges, rushes, bulrushes, cattail horsetail, or clubmoss) were observed [Table 5-3]. These species were observed in no more than 10.0% of the streambank cover monitoring plots. Of those species, three had been seeded (common yarrow, oak-leaf goosefoot, and alfalfa), ten naturally colonized (redtop, Common spikerush, willow-herb, field horsetail, field mint, curly dock, dandelion, common mullein, and American speedwell), and six were of unknown origin (mustard, sedge, true grasses in the *Poaceae* family, knotweed, dock, and clover).

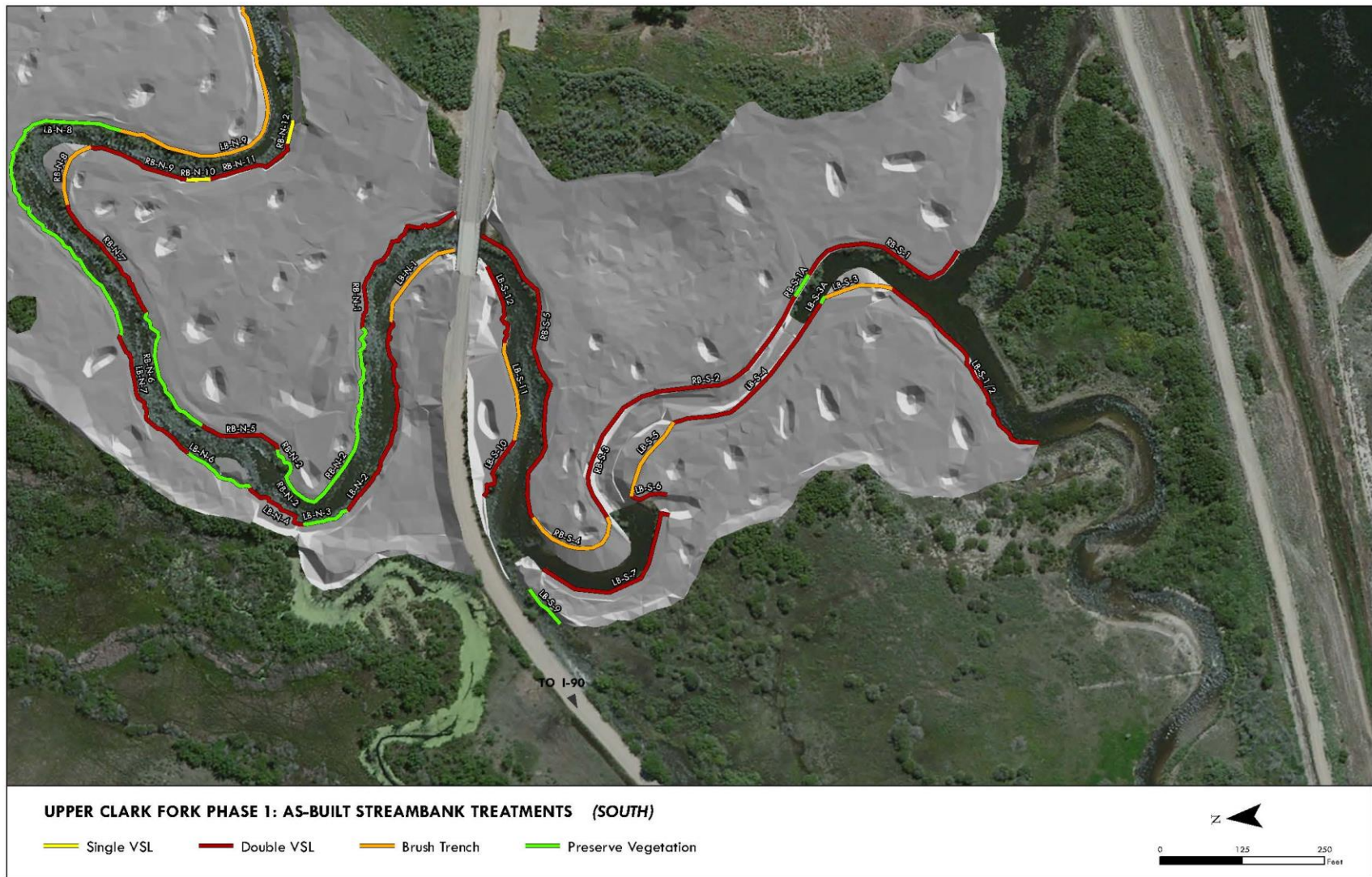


Figure 5-6. As-built streambank treatments at the south end of Phase 1 of the Clark Fork River Operable Unit, 2014 [Source: Sacry et al., 2014].



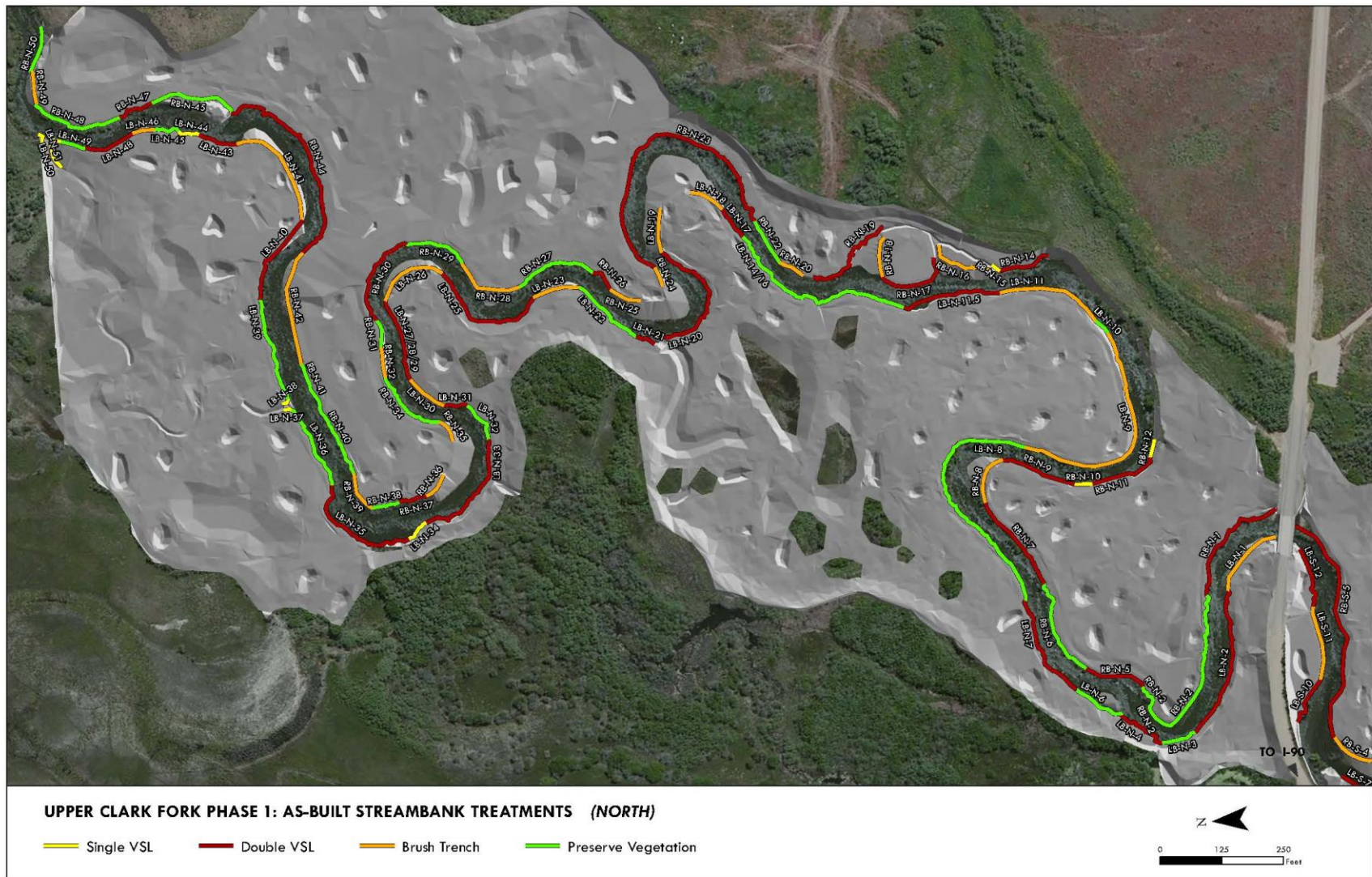
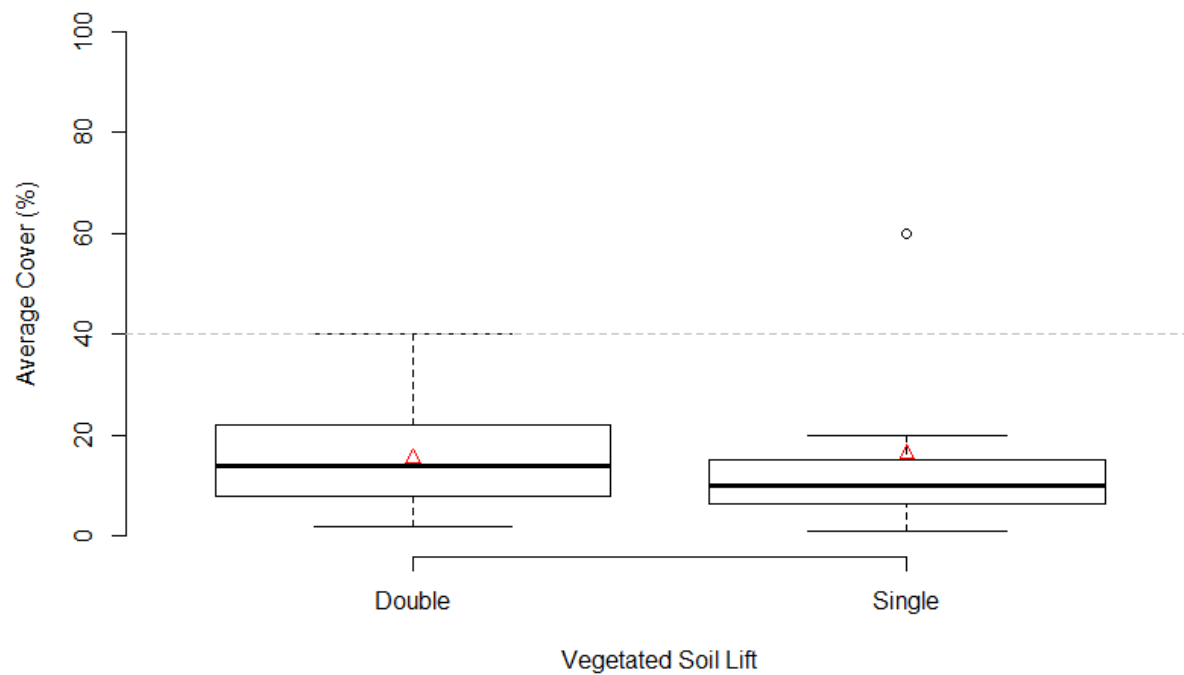


Figure 5-7. As-built streambank treatments at the north end of Phase 1 of the Clark Fork River Operable Unit, 2014 [Source: Sacry et al., 2014].

**Table 5-2. Cover (%) and height (in) of woody vegetation in streambank cover monitoring plots in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014.**

Vegetated Soil Lift Type	Plot ID	Number of plots	Average cover of woody vegetation (%)	Average minimum height (in)	Average maximum height (in)
Double	LB-N-02	6	16	2	28
Double	LB-N-04	1	2	3	24
Double	LB-N-07	1	2	2	7
Double	LB-N-07A	2	3	0	36
Double	LB-N-11.5	3	20	2	28
Double	LB-N-17	1	30	2	31
Double	LB-N-20	5	38	2	37
Double	LB-N-21	1	30	3	24
Double	LB-N-25	5	14	3	35
Double	LB-N-27	3	27	3	36
Double	LB-N-31	1	3	2	22
Double	LB-N-33	5	28	3	40
Single	LB-N-34	1	10	4	32
Double	LB-N-35	5	12	3	32
Single	LB-N-37	1	8	2	37
Single	LB-N-38	1	10	2	9
Double	LB-N-43	1	2	2	13
Single	LB-N-44	1	1	4	16
Double	LB-N-48	2	40	1	45
Single	LB-N-50	1	20	2	32
Single	LB-N-51	0	0	0	0
Double	LB-S-01/02	6	15	2	23
Double	LB-S-04	6	15	1	17
Double	LB-S-06	1	30	1	22
Double	LB-S-07	5	11	1	17
Double	LB-S-10	2	15	2	31
Double	LB-S-12	2	10	1	23
Double	RB-N-01	5	14	3	20
Double	RB-N-05	2	6	3	26
Double	RB-N-07	4	17	3	42
Double	RB-N-09	3	13	3	35
Single	RB-N-10	1	5	5	33
Double	RB-N-11	2	25	2	37
Single	RB-N-12	1	60	4	55
Double	RB-N-14	2	25	3	27
Double	RB-N-17	3	8	1	27
Double	RB-N-19	4	15	2	34
Double	RB-N-23	12	13	3	30
Double	RB-N-26	1	5	2	15
Double	RB-N-30	4	12	5	33
Double	RB-N-37	1	2	2	15
Double	RB-N-44	8	11	3	35
Double	RB-N-47	1	5	3	30
Double	RB-S-01	5	13	2	28
Double	RB-S-02/03	10	22	2	27
Double	RB-S-05	9	18	2	26
<b>Total</b>		<b>147</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Average</b>			<b>15.2</b>	<b>2.3</b>	<b>27.7</b>
<b>Standard Deviation</b>			<b>12.0</b>	<b>1.1</b>	<b>10.3</b>



**Figure 5-8. Cover (%) of woody vegetation in two types of vegetated soil lift treatments in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. Red triangles represent the group means. For reference, dashed line represents Year 5 performance target; however, monitoring in 2014 represents Year 1 conditions.**





**Figure 5-9. Example double vegetated soil lift streambank treatments with relatively low (2%; upper panel) and relatively high (40%; lower panel) woody canopy cover in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014.**





**Figure 5-10. Example brush trench streambank treatment in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014.**

**Table 5-3. Occurrence of plant species in streambank cover monitoring plots ( $n = 147$ ) in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. Noxious species classifications from MDA [2015].**

Common name	Taxonomic name	Species code	Origin	Status	Occurrence	
					Present	Proportion (%)
Forbs						
Common yarrow	<i>Achillea millefolium</i>	ACHMIL	Seeded	Native	1	0.7
Redtop	<i>Agropyron stolonifera</i>	AGRSTO	Colonized	Nonnative	6	4.1
Mustard	<i>Brassicaceae</i> family	BRAfam	Unknown	Nonnative	1	0.7
Oak-leaf goosefoot	<i>Chenopodium glaucum</i>	CHEGLA	Seeded	Native	6	4.1
Willow-herb	<i>Epilobium ciliatum</i>	EPICIL	Colonized	Native	6	4.1
Field horsetail	<i>Equisetum arvense</i>	EQUARV	Colonized	Native	15	10.2
Licorice root	<i>Glycyrrhiza lepidota</i>	GLYLEP	Colonized	Native	2	1.4
Alfalfa	<i>Medicago sativa</i>	MEDSAT	Seeded	Nonnative	7	4.8
Field mint	<i>Mentha arvensis</i>	MENARV	Colonized	Native	1	0.7
Knotweed complex	<i>Polygonum</i> species	POLspp	Colonized	Various; some species are noxious	4	2.7
Curly dock	<i>Rumex crispus</i>	RUMCRI	Colonized	Nonnative	3	2.0
Dock	<i>Rumex</i> species	RUMspp	Unknown	Unknown	1	0.7
Dandelion	<i>Taraxacum officinale</i>	TAROFF	Colonized	Nonnative	8	5.4
Clover	<i>Trifolium</i> species	TRI spp	Unknown	Unknown	3	2.0
Common mullein	<i>Verbascum thapsus</i>	VERTHA	Colonized	Nonnative	2	1.4
American speedwell	<i>Veronica americana</i>	VERAME	Colonized	Native	12	8.2
Grasses						
True grasses	<i>Poa</i> species	POA spp	Unknown	Unknown	11	7.4
Grass allies						
Sedge	<i>Carex</i> species	CAR spp	Unknown	Native	1	0.7
Common spikerush	<i>Eleocharis palustris</i>	ELEPAL	Colonized	Native	11	7.4
Shrubs						
Wood's rose	<i>Rosa woodsii</i>	ROSWOO	Colonized	Native	1	0.7
Booth willow	<i>Salix boothii</i>	SALBOO	Planted	Native	84	57.0
Drummond willow	<i>Salix drummondiana</i>	SALDRU	Unknown	Native	8	5.4
Streamside willow	<i>Salix exigua</i>	SALEXI	Planted	Native	143	97.3

### 5.3.2 Floodplain Monitoring

In 2014, 32 floodplain plant survival monitoring plots were established and monitored within floodplain planting units [Figure 5-11; Figure 5-12]. In total 1,264 out of 10,245 (12.3%) containerized plants were monitored [Table 5-4]. Among all plants sampled in the floodplain plant survival monitoring plots, survival was 87.7% [Table 5-4] which exceeded the Year 1 performance target (80%) for floodplain plant survival in Phase 1 [Table 5-1]. Survival of all plant species was significantly different among cover types (p-value from two-sided chi-squared

test <0.0001; chi-squared statistic = 88.985). When all plant species were pooled, survival was 72.1% in the floodplain riparian shrub cover type, 89.3% in the riparian wetland cover type, and 94.4% in the outer bank riparian shrub cover type [Table 5-5]. Several floodplain plant survival monitoring plots were noted to be inundated by floodwater at the time of monitoring during the late summer [Figure 5-13]. In the floodplain riparian shrub cover type, where survival of plants overall was at least 17.2% lower than in the other cover types, survival also differed significantly by species ( $p$ -value from two-sided chi-squared test <0.0001; chi-squared statistic = 70.358)<sup>25</sup>. Survival of birch was quite low (27.3%) in the floodplain riparian shrub cover type compared to all other species (red-oiser dogwood, Booth's willow, and sandbar willow) which each had  $\geq 80.0\%$  survival.

In the riparian wetland cover type survival also differed significantly by species ( $p$ -value from two-sided chi-squared test <0.0001; chi-squared statistic = 115.186). As in the floodplain riparian shrub cover type, birch survival was low (26.9%) compared to all other species (red-oiser dogwood, Booth's willow, and sandbar willow) which each had  $\geq 83.3\%$  survival.

In contrast, there was no evidence that survival differed by species in the outer bank riparian shrub cover type ( $p$ -value from two-sided chi-squared test 0.0812; chi-squared statistic = 11.243)<sup>26</sup>. In the outer bank riparian shrub cover type, survival of all plant species (speckled alder, birch, red-oiser dogwood, black cottonwood, quaking aspen, Booth's willow, and sandbar willow) was  $\geq 83.3\%$ .

Among the 32 floodplain survival monitoring plots, 37 forb species, 11 grass species, 5 grass allie species, and 9 shrub and plant species were observed [Table 5-6]. The ten most common forb species observed in these plots were common yarrow (75.0%), kochia (65.6%), oak-leaf goosefoot (59.4%), Rocky Mountain bee plant (43.8%), alfalfa (43.8%), foxtail barley (43.8%), field sowthistle (34.4%), tall tumbleweed mustard (31.3%), and small tumbleweed mustard (31.3%). Of those ten most common forb species, only four were known to be seeded: common yarrow, cudweed, oak-leaf goosefoot, and alfalfa. Of the grass species, tall wheatgrass (75%) and Canada bluegrass (75%) were the most common. Of the 11 grass species observed, at least eight were seeded. Of the six grass allie species, at least four were known to be seeded or planted and cattails were the most common (37.5%), although the origin of those cattails is unknown. All observed shrub and tree species were planted.

---

<sup>25</sup> Speckled alder not included in this comparison due to inadequate sample size ( $n = 1$ ).

<sup>26</sup> Four dead plants could not be identified to species and were not included in this comparison.







**Figure 5-12. Floodplain plant survival monitoring plots in the southern half of Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014.**

**Table 5-4. Survival of planted shrubs and trees by planting unit in Phase 1, Reach A of the Clark Fork Operable Unit, 2014.**

Floodplain cover type	Planting unit (Plot ID)	Number of plantings in planting unit	Number of sampled plants in planting unit		Planting unit survival (%)
			Alive	Total	
Floodplain Riparian Shrub	MC-02	1,400	45	58	78
	S-033	30	18	27	67
	S-036	30	24	28	86
	S-083	15	11	15	73
	S-088	50	16	31	52
	S-092	15	10	15	67
	S-099	30	20	29	69
	S-103	30	22	25	88
	S-108	10	10	10	100
	S-116	60	16	37	43
	S-118	40	23	23	100
Outer Bank Riparian Shrub	OM-06	400	51	51	100
	OM-10	370	38	41	93
	OM-12	367	38	39	97
	OM-13	1,047	57	58	98
	OM-16	343	43	43	100
	OM-18	395	35	35	100
	OM-19	457	39	42	93
	OM-20	297	45	51	88
	OM-21	755	49	50	98
	OM-22	235	43	43	100
	OM-23	137	22	25	88
	OM-24	173	49	57	86
Riparian Wetland	SCS-04A	752	56	58	97
	SCS-04B	470	40	40	100
	SW-02	200	36	58	62
	SW-04	430	40	40	100
	SW-07	420	37	50	74
	SW-08	110	41	45	91
	SW-09	580	51	52	98
	SW-10	140	45	46	98
	SW-11	457	39	42	93
<b>Total</b>		<b>10,245</b>	<b>1,109</b>	<b>1,264</b>	<b>87.7</b>

**Table 5-5. Survival of planted shrubs and trees by cover type and species in Phase 1, Reach A of the Clark Fork Operable Unit, 2014.**

Common name	Taxonomic name	Species code	Survival by cover type (live plants/total monitored)				Total (%)
			Floodplain riparian shrub	Outer bank riparian shrub	Riparian wetland	Total	
Speckled alder	<i>Alnus incana</i>	ALNINC	0/1	15/18	0/0	15/19	<b>78.9</b>
Birch	<i>Betula occidentalis</i>	BETOCC	15/55	12/12	7/26	34/93	<b>36.6</b>
Red-osier dogwood	<i>Cornus sericea</i>	CORSER	8/10	8/8	15/18	31/36	<b>86.1</b>
Black cottonwood	<i>Populus balsamifera</i>	POPBAL	0/0	13/13	0/0	13/13	<b>100</b>
Quaking aspen	<i>Populus tremuloides</i>	POPTRE	0/0	17/17	0/0	17/17	<b>100</b>
Booth's willow	<i>Salix boothii</i>	SALBOO	50/56	80/81	26/27	156/164	<b>95.1</b>
Sandbar willow	<i>Salix exigua</i>	SALEXI	142/176	364/382	337/360	843/918	<b>91.8</b>
Unknown		UNK	0/0	0/4	0/0	0/4	<b>0</b>
Total			215/298	509/539	385/431	1,109/1,264	
Total (%)			<b>72.1</b>	<b>95.1</b>	<b>89.3</b>	<b>87.7</b>	





**Figure 5-13. Inundated floodplain plant survival monitoring plot (S-116) in floodplain riparian shrub planting unit in Phase 1 of Reach A of the Clark Fork River Operable Unit, August 2014.**

**Table 5-6. Occurrence of plant species in floodplain survival monitoring plots in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014. Noxious species classifications from MDA [2015].**

Common name	Taxonomic name	Species code	Origin	Status	Occurrence by cover type				Total (%)
					Floodplain riparian shrub (n = 11)	Outer bank riparian shrub (n = 12)	Riparian wetland (n = 9)	Total (n = 32)	
Forbs									
Common yarrow	<i>Achillea millifolium</i>	ACHMIL	Seeded	Native	10	8	6	24	75.0
Redtop	<i>Agropyron stolonifera</i>	AGRSTO	Colonized	Nonnative	1	2	3	6	18.8
Pigweed	<i>Amaranthus</i> species	AMAspp	Colonized	Nonnative	0	1	0	1	3.1
Cudweed	<i>Artemisia ludoviciana</i>	ARTLUD	Seeded	Native	8	4	2	14	43.8
Tumbling saltweed	<i>Atriplex rosea</i>	ATRROS	Colonized	Nonnative	0	1	0	1	3.1
Mustard	<i>Brassicaceae</i> family	BRAfam	Unknown	Nonnative	0	1	0	1	3.1
Whitetop	<i>Cardaria draba</i>	CARDRA	Colonized	Noxious	0	0	2	2	6.3
Spotted knapweed	<i>Centaurea maculosa</i>	CENMAC	Colonized	Noxious	1	0	1	2	6.3
Goosefoot (blite)	<i>Chenopodium (capitatum)</i>	CHE(CAP)	Colonized	Native	0	0	1	1	3.1
Pitseed goosefoot	<i>Chenopodium berlandieri</i>	CHEBER	Colonized	Native	2	4	2	8	25.0
Oak-leaf goosefoot	<i>Chenopodium glaucum</i>	CHEGLA	Seeded	Native	8	5	6	19	59.4
Canada thistle	<i>Cirsium arvense</i>	CIRARV	Colonized	Noxious	0	1	1	2	6.3
Rocky Mountain bee plant	<i>Cleome serrulata</i>	CLESER	Seeded	Native	2	5	7	14	43.8
Willow-herb	<i>Epilobium ciliatum</i>	EPICIL	Colonized	Native	6	1	0	7	21.9
Leafy spurge	<i>Euphorbia esula</i>	EUPESU	Colonized	Noxious	2	0	1	3	9.4
Common sunflower	<i>Helianthus annuus</i>	HELANN	Seeded	Native	0	1	1	2	6.3
Foxtail barley	<i>Hordeum jubatum</i>	HORJUB	Unknown	Native	3	5	6	14	43.8
Kochia	<i>Kochia scoparia</i>	KOCSCO	Colonized	Nonnative	6	9	6	21	65.6
Black medick	<i>Medicago lupulina</i>	MEDLUP	Colonized	Nonnative	0	1	0	1	3.1
Alfalfa	<i>Medicago sativa</i>	MEDSAT	Seeded	Nonnative	7	5	2	14	43.8
Yellow monkeyflower	<i>Mimulus guttatus</i>	MIMGUT	Seeded	Native	0	1	0	1	3.1
Prostrate knotweed	<i>Polygonum aviculare</i>	POLAVI	Colonized	Nonnative	1	4	2	7	21.9
Spotted ladysthumb	<i>Polygonum persicaria</i>	POLPER	Colonized	Nonnative	0	1	1	2	6.3

Knotweed complex	<i>Polygonum species</i>	POLspp	Colonized	Various	0	0	1	1	3.1
Curly dock	<i>Rumex crispus</i>	RUMCRI	Colonized	Nonnative	0	2	0	2	6.3
Golden dock	<i>Rumex fueginus</i>	RUMMAR	Colonized	Native	1	1	0	2	6.3
Willow dock	<i>Rumex salicifolius</i>	RUMSAL	Colonized	Native	0	0	1	1	3.1
Tall tumbleweed mustard	<i>Sisymbrium altissimum</i>	SISALT	Colonized	Nonnative	7	1	2	10	31.3
Small timbleweed mustard	<i>Sisymbrium loesii</i>	SISLOE	Colonized	Nonnative	6	1	3	10	31.3
Hoe nightshade	<i>Solanum sarachoides</i>	SOLSAC	Colonized	Nonnative	1	0	0	1	3.1
Cutleaf nightshade	<i>Solanum triflorum</i>	SOLTRI	Colonized	Native	1	0	1	2	6.3
Field sowthistle	<i>Sonchus arvensis</i>	SONARV	Colonized	Nonnative	6	2	3	11	34.4
Spiny sowthistle	<i>Sonchus asper</i>	SONASP	Colonized	Nonnative	1	0	0	1	3.1
Pursch seepweed	<i>Suaeda calceoliformis</i>	SUACAL	Colonized	Native	1	0	2	3	9.4
Field pennycress	<i>Thlaspi arvensis</i>	THLARV	Colonized	Nonnative	2	0	0	2	6.3
Common mullein	<i>Verbascum thapsus</i>	VERTHA	Colonized	Nonnative	1	0	0	1	3.1
American speedwell	<i>Veronica americana</i>	VERAME	Colonized	Native	0	2	0	2	6.3
<b>Grasses</b>									
Tall wheatgrass	<i>Agropyron intermedia</i>	AGRINT	Seeded	Native	7	10	7	24	75.0
Quackgrass	<i>Agropyron repens</i>	AGRREP	Colonized	Nonnative	6	6	2	14	43.8
Slender wheatgrass	<i>Agropyron trachycaulum</i>	AGRTRA	Seeded	Native	2	3	3	8	25.0
Bentgrass (rough)	<i>Agrostis (scabra)</i>	AGR(SCA)	Unknown	Native	0	1	0	1	3.1
American sloughgrass	<i>Beckmannia syzigachne</i>	BECSYZ	Seeded	Native	0	1	4	5	15.6
Tufted hairgrass	<i>Deschampsia species</i>	DESspp	Seeded	Native	0	1	3	4	12.5
Canada wildrye	<i>Elymus canadensis</i>	ELYSAN	Seeded	Native	0	3	2	5	15.6
American mannagrass	<i>Glyceria grandis</i>	GLYGRA	Seeded	Native	0	2	0	2	6.3
Scratchgrass	<i>Muhlenbergia asperifolia</i>	MUHASP	Colonized	Native	0	1	0	1	3.1
Canada bluegrass	<i>Poa compressa</i>	POACOM	Seeded	Nonnative	6	11	7	24	75.0
Nuttall alkaligrass	<i>Puccinellia nuttalliana</i>	PUCNUT	Seeded	Native	0	0	1	1	3.1
<b>Grass allies</b>									
Nebraska sedge	<i>Carex nebrascensis</i>	CARNEB	Planted	Native	0	2	3	5	15.6
Woolly sedge	<i>Carex pellita</i>	CARPEL	Planted	Native	0	1	4	5	15.6
Sedge	<i>Carex species</i>	CARspp	Unknown	Native	0	1	1	2	6.3
Baltic rush	<i>Juncus balticus</i>	JUNBAL	Seeded	Native	0	3	1	4	12.5
Cattail	<i>Typha latifolia</i>	TYPLAT	Unknown	Native	0	6	6	12	37.5

Shrubs and trees									
Speckled alder	<i>Alnus incana</i>	ALNINC	Planted	Native	1	8	0	9	28.1
Birch	<i>Betula occidentalis</i>	BETOCC	Planted	Native	11	7	4	22	68.8
Red-oiser dogwood	<i>Cornus sericea</i>	CORSER	Planted	Native	6	5	7	18	56.3
Shrubby cinquefoil	<i>Dasiphora floribunda</i>	DASFLO	Planted	Unknown	6	3	2	11	34.4
Black cottonwood	<i>Populus balsamifera</i>	POPBAL	Planted	Native	0	7	0	7	21.9
Quaking aspen	<i>Populus tremuloides</i>	POPTRE	Planted	Native	0	9	0	9	28.1
Booth's willow	<i>Salix boothii</i>	SALBOO	Planted	Native	9	11	6	26	81.3
Sandbar willow	<i>Salix exigua</i>	SALEXI	Planted	Native	11	12	9	32	100.0
Yellow willow	<i>Salix lutea</i>	SALLUT	Planted	Unknown	0	9	7	16	50.0

### 5.3.3 Noxious Weeds

---

Quantitative data necessary to evaluate progress toward attainment of the noxious weed cover performance target [Table 5-1] were not collected in 2014 but will be collected in 2015. Although there was no standardized monitoring of noxious weed cover in 2015, during the course of monitoring streambank cover and floodplain survival noxious species were observed. No species observed in the streambank cover monitoring plots were listed by the state of Montana as a noxious weed [Table 5-3]. In the floodplain survival monitoring plots, four noxious species were observed: spotted knapweed, Canada thistle, leafy spurge, and whitetop [Table 5-6]. Spotted knapweed, Canada thistle, and whitetop were observed in 6.3% (2 of 32) of the floodplain survival monitoring plots and leafy spurge was observed in 9.4% (3 of 32) of the plots.

### 5.3.4 Browse Intensity

---

Browse intensity is not a monitoring metric with a performance target but is a covariate which may explain why specific monitoring metrics (e.g., percent cover of streambank woody vegetation) may achieve or fail to achieve a specific performance target. Browse on the planted containerized plants was rare and mild in the floodplain survival monitoring plots. Of the 1,264 plants monitored, 84% had no discernable browse and only 0.9% were browsed to a degree that was considered more than “mild” [Table 5-7]. Among all plants, survival was actually lower for plants with no browse (86.7%) compared to plants with at least some degree of browse (i.e., “mild” browse or greater; 93.1%) suggesting that where browse occurred it was mild and fencing was highly successful at limiting the frequency and severity of animal browse on the floodplain plantings. Frequency of having any degree of browse (i.e., “mild” or greater) differed among species (p-value from two-sided chi-squared test <0.0001; chi-squared statistic = 471.96). Only 3.4% of the sandbar willow and 5.3% of the speckled alder had any degree of browse whereas at least 58.8% of the red-osier dogwood, black cottonwood, quaking aspen, and Booth’s willow had any degree of browse [Table 5-8]. Birch, which had low survival overall (36.6%), had a moderate degree of browse (36.6%).

**Table 5-7. Browse intensity and plant survival in floodplain survival monitoring plots in Phase 1 of Reach A of the Clark Fork River Operable Unit, 2014.**

Browse intensity <sup>27</sup>	Survival		Total
	Alive	Dead	
None	919	141	1,060
Mild	182	10	192
Low	7	0	7
Moderate	1	0	1
Heavy	0	4	4
<b>Total</b>	<b>1,109</b>	<b>155</b>	<b>1,264</b>

**Table 5-8. Browse intensity by species in floodplain plant survival monitoring plots in Phase 1 of Reach A in the Clark Fork River Operable Unit, 2014.**

Common name	Taxonomic name	Species code	Browse intensity <sup>28</sup>					Total
			None	Mild	Low	Moderate	Heavy	
Speckled alder	<i>Alnus incana</i>	ALNINC	18	1	0	0	0	19
Birch	<i>Betula occidentalis</i>	BETOCC	59	34	0	0	0	93
Red-oiser dogwood	<i>Cornus sericea</i>	CORSER	14	21	1	0	0	36
Black cottonwood	<i>Populus balsamifera</i>	POPBAL	4	9	0	0	0	13
Quaking aspen	<i>Populus tremuloides</i>	POPTRE	7	10	0	0	0	17
Booth's willow	<i>Salix boothii</i>	SALBOO	60	98	5	1	0	164
Sandbar willow	<i>Salix exigua</i>	SALEXI	886	31	1	0	0	918
Unknown		UNK	0	0	0	0	4	4
<b>Total</b>			<b>1,048</b>	<b>204</b>	<b>7</b>	<b>1</b>	<b>4</b>	<b>1,264</b>

<sup>27</sup> Browse intensity category definitions: mild = <50% of current year growth is browsed, low = >50% of current year growth is browsed, moderate = prior year growth was browsed, and heavy = extensive browse resulting in stunted plant growth.

<sup>28</sup> Browse intensity category definitions: mild = <50% of current year growth is browsed, low = >50% of current year growth is browsed, moderate = prior year growth was browsed, and heavy = extensive browse resulting in stunted plant growth.

## 5.4 DISCUSSION

---

Monitoring in Phase 1 of the CFROU in 2014 was primarily focused on two metrics: streambank woody canopy cover and floodplain woody plant survival. The only monitoring metric which was evaluated against a performance target in 2014 was floodplain plant survival. Other monitoring metrics with Year 1 performance targets (floodplain total native cover and noxious weed cover) will be monitored in 2015. Some floodplain plant survival monitoring plots will be monitored for plant survival in 2015 in planting units that had not yet been planted at the time of monitoring in 2014.

Based on the floodplain plant survival monitoring plots sampled in 2014, the performance target for woody vegetation survival was achieved. However, survival was significantly lower in floodplain riparian shrub cover types compared to other cover types in the floodplain and in the floodplain riparian shrub cover type, mean survival (72.1%) was lower than the performance target (80%). The floodplain riparian shrub cover type is primarily composed of floodplain swales. These swales were excavated relatively deep to intercept ground water which resulted in prolonged inundation, particularly where springs or wetlands were present adjacent to the constructed floodplain. Therefore, it appears that prolonged inundation in these swales may have been a primary cause of reduced plant survival in the floodplain riparian shrub cover type. In addition to lower survival of all plants in the floodplain riparian shrub cover type, birch survival was significantly lower than other plants overall (36.6%) and particularly so in the floodplain riparian shrub and riparian wetland cover types. Based on field observations, both insects and disease appeared to be proximate causes of mortality in floodplain plants. Browse apparently was not a factor which reduced survival of plants in the floodplain. Browse was rare and predominantly mild and there was apparently no negative association between browse and survival in 2014. However, because there were relatively few plants with more severe degrees of browse, the ability to associate survival with browse intensity was limited in 2014. Upon recent field surveys it appears that small mammal browse may become a factor in reducing vegetation cover and possibly survival in the floodplain.

There was no performance target for streambank plant canopy cover in Year 1 monitoring but by monitoring that metric in Year 1 and Year 5, the managers will be able to evaluate temporal trends. In Year 1, streambank cover was 15.2% and there was no difference in cover between single and double vegetated soil lifts. Willow sprouting behind a majority of the streambank treatments indicated strong root establishment even where measured canopy cover was low. It is anticipated that willow cuttings will continue to sucker into the streambank and floodplain, and canopy cover will increase over time.

Shrub vigor and overall treatment stability were rated as at least “moderate” in the majority (92%) of the preserve vegetation and brush trench streambank treatments. All streambank treatments were determined to be “stable” but nine demonstrated evidence of river undercutting. However, this undercutting did not appear to undermine treatment integrity at those sites and undercutting that does not jeopardize bank stability is often considered a desirable outcome for instream fish habitat.

The performance metric for noxious weeds is for less than 5% cover in all monitoring years. Although no quantitative data was collected in 2014 to assess noxious weed cover, noxious weed occurrence was monitored in the streambank cover monitoring plots and in the floodplain plant



survival monitoring plots. No known noxious weeds were observed in the streambank cover monitoring plots. In the floodplain survival monitoring plots, four noxious species were observed: whitetop, spotted knapweed, Canada thistle, and leafy spurge. All of these were identified in <10% of the floodplain survival monitoring plots. Noxious weed cover will be monitored in the Phase 1 project area in 2015.

The total wetland area and functional effective wetland area performance goals will be evaluated five years after remediation was completed [USEPA, 2004]. Therefore, no monitoring of wetlands was conducted in 2014 and wetland monitoring will be conducted in Phase 1 in 2018.

Browse intensity was mild in 2014 and did not impede floodplain plant survival. Because browse was mild we did not evaluate if browse treatments (i.e., individual or collective) were related to browse intensity. However, these analyses may be conducted in the future if it appears that browse intensity is related to particular metrics or if there appear to be differences in the efficacy of particular browse treatments.

Finally, streamflows during the spring snowmelt period in 2014 slightly exceeded the bankfull design level (see Section 4.0) in Phase 1 and resulted in extensive inundation of the floodplain both spatially (see Section 4.0) and temporally. The lowered floodplain elevation in combination with these modest flood levels provided excellent conditions for plant survival in Phase 1 in 2014. Some floodplain plant survival monitoring plots remained wet in late August when monitoring occurred and soil moisture levels appeared to be high for that time of year (although soil moisture was not quantified). Floodwater redistributed wood that had been placed on the floodplain and brush trenches and streambank willow cuttings appeared to be effective at capturing and retaining that wood.

## 6.0 PERIPHYTON

---

### 6.1 INTRODUCTION

---

This chapter describes results of periphyton (benthic algae) monitoring within the CFROU in 2014. A total of twelve sites were sampled, including six sites on the Clark Fork River and Silver Bow Creek and six sites on tributary streams. Periphyton monitoring is one element of the Montana Department of Environmental Quality program for evaluating the influence of remediation on the ecology of the Clark Fork River.

Periphyton samples were analyzed for non-diatom (soft-bodied) algae, and diatom algae taxonomy and community structure. A suite of analytical metrics was applied to the diatom data to assess the degree of impairment from metals, nutrients, and sedimentation. These metrics included a stressor-specific tool developed for the Middle Rockies Ecoregion [Teply, 2010a; 2010b] and adopted by MDEQ as a periphyton standard operating procedure for determining the probability of sediment impairment [MDEQ, 2011]. In addition, a variety of diatom metrics developed for Montana mountain streams were used [Bahls et al., 1992; Bahls, 1993; Teply and Bahls, 2005] which are based on autecological preferences or requirements of freshwater diatoms [Lowe, 1974; Van Dam et al., 1994; Bahls, 2006].

Potential water quality or habitat stressors at each site, indicated by the taxonomic and functional composition of the algal flora, are described in a series of site-specific narratives.

### 6.2 METHODS

---

#### 6.2.1 Sampling

---

In September 2014, the periphyton community was sampled at five sites on the Clark Fork River, and seven sites on tributary streams [Table 6-1]. Tributary sites were located in Mill and Willow Creeks (two sites), Warm Springs Creek, Lost Creek, Racetrack Creek, and the Little Blackfoot River. The twelve sites sampled in 2014 were the same as those sampled in 2013, with the exception of the Little Blackfoot River. The Little Blackfoot River site was moved from near the mouth (sampled in 2013 and prior years) upstream to the Beck Hill Road bridge crossing. Project staff collected periphyton samples on September 16-17, 2014. One composite periphyton sample was collected from multiple substrates and habitat types at each of the twelve monitoring sites. Periphyton samples were collected following the periphyton sampling standard operating procedure for flowing streams where a defined reach has not been established [MDEQ, 2011]. Periphyton samples were preserved in the field with Lugols IKI solution and were transported to the laboratory on ice.

**Table 6-1. Periphyton sampling locations in the Clark Fork River Operable Unit, 2014.**

Site ID	Site Location	Co-located USGS Streamflow Gauge	Location (GPS coordinates, NAD 83)	
			Latitude	Longitude
Mainstem Sites				
CFR-03A	Clark Fork River near Galen	12323800	46.20877	-112.76740
CFR-07D	Clark Fork River at Galen Road	none	46.23725	-112.75302
CFR-11F	Clark Fork River at Gemback Road	none	46.26520	-112.74430
CFR-27H	Clark Fork River at Deer Lodge	12324200	46.39796	-112.74283
CFR-116A	Clark Fork River at Turah	12334550	46.82646	-113.81424
Tributary Sites				
SS-25	Silver Bow Creek at Warms Springs	12323750	46.18123	-112.77917
MCWC-MWB	Mill-Willow Creek at Frontage Road	none	46.12649	-112.79876
MWB-SBC	Mill-Willow Bypass near mouth	none	46.17839	-112.78270
WSC-SBC	Warms Springs Creek near mouth	12323770	46.18041	-112.78592
LC-7.5	Lost Creek near mouth	12323850	46.21862	-112.77384
RTC-1.5	Racetrack Creek near mouth	none	46.28395	-112.74921
LBR-CFR	Little Blackfoot River at Beck Hill Road	none		

## 6.2.2 Laboratory Analysis

### 6.2.2.1 Non-Diatom Algae

To prepare samples for analysis of soft-bodied algae, raw periphyton samples were vigorously shaken in the original sample container to homogenize the sample. The contents were then emptied into a porcelain evaporating dish. A small, random subsample of the liquid fraction containing suspended algal material (approximately 3-5 drops) was dispensed onto a wetted glass microscope slide using a disposable plastic dropper. Visible (i.e., macroscopic) soft-bodied algae were teased apart and subsampled in proportion to their estimated importance relative to the total volume of algal material in the sample, and this material was added to the liquid fraction on the slide. The assembled subsample was then covered with a 22x30 mm cover slip, and the completed wet mount was analyzed for soft-bodied algae using an Olympus BHT compound microscope as described below.

The cover slip was scanned at 100X following a set pattern in the approximate shape of an hourglass (upper and lower horizontal transects linked by diagonal transects); magnification was increased to 200X or 400X as necessary to resolve detail in smaller specimens. All soft-bodied algae were identified to genus. The relative abundance of each soft-bodied algal genus (and of all diatom genera collectively) was estimated for comparative purposes, according to the following system:

- rare (r): represented by a single occurrence in the subsample;
- occasional (o): represented by multiple occurrences, but infrequently observed;
- common (c): represented by multiple occurrences, regularly observed;
- frequent (f): present in nearly every field of view;
- abundant (a): multiple occurrences in every field of view;
- dominant (d): multiple occurrences in every field of view in abundances beyond practical limits of enumeration.

Soft-bodied genera (and the diatom component) also were ranked numerically according to their estimated contribution to the total algal biovolume present in each sample.

### 6.2.2.2 Diatom Algae

To prepare samples for diatom analysis, organic matter was oxidized and permanent fixed mounts of cleaned diatom material were prepared. Each raw periphyton sample was vigorously shaken in the original sample container to thoroughly homogenize the material, and a subsample of approximately 20 mL was poured into a 250 mL Pyrex beaker. Each beaker was treated with 30-50 mL of concentrated sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), and a small quantity of 30% hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and granulated potassium dichromate (K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>) was added to each beaker. Samples were then covered with a Pyrex watch glass and gently heated to near-boiling for 1-2 hours to completely oxidize all organic matter in the sample. Samples were allowed to cool, and then were topped off with deionized water. The diatom material was allowed to settle for at least eight hours, and the clear supernatant decanted; this process was repeated at least five times to thoroughly flush all traces of oxidants from the diatom material.

Subsample volumes were adjusted to ensure manageable densities of diatom cells in suspension, and a small amount of each sample was dispersed onto clean 22-mm square glass cover slips. The cover slips were air dried, heated to 150 F, and affixed onto standard glass microscope slides with Naphrax mounting medium to create a permanent mount of diatom cells (frustules). To ensure a high quality mount for diatom identification and to make replicates available for archiving, at least two slide mounts were made from each sample; one of the replicates was selected from each sample batch for analysis. An Olympus BHT compound microscope with a SPlan oil immersion objective (1000X total magnification) was used for diatom identifications and counts. A proportional count of 800 diatom valves (400 frustules) was performed along a vertical transect line across the exact center of the fixed cover slip. The starting point on the top edge was determined with the aid of the microscope's stage micrometer and recorded, and all diatoms observed within a one-field-of-view width were identified and counted. Diatoms were identified to the lowest practical taxonomic level, generally to species.

## 6.2.3 Data Analysis

---

### 6.2.3.1 Non-Diatom Algae

Estimated relative abundance and biovolume of diatom algae at each site, with all taxa considered collectively under the division Bacillariophyta, are included for comparison with non-

diatom algae. The number of “major” non-diatom genera present at each site (defined as those genera with estimated occurrence in a sample of at least “occasional”) are presented by algal Division in Table 6-2.

### **6.2.3.2 Diatom Bioassessment Indices**

#### **6.2.3.2.1 Sediment Increaser Taxa [Teply, 2010a; 2010b]**

Diatom taxa counts were evaluated to determine the probability of sediment impairment using a list of recognized sediment increaser taxa for coldwater streams in the Middle Rockies Ecoregion [Teply, 2010a; 2010b]. Sediment increaser taxa have autecological preferences for sediment impaired habitats. The current impairment probability threshold for sediment impairment in Middle Rockies Ecoregion streams is 51%. Sites with a percent relative abundance of sediment increaser taxa >15.34 exceed the impairment probability threshold and are therefore classified as “sediment impaired”. The percent relative abundance values of sediment increaser taxa at CFROU monitoring sites are plotted in Figure 6-1.

#### **6.2.3.2.2 Diatom Biocriteria for Montana Mountain Streams [Teply and Bahls, 2005]**

Teply and Bahls [2005] proposed lists of diatom increaser taxa that indicate impairment in Montana mountain streams resulting from sediment, nutrients, metals, or non-specific causes. They developed equations to determine impairment probabilities based on the percent relative abundance of diatoms from each pollutant category that are present in a given sample. The increaser taxa criteria were based on empirical observations of ecological attributes of diatoms from Montana mountain ecoregions. The diatom increaser taxa identified in Teply and Bahls [2005] were not adopted as standard operating procedures (SOPs) by MDEQ because the likelihood for meeting performance criteria may be low, and the ability of these criteria to differentiate between specific causes of impairment may be low. For the sake of comparison, percent relative abundance values of metal and nutrient increaser taxa for each site are plotted in Figure 6-2 and Figure 6-3.

#### **6.2.3.2.3 Diatom Association Metrics for Montana Mountain Streams [Bahls, 1993]**

Bahls [1993] proposed a set of seven metrics to evaluate biological integrity in mountain streams in Montana [Appendix E]. These metrics are based on diatom associations in reference (i.e., relatively unimpaired) and impaired streams under a variety of impairment circumstances. Included are metrics indicative of impairment for sedimentation, nutrient enrichment, and metal contamination.

Of these metrics, the Pollution Index [Bahls, 1993] synthesizes the three pollution tolerance groups defined by Lange-Bertalot [1979] with diatom autecological profiles described by Lowe [1974], and unpublished Montana diatom data described later in Bahls [2006]. Diatom species were assigned to numerical categories 1 (“most-tolerant”), 2 (“less-tolerant”), or 3 (“sensitive”) for tolerance to nutrient enrichment, mineral salts, elevated temperatures, and metal toxicity.

A large number of diatom taxa are motile (i.e., capable of locomotion). The Siltation Index [Bahls, 1993] is calculated as the total percent abundance of motile diatom taxa which include species belonging to the genera *Navicula*, *Nitzschia*, *Surirella* and other closely related taxa.

Motility may be an adaptation to siltation, as a mechanism that allows individual diatom cells to avoid inundation by deposited sediment.

The Disturbance Index [Bahls, 1993] considers the percent abundance of the diatom *Achnanthes minutissimum*, which is highly specialized in the post-disturbance recolonization of stream substrates. Elevated numbers may be indicative of recent environmental stress caused by elevated or highly variable streamflows, water velocities, and temperatures at a site.

Biocriteria evaluate the level of environmental stress or impairment, rate overall biological integrity, and evaluate any impairment to beneficial aquatic life uses. Values for the seven biological integrity metrics and the overall rating for each site summarized in Table 6-3.

#### **6.2.3.2.4 Additional Diatom Association Metrics [Van Dam et al., 1994]**

The percent relative abundance of diatoms representing a range of tolerance to inorganic nutrients (trophic state) is presented for each site in Figure 6-4. The percent relative abundance of diatoms with specific nitrogen metabolism processes, which determine the degree of organic nitrogen tolerance for those organisms, is presented for each site in Figure 6-5. The percent relative abundance of diatoms intolerant of hypoxia and elevated biological oxygen demand is presented for each site in Figure 6-6.

#### **6.2.3.3 Ecological Interpretations**

Narrative interpretations presented below infer the degree and potential causes of water quality impairment for each site. These interpretations are based on the taxonomic composition, autecological preferences, and functional organization of non-diatom and diatom components of the periphyton assemblage at each monitoring site

Varying tolerance to inorganic and organic nutrients has been established among non-diatom and diatom algae; some taxa are sensitive to nutrient enrichment, and other taxa are indifferent to, or tolerant of nutrient enrichment [Prescott, 1962; Wehr and Sheath, 2003; Bahls, 2006].

Many soft-bodied algae are sensitive to dissolved metals, particularly copper. Filamentous green algae (Chlorophyta) generally are more sensitive to copper than are colonial (i.e., mat-forming) blue-green algae (Cyanobacteria). Colonial blue-green algae (e.g., *Nostoc* and *Rivularia*) can tolerate metals due to a protective gelatinous mucilage (i.e., slime coating). However, some green algae (e.g., *Cladophora*, *Mougeotia*, *Scenedesmus*, *Stigeoclonium* and *Ulothrix* sp.) have demonstrated high tolerances to dissolved metals [Shaw, 1990].

Diatom assemblages may also indicate metal contamination. Diatom species that increase in abundance in response to heavy metals pollution were identified by Teply and Bahls [2005] and Stoermer and Smol [1999]. Elevated metals can cause teratological growth forms (i.e., abnormalities in cell walls) in diatoms [Falasco et al., 2009].

## 6.3 RESULTS

---

### 6.3.1 Non-Diatom Algae

---

A total of 30 genera of non-diatom algae representing five algal divisions were identified from the twelve CFROU sites monitored in 2014.

The number of “major” non-diatom algae genera (i.e., those with an estimated abundance ranking of “occasional” or greater) identified at each site monitored in 2014 are presented in Table 6-2. The complete list of non-diatom algae genera identified at each site in 2014, with their estimated relative abundance and biovolume rank, are presented in Appendix F.

At the seven tributary sites, from 8 to 17 genera of “major” non-diatom algae were identified in September 2014 [Table 6-2]. The fewest number of genera (8) occurred at Lost Creek (LC-7.5) and Racetrack Creek (RTC-1.5), while the greatest number (17) occurred at the Little Blackfoot River at Beck Hill Road (LBC-CFR-02). Silver Bow Creek (SS-25) had nine major non-diatom genera, while ten were present at Mill and Willow Creeks (MCWC-MWB), Mill-Willow Bypass (MWB-SBC) and Warm Springs Creek (WSC-SBC).

At the five mainstem Clark Fork River sites, from 6 to 10 genera of “major” non-diatom algae were identified in September 2014 [Table 6-2]. The fewest number of genera (6) occurred at Clark Fork River at Deer Lodge (CFR-27H), while the greatest number (10) occurred at three sites: Clark Fork River at Galen Road (CFR-07D), Clark Fork River at Gembach Road (CFR-11F), and the Clark Fork River at Turah (CFR-116A). The Clark Fork River near Galen (CFR-03A) had eight “major” non-diatom genera present in 2014.

At least one genus from each of the five algal divisions occurred as a “major” taxon at one or more of the monitoring sites in 2014 [Table 6-2]. Among all sites, Chlorophyta (green algae) and Cyanobacteria (blue-green algae) were most numerous, with far fewer genera of Xanthophyta (yellow-green algae), Rhodophyta (red algae), and Phaeophyta (brown algae) present. Chlorophyta outnumbered Cyanophyta at five of the seven tributary sites in 2014. However, Cyanophyta outnumbered Chlorophyta at all five mainstem sites. No more than four major genera belonging to divisions Rhodophyta, Xanthophyta, and/or Phaeophyta were present at any site. No genera belonging to divisions Rhodophyta, Xanthophyta, and/or Phaeophyta were found at six sites, including four of the five mainstem sites [Table 6-2]. A high diversity of non-diatom algae generally indicates nutrient rich water. Low diversity of non-diatom algae suggests impairment by toxic pollutants, although unimpaired, nutrient-poor waters may have naturally low algal diversity. Genera from all five algal divisions and the specific environmental conditions that they indicate are examined in Section 6.3.3.1.



**Table 6-2. Number of major<sup>29</sup> non-diatom algae genera, by algal division, present at Clark Fork River Operable Unit monitoring sites, 2014.**

Site ID	Site Location	Algal Division					
		Chlorophyta (Green Algae)	Cyanobacteria <sup>30</sup> (Blue-green Algae)	Rhodophyta (Red Algae)	Xanthophyta (Yellow-green Algae)	Phaeophyta (Brown Algae)	Total Major Genera
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	2	6	0	0	0	8
CFR-07D	Clark Fork River at Galen Road	3	7	0	0	0	10
CFR-11F	Clark Fork River at Gemback Road	3	7	0	0	0	10
CFR-27H	Clark Fork River at Deer Lodge	2	4	0	0	0	6
CFR-116A	Clark Fork River at Turah	2	6	1	0	1	10
Tributary Sites							
SS-25	Silver Bow Creek at Warms Springs	5	4	0	0	0	9
MCWC-MWB	Mill-Willow Creek at Frontage Road	5	4	1	0	0	10
MWB-SBC	Mill-Willow Bypass near mouth	4	6	0	0	0	10
WSC-SBC	Warms Springs Creek near mouth	3	4	2	1	0	10
LC-7.5	Lost Creek near mouth	6	1	1	0	0	8
RTC-1.5	Racetrack Creek near mouth	4	2	1	1	0	8
LBR-CFR	Little Blackfoot River at Beck Hill Road	7	6	1	2	1	17

<sup>29</sup> "Major" includes all genera not rated as "rare". Definitions for "rare" genera in section 6.2.2.1.

<sup>30</sup> Formerly classified as Cyanophyta.

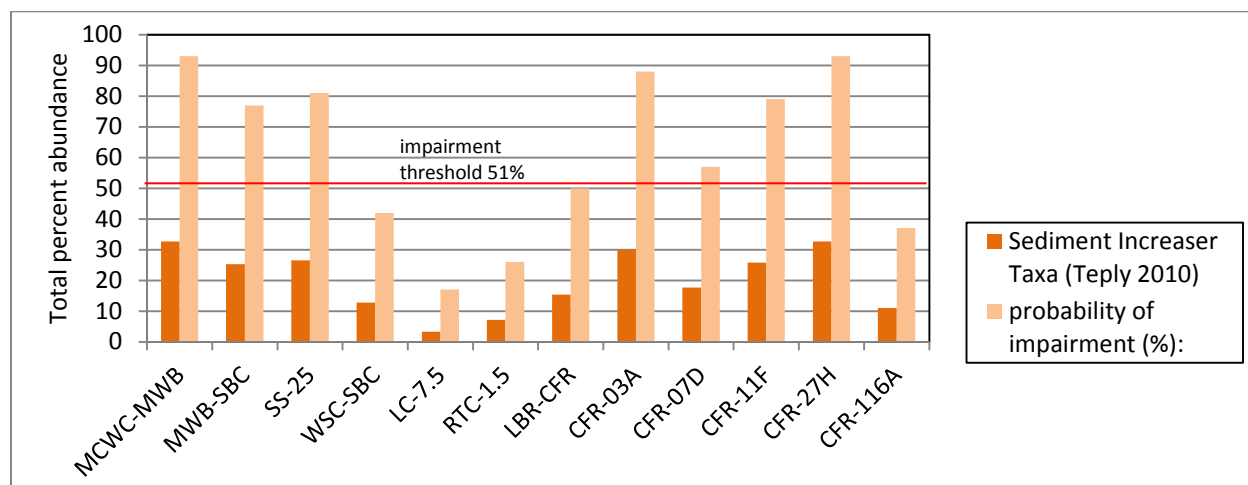
## 6.3.2 Diatom Bioassessment Indices

### 6.3.2.1 Diatom Increaser Taxa

The percent relative abundance and probability of impairment for diatom increaser taxa are plotted for sediment [Figure 6-1], metals [Figure 6-2], and nutrients [Figure 6-3] at the twelve sites monitored in 2014. Periphyton data for diatom algae are presented in Appendix G.

### 6.3.2.2 Sediment Increaser Taxa

Sediment increaser taxa [Figure 6-1] were most abundant at sites MCWC-MWB (Mill-Willow Creek at Frontage Road) and CFR-27H (Clark Fork River at Deer Lodge). The probability of impairment by sediment at MCWC-MWB and CFR-27H (93% for each) exceeded the impairment threshold (51%) for sediment increaser taxa. Five other sites had impairment probabilities exceeding the sediment impairment threshold: MWB-SBC (Mill-Willow Bypass near mouth; 77%), SS-25 (Silver Bow Creek at Warm Springs; 81%), site CFR-03A (Clark Fork River near Galen; 88%), site CFR-07D (Clark Fork River at Galen Road; 57%) and site CFR-11F (Clark Fork River at Gemback Road; 79%). The five remaining sites had sediment impairment probabilities which were less than the threshold; the probability of impairment by sediment among these sites ranged from 17-50% [Figure 6-1].

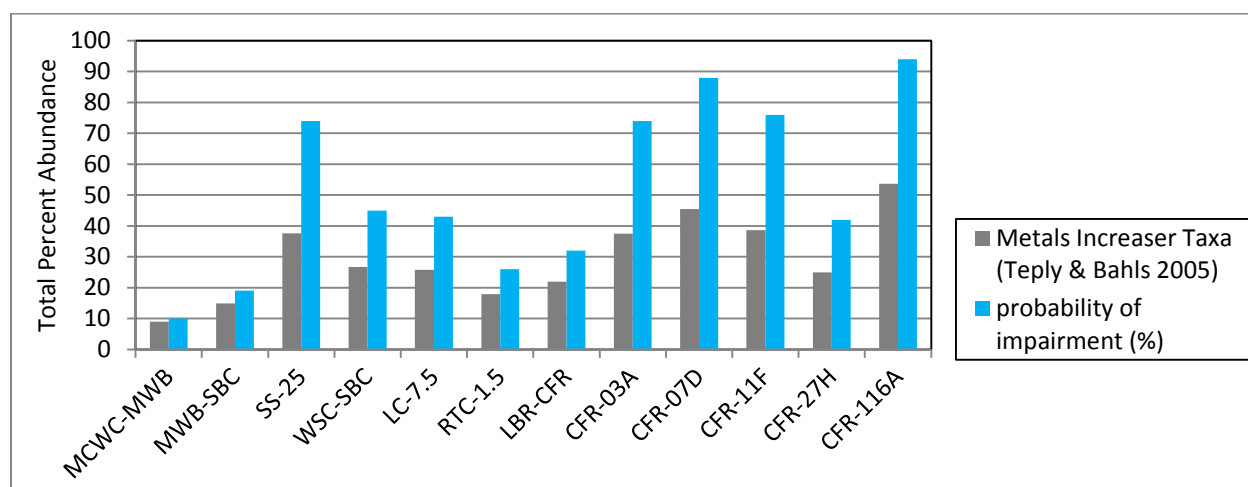


**Figure 6-1. Total percent abundance and probability of impairment for diatom sediment increaser taxa bioassessment index [Teply, 2010a] at Clark Fork River Operable Unit sites in 2014.**

### 6.3.2.3 Metals Increaser Taxa

Metals increaser taxa [Figure 6-2] were most abundant at CFR-116A (Clark Fork River at Turah) where the probability of impairment by heavy metals was 93%. Probability of metals impairment was 88% at CFR-07D (Clark Fork River at Galen Road). Sites CFR-11F (Clark Fork River at Gemback Road), SS-25 (Silver Bow Creek at Warm Springs), and CFR-03A (Clark Fork

River near Galen) had a probability of heavy metals impairment that exceeded 70% (range 74-76%). Sites WSC-SBC (Warm Springs Creek at Warm Springs), LC-7.5 (Lost Creek at Frontage Road) and CFR-27H (Clark Fork River at Deer Lodge) had probabilities of heavy metals impairment in excess of 40% (range 41-45%). The probability of impairment by heavy metals at site LBR-CFR (Little Blackfoot River near mouth), site RTC-1.5 (Racetrack Creek at Frontage Road), site MWB-SBC (Mill-Willow Bypass near mouth), and site MCWC-MWB (Mill-Willow Creek at Frontage Road) was less than 33% [Figure 6-2]. No impairment threshold has been established for metals increaser taxa in the CFROU. This index is provided to allow for comparisons of the relative magnitude of impairment probabilities between sites.

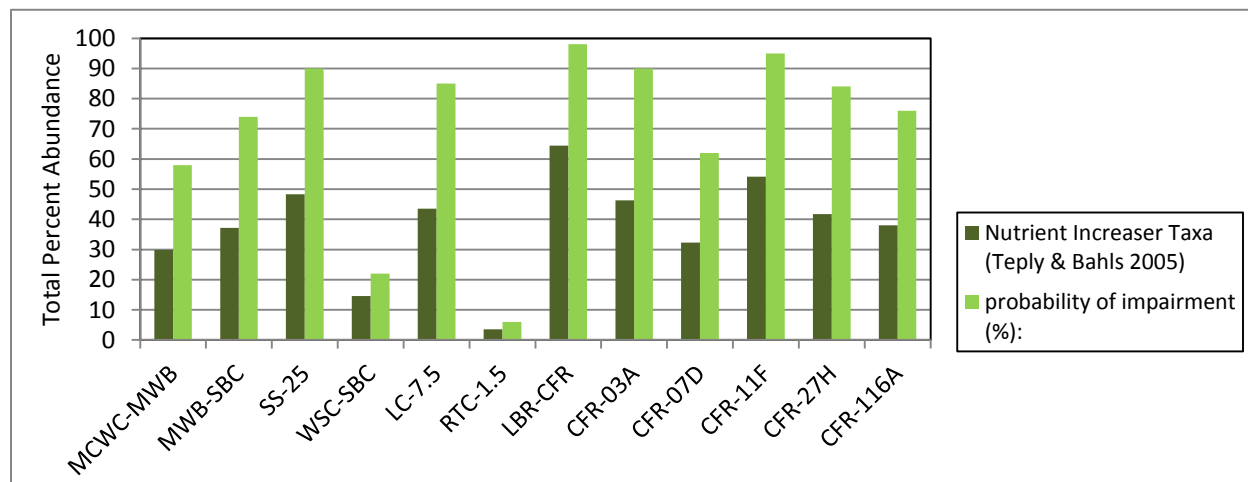


**Figure 6-2. Total percent abundance and probability of impairment for diatom metals increaser taxa bioassessment index [Tepley and Bahls, 2005] at Clark Fork River Operable Unit sites in 2014.**

#### 6.3.2.4 Nutrient Increaser Taxa

The highest probability of impairment by nutrients, based on nutrient increaser taxa relative abundances at the CFROU sites monitored in 2014 [Figure 6-3], was 98% at tributary site LBR-CFR (Little Blackfoot River near mouth). The probability of impairment by nutrients was 95% at mainstem site CFR-11F (Clark Fork River at Gemback Road) and 90% at sites SS-25 (Silver Bow Creek at Warm Springs) and CFR-03A (Clark Fork River near Galen). Site CFR-27H (Clark Fork River at Deer Lodge) had an impairment probability of 84%. Site CFR-116A (Clark Fork River at Turah) had an impairment probability of 76%. Site CFR-07D (Clark Fork River at Galen Road) had an impairment probability of 62%. Of tributary sites monitored in 2014, site LC-7.5 (Lost Creek at Frontage Road) had an 85% probability of impairment by nutrients, site MWB-SBC (Mill-Willow Bypass at mouth) had a 73% probability, and MCWC-MWB (Mill-Willow Creek at Frontage Road) had a 58% probability. Site WSC-SBC (Warm Springs Creek at Warm Springs) had a 22% probability of impairment, while the lowest probability of impairment by nutrients at all CFROU sites monitored in 2014 was 6% at site RTC-1.5 (Racetrack Creek at Frontage Road). No impairment threshold has been established for

nutrient increaser taxa in the CFROU. This index is provided to allow for comparisons of the relative magnitude of impairment probabilities between sites.



**Figure 6-3. Total percent abundance and probability of impairment for diatom nutrient increaser taxa bioassessment index [Teply and Bahls, 2005] at Clark Fork River Operable Unit sites in 2014.**

#### 6.3.2.5 Diatom Association Metrics for Montana Mountain Streams

Metrics proposed by Bahls [1993] to evaluate biological integrity in Montana mountain streams were determined for the diatom associations present at each CFROU site monitored in 2014. Results are summarized in Table 6-3.

For the CFROU sites monitored in 2014, overall biological integrity was rated “good” at all but one site, which was rated “fair” for biological integrity [Table 6-3]. A biological integrity rating of “good” indicates minor impairment to aquatic life, while a rating of “fair” indicates moderate impairment. No sites monitored in 2014 received the highest biological integrity rating (“excellent”) or the lowest rating (“poor”).

At sites CFR-03A (Clark Fork River near Galen) and CFR-116A (Clark Fork River at Turah), the biological integrity was rated “good” rather than “excellent”, due only to a slightly to moderately elevated value for the siltation index. At site CFR-11F (Clark Fork River at Gemback Road) the biological integrity rating of “good” was due only to a slightly elevated percentage of abnormal cells. At sites MCWC-MWB (Mill and Willow Creeks at Frontage Road), site CFR-07D (Clark Fork River at Galen Road) and CFR-27H (Clark Fork River at Deer Lodge), biological integrity was rated “good” rather than “excellent” due to slightly to moderately elevated siltation index values along with a slightly elevated percentage of abnormal cells. At tributary sites WSC-SBC (Warm springs Creek near mouth), RTC-1.5 (Racetrack Creek at Frontage Road), and LBR-CFR (Little Blackfoot River near mouth), biological integrity was rated “good” due to slightly to moderately depressed Shannon diversity index values, along with slightly elevated values for percent dominant taxon, disturbance index, or both. At sites SS-25 (Silver Bow Creek at Warm Springs) and MWB-SBC (Mill-Willow Bypass near mouth), biological integrity was rated “good” due to slightly depressed for the pollution

index and slightly elevated for the percentage of abnormal cells, along with a slightly elevated siltation index at the latter site [Figure 6-3].

Site LC-7.5 (Lost Creek at Frontage Road) was the lone site where biological integrity was rated “fair” due to an elevated percent abnormal cells. Otherwise biological integrity at LC-7.5 would have been rated “good” due to a moderately depressed Shannon diversity index value and a slightly elevated percent dominant taxon.

**Table 6-3. Diatom association metrics and biological integrity<sup>31</sup> and impairment ratings<sup>32</sup> for Clark Fork River Operable Unit monitoring sites, 2014 (after Bahls [1993]).**

Site ID	Site Location	Monitoring Site							
		Diatom Species Richness	Shannon Diversity Index	Pollution Index	Siltation Index	Disturbance Index	Dominant Taxon (%)	Abnormal Cells (%)	Biological Integrity
Mainstem Sites									
CFR-03A	Clark Fork River near Galen	59	3.29	2.62	<u>33.25</u>	3.63	13.5	0	<u>Good</u>
CFR-07D	Clark Fork River at Galen Road	66	3.17	2.62	<u>26.88</u>	1.88	20.75	<u>0.63</u>	<u>Good</u>
CFR-11F	Clark Fork River at Gemback Road	72	3.16	2.66	14.13	1.13	12.88	<u>1.5</u>	<u>Good</u>
CFR-27H	Clark Fork River at Deer Lodge	58	3	2.58	<u>25.38</u>	4	15.63	<u>0.63</u>	<u>Good</u>
CFR-116A	Clark Fork River at Turah	71	3.31	2.69	<u>20.75</u>	4.88	18.25	0	<u>Good</u>
Tributary Sites									
SS-25	Silver Bow Creek at Warm Springs	61	3.18	<u>2.49</u>	17.5	2.13	14.5	<u>0.5</u>	<u>Good</u>
MCWC-MWB	Mill-Willow Creek at Frontage Road	95	3.46	2.53	<u>32.5</u>	9.88	22.38	<u>0.25</u>	<u>Good</u>
MWB-SBC	Mill-Willow Bypass near mouth	75	3.37	<u>2.44</u>	<u>26.63</u>	4.88	19.75	<u>0.25</u>	<u>Good</u>
WSC-SBC	Warm Springs Creek near mouth	51	<u>2.82</u>	2.74	<u>25.88</u>	<u>33</u>	<u>33</u>	0	<u>Good</u>
LC-7.5	Lost Creek near mouth	55	<u>2.53</u>	2.56	6.88	16.5	<u>28.88</u>	<b>4.25</b>	<b>Fair</b>
RTC-1.5	Racetrack Creek near mouth	62	<u>2.52</u>	2.63	10.63	<u>29.88</u>	<u>29.88</u>	0	<u>Good</u>
LBR-CFR	Little Blackfoot River at Beck Hill Road	55	<u>2.7</u>	<u>2.4</u>	19.38	4.38	<u>36.25</u>	<u>1.13</u>	<u>Good</u>

<sup>31</sup> Biological integrity rating is based on numerical criteria for each diatom metric.

<sup>32</sup> Impairment rating codes: normal font = none, underline = minor, and **bold** = moderate.

### 6.3.2.6 Additional Diatom Association Metrics

For each of the sites monitored in 2014, three metrics based on ecological attributes of diatom associations are presented. The diatom trophic state metric is the total percent relative abundance of diatoms with different tolerance levels for inorganic nutrients (i.e., nitrogen and phosphorus) [Figure 6-4]. The nitrogen metabolism metric is the total percent relative abundance of diatoms exhibiting different tolerance levels for organic nitrogen compounds [Figure 6-5]. The oxygen demand metric is the total percent relative abundance of diatoms that require high levels of dissolved oxygen and are intolerant of elevated biological oxygen demand conditions [Figure 6-6].

The level of inorganic nitrogen and phosphorus enrichment, or trophic state of a water body, influences the algal community composition at a site. The response of many diatom taxa to inorganic nutrient enrichment (i.e., eutrophic conditions) is well known and provides the basis for the diatom trophic state categories presented in Figure 6-4. Nutrient tolerant diatom species do not necessarily require high nutrient levels. However, nutrient intolerant diatom species are at a competitive disadvantage in nutrient enriched conditions. As a result, nutrient intolerant species tend to be reduced in relative abundance or are absent under conditions of nutrient enrichment.

Figure 6-4 suggests water that was moderately enriched with inorganic nutrients (i.e., slightly to moderately eutrophic conditions) at all five Clark Fork River mainstem sites in 2014. At each of those sites, intolerant taxa abundance was very low, whereas tolerant taxa were very abundant. Similar but somewhat less pronounced results were observed at five of the six tributary sites. The primary exception was at site RTC-1.5 (Racetrack Creek at Frontage Road), where the percent abundance of intolerant taxa was significantly higher than that of tolerant taxa, and several-fold higher than at any other CFROU site in 2014, suggesting lower inorganic nutrient levels. At site WSC-SBC (Warm Spring Creek at Warm Springs), the percent abundance of diatom taxa indifferent to inorganic nutrients was similar to site RTC-1.5, but intolerant taxa were much less abundant [Figure 6-4].

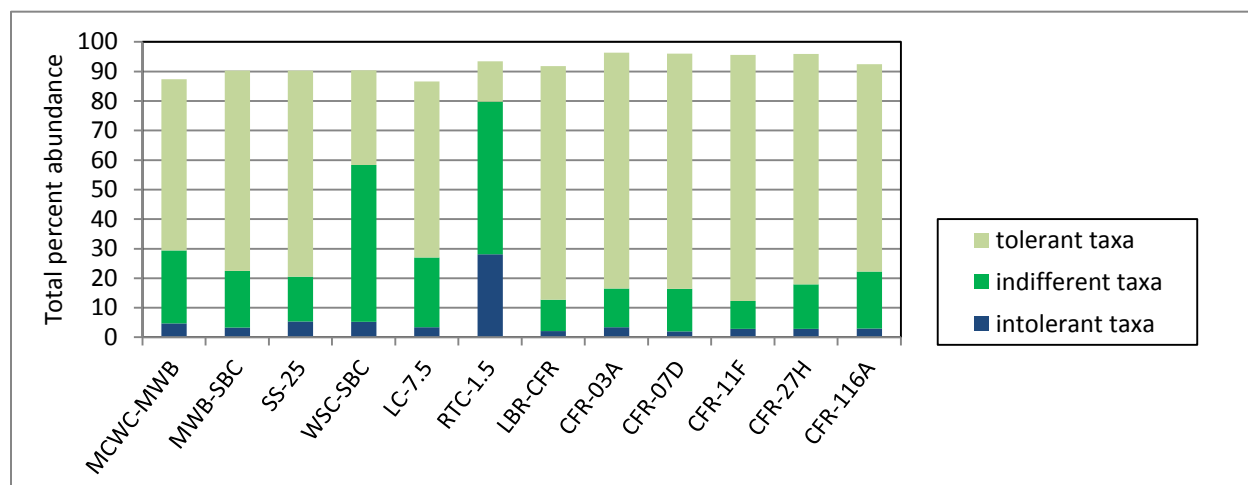
Enrichment by organically-derived nitrogen compounds can influence the composition of the algal community. Diatoms exhibit a broad range of tolerance to organic nitrogen. Most diatoms are nitrogen autotrophs and are unable to utilize organic nitrogen, whereas some diatoms are metabolic specialists and are able to directly assimilate organic nitrogen in addition to, or as an alternative to, inorganic nitrogen (i.e., facultative nitrogen heterotrophs).

Nitrogen-autotrophic diatoms were dominant at all sites monitored in 2014 [Figure 6-5]. Nitrogen-autotrophic taxa with a higher tolerance to organic nitrogen were more abundant than less tolerant autotrophic forms at all sites, ranging from about 48% to 75% in relative abundance. Nitrogen-autotrophic taxa with lower organic nitrogen tolerance ranged in relative abundance from a low of about 4% at site MCWC-MWB (Mill and Willow Creek at Frontage Road) to a high of 36% at site CFR-116A (Clark Fork River at Turah). The percent abundance of nitrogen autotrophs with low organic nitrogen tolerance in the tributary stations ranged from about 4% to about 14% (mean 9.4%), and in the five mainstem Clark Fork River stations ranged

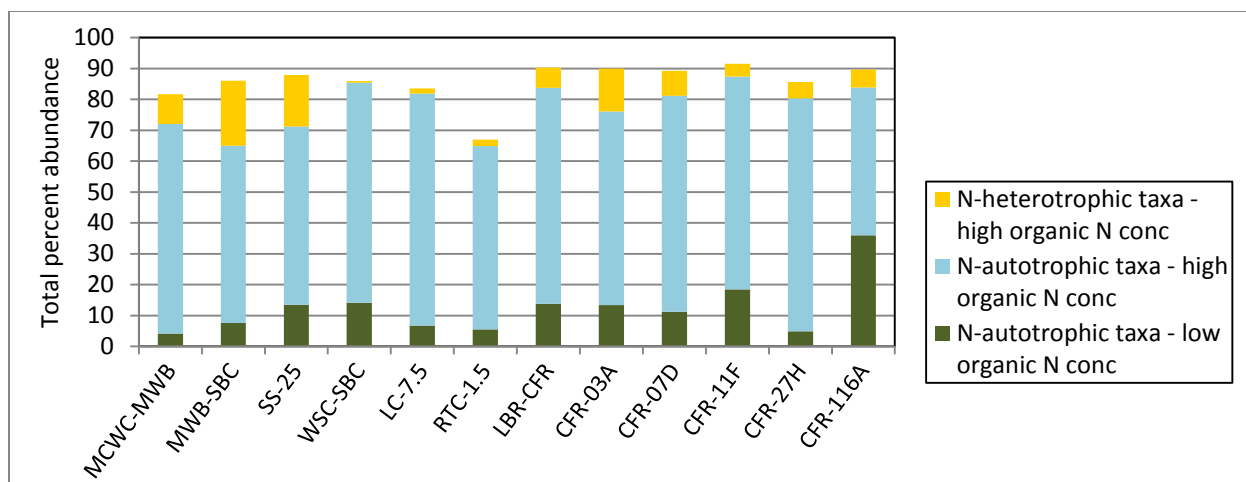


from about 5% to 36% (mean 16.8%). These data indicate that diatom assemblages at CFROU sites in 2014, while showing tolerance to relatively high organic nitrogen concentrations, were predominantly autotrophic forms requiring inorganic nitrogen. While this suggests the possibility of organic nitrogen inputs to tributary and mainstem sites, it does not indicate that organic nitrogen had adverse impacts or toxic effects on the diatom assemblages.

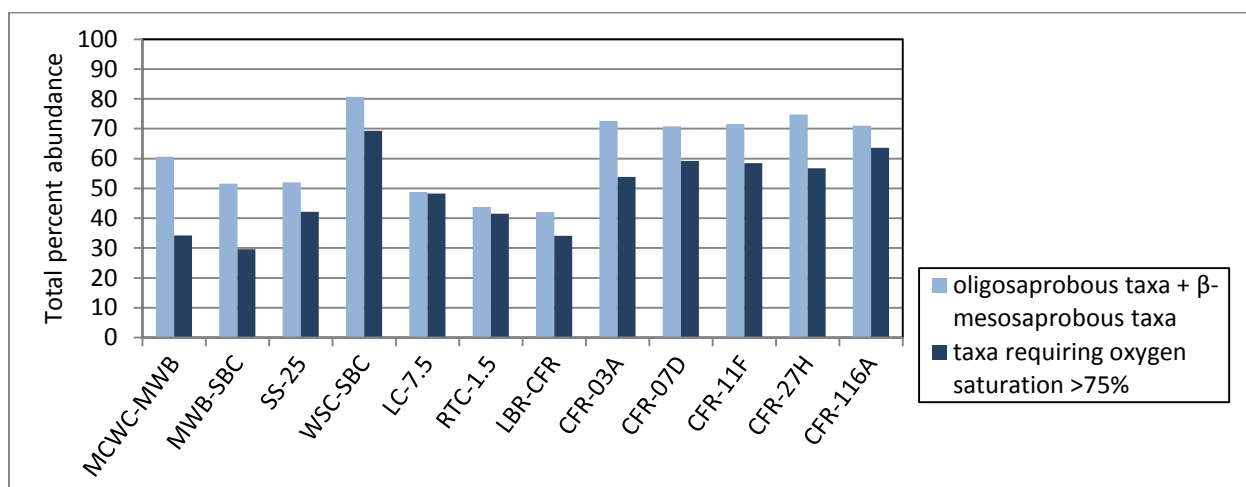
The percent abundance of diatoms requiring oligosaprobous conditions (i.e., low levels of organic matter decomposition, high dissolved oxygen concentrations, and inorganic nitrogen only) and  $\beta$ -mesosaprobous conditions (i.e., moderate levels of organic matter decomposition, high dissolved oxygen concentrations, and predominantly inorganic nitrogen) ranged from 42% to 81%, and exceeded 50% at 9 of 12 CFROU monitoring sites in 2014, including 4 of 7 tributary stations and all mainstem Clark Fork River stations [Figure 6-6]. Diatoms requiring dissolved oxygen saturation >75% were relatively dominant at all sites; percent abundance ranged from about 30% to 69% and exceeded 40% at all but three sites in 2014 [Figure 6-6]. These data suggest that no CFROU sites had impairments to diatom assemblages related to hypoxia or elevated biological oxygen demand resulting from decomposition of organic matter in 2014.



**Figure 6-4. Variation in diatom trophic state tolerance among Clark Fork River Operable Unit monitoring sites, 2014; percent abundance of taxa tolerant to inorganic nutrients (after Van Dam et al., 1994).**



**Figure 6-5. Variation in diatom nitrogen metabolism among Clark Fork River Operable Unit monitoring sites, 2014; percent abundance of taxa tolerant of organic nitrogen (after Van Dam et al., 1994).**



**Figure 6-6. Variation in diatom oxygen demand among Clark Fork River Operable Unit monitoring sites, 2014; percent abundance of taxa intolerant to elevated biochemical oxygen demand (BOD) and hypoxia (after Van Dam et al., 1994).**

### 6.3.3 Ecological Interpretations of Periphyton Assemblages

#### 6.3.3.1 Non-Diatom Algae

From two to seven genera of Chlorophyta (green algae) were identified as “major” taxa at the CFROU monitoring sites in 2014 [Table 6-2]. Microscopic forms of Chlorophyta included filamentous genera (*Cladophora*, *Oedogonium*, *Spirogyra*, *Stigeoclonium*, and *Ulothrix*), colonial genera (*Scenedesmus*), and single-celled desmid genera (*Closterium* and *Cosmarium*). The genus *Chara*, a macroscopic filamentous form, was also observed. These algae are generally indicative of cool, moderately nutrient-rich water. Many of these species are relatively tolerant of elevated

nutrients, acidity, metals, or combinations of those conditions. *Stigeoclonium*, and *Ulothrix* have been observed in streams with elevated zinc concentrations [Shaw, 1990]. *Scenedesmus* is known to tolerate elevated copper concentration, and *Cladophora* and *Ulothrix* are resistant to copper used in paint for watercraft and ship hulls [Shaw, 1990]. *Chara* occurs in streams that have high pH and elevated bicarbonate concentrations. *Cladophora* was a major taxon at all twelve sites in 2014, whereas *Oedogonium* was a major taxon at nine of twelve sites. Estimated biovolume for both *Cladophora* and *Oedogonium* ranked within the top four taxa identified (including diatom algae as a whole) at site SS-25 (Silver Bow Creek at Warm Springs) and at four mainstem Clark Fork River sites in 2014.

Of the Cyanobacteria (blue-green algae), the genus *Nostoc* was a “major” taxon at 10 of 12 monitoring sites in 2014, including four mainstem Clark Fork River sites, and ranked within the top four taxa in estimated biovolume at 9 of the 12 sites. *Nostoc* is generally indicative of cool, moderately nutrient-rich, relatively unpolluted water. Masses of *Nostoc* trichomes (i.e. filaments composed of individual cells) are encased in a tough colonial mucilage that is resistant to scour and desiccation. More importantly, *Nostoc* and several related Cyanobacteria genera (e.g. *Tolypothrix* and *Rivularia*) possess specialized cells called heterocytes that permit fixation of atmospheric nitrogen through enzyme reactions. This provides *Nostoc* with a competitive advantage over other non-diatom algae in water with low inorganic nitrogen concentrations. Additionally, several diatom species of the order Rhopalodiales (*Epithemia sorex*, *Epithemia turgid*, and *Rhopalodia gibba*) are known to harbor single-celled blue-green algae that can also fix nitrogen. All of these diatom taxa (and particularly *Epithemia sorex*) were present at several of the monitoring sites in 2014, and are the basis for the percent Rhopalodiales metric.

From one to seven “major” genera of Cyanobacteria, in addition to *Nostoc*, were identified at the twelve sites monitored in 2014. These included the filamentous genera *Dichothrix*, *Heteroleibleinia*, *Homoeothrix*, *Leptolyngbia*, *Microchaete*, *Phormidium* and *Tolypothrix*. All are microscopic benthic forms commonly identified in mountain ecoregion streams. *Dichothrix* is a largely cosmopolitan form that occurs attached to firm substrates in swiftly flowing water. *Tolypothrix* occurs in unpolluted freshwaters attached to stones, macrophytes or other algae, sometimes forming wooly mats or tufts. *Phormidium* is a cosmopolitan form which occurs within a relatively broad range of habitats and water quality conditions, and can form extensive macroscopic growths. *Heteroleibleinia*, *Homoeothrix* and *Leptolyngbia* commonly occur as epiphytes (i.e., plants that grow on other plants) on filamentous green algae (e.g., *Cladophora* or *Oedogonium*) in relatively unpolluted waters. The genus *Chamaesiphon* is a solitary or colonial Cyanobacteria that occurred as an epiphyte on filamentous green algae, often at densities that nearly covered the outer surfaces of the host alga. *Chamaesiphon* often is found on submerged substrates in cold water in mountain streams, and generally prefers low to moderate levels of nutrients and dissolved solids.

The filamentous alga *Audouinella*, a member of the division Rhodophyta (red algae), is a cosmopolitan form that prefers circumneutral (i.e., with a pH of around 7) to slightly alkaline water that is moderately low in nutrients and dissolved solids. *Audouinella* was identified as a major taxon at five of the twelve sites monitored in 2014, all of them on tributary streams to the Clark Fork River.

*Tribonema* and *Vaucheria* are filamentous genera of yellow-green algae (division Xanthophyta) that either together or singly were major taxa at several tributary sites in 2014. Often these taxa occur in cool, nutrient-poor water that is slightly acidic due to elevated levels of dissolved humic substances (e.g., tannins) associated with decaying vegetation and bog environments).

An uncommon filamentous brown alga *Heribaudiella* (division Phaeophyta) was found only at two sites in 2014. *Heribaudiella* is known to occur in cool water at higher current velocities, often with moderate levels of nutrients and alkalinity [Wehr and Sheath, 2003].

### 6.3.3.2 Diatom Algae

Diatom algae dominated the periphyton assemblage at all CFROU sites monitored in 2014, and were ranked first or second in estimated biovolume relative to non-diatom algae at five of twelve sites, and no lower than third at any of the sites. Over 175 species and varieties of diatoms were identified among the CFROU sites in 2014. Several diatoms were of particular interest because of specific autecological preferences and environmental requirements of those organisms.

*Achnantheidium minutissimum* is a specialist in recolonizing stream substrates that have been subjected to physical disturbance such as scour or impacted by dewatering. The percent relative abundance of *A. minutissimum* is the basis for the disturbance index [Bahls, 1993].

*Cocconeis pediculus* and *C. placentula* are cosmopolitan, attached forms that occur in very high densities as epiphytes on larger forms of filamentous algae, particularly the green algae *Cladophora* and *Oedogonium*, and are indicative of moderately nutrient-rich, slightly alkaline water.

*Cymbella affinis* is an attached, stalk-forming diatom that prefers alkaline water with moderately low levels of nitrogen and phosphorus and moderately high bicarbonate concentrations.

*Diatoma moniliformis* and *D. vulgaris* are non-motile chain forming diatoms that prefer cool, well oxygenated, moderately alkaline water with relatively low to moderate levels of nutrients.

*Epithemia sores*, *E. turgid* and *Rhopalodia gibba* often harbor single-celled endosymbiotic (i.e., internal to the cell wall) nitrogen fixing cyanobacteria, with an assumed benefit to both organisms in nitrogen limited waters. These taxa, considered collectively as the percent Rhopalodiales metric, suggest low levels of inorganic nitrogen relative to phosphorus in the water column.

*Melosira varians* is a non-motile, centric diatom that forms long ribbons of cells, often entangled with filamentous non-diatom algae. It is indifferent to nutrient concentrations but intolerant of elevated sediment and siltation.

*Navicula caterva* and *N. cryptotenella* are motile diatoms that prefer alkaline, moderately hard water with moderately low to moderate levels of nitrogen relative to phosphorus.

*Nitzschia dissipata*, *N. fonticola* and *N. paleacea* are highly motile forms that are adapted to elevated levels of deposited sediment and prefer cool, somewhat alkaline water with moderate levels of nitrogen and phosphorus.

*Ulnaria ulna* (formerly *Synedra ulna*) is a large attached form with a relatively low tolerance to deposited sediment that prefers alkaline water and variable levels nitrogen and phosphorus.

### 6.3.3.3 Site Specific Narratives

The narratives that follow are based on a review of collective results from analysis of data from individual sites, including the taxonomy and community structure of non-diatom and diatom algae and the suite of metrics derived from those data. Overall biological integrity and the degree of impairment of the aquatic biota are assessed for each monitoring site. The focus of each narrative is on water quality, specifically the influence of metals, nutrients, and sediment on diatom assemblages.

#### 6.3.3.3.1 Mill Willow Creek at the Mill-Willow Bypass (MCWC-MWB)

Non-diatom algae were relatively diverse at site MCWC-MWB. Ten “major” genera representing three algal divisions were present [Table 6-2]. Five of these genera were green algae (order Chlorophyta), while four were blue-green algae (order Cyanobacteria). The filamentous blue-green *Phormidium* and the colonial blue-green *Nostoc* ranked first and second, respectively, in estimated biovolume, ahead of diatom algae. The single-celled green algae *Staurostrum* and *Closterium*, the filamentous green *Cladophora* and red alga (order Rhodophyta) *Audouinella* were also relatively important taxa at this site. These non-diatom algae indicated “good” water quality at site MCWC-MWB that was moderately nutrient-rich and likely nitrogen limited.

Diatom algae in the combined Mill and Willow Creeks had the highest species richness and Shannon diversity of the twelve sites monitored in 2014 [Table 6-3]. Dominant diatom taxa at site MCWC-MWB included *Cocconeis placentula*, *Achnantheidium minutissimum*, *Nitzschia dissipata* and *Navicula caterva*, which indicated cool, moderately nutrient-rich alkaline water. Diatom increaser taxa indicated a high probability of impairment by sediment [Figure 6-1], a low probability of impairment by metals [Figure 6-2], and a moderate probability of impairment by nutrients [Figure 6-3]. A majority of the diatom taxa present at site MCWC-MWB in 2014 were tolerant of elevated levels of inorganic nutrients [Figure 6-4] and organic nitrogen [Figure 6-5]. The percentage of diatoms requiring high levels of dissolved oxygen saturation was relatively low [Figure 6-6]. Overall biological integrity at site MCWC-MWB was rated as “good”, with only minor impairment related to sediment and possible toxic effects indicated by abnormal diatom cell walls [Table 6-3].

#### 6.3.3.3.2 Mill Willow Bypass near Mouth (MWB-SBC)

Non-diatom algae at site MWB-SBC were similar to those at the upstream site on Mill-Willow Creek [Table 6-2]. Ten “major” genera were divided between blue-green algae (six taxa) and green algae (four taxa). The filamentous blue-green *Phormidium* and the colonial blue-green *Nostoc* ranked second and third in estimated biovolume, behind diatom algae. The filamentous green algae *Stigeoclonium*, *Cladophora* and *Oedogonium* ranked fourth through sixth in estimated biovolume, respectively. Moderate enrichment by inorganic nutrients was

indicated by the non-diatom algae. Limited inorganic nitrogen relative to phosphorus was suggested by the relative importance of nitrogen-fixing blue-green algae *Nostoc* and *Tolypothrix*.

Diatom species richness and Shannon diversity values decreased from those seen at the upstream site, but remained relatively high compared to all other CFROU sites in 2014 [Table 6-3]. Dominant diatoms at site MWB-SBC included *Cocconeis placentula*, *Melosira varians*, *Nitzschia paleacea* and *Diatoma moniliformis*. These diatom species indicated cool, alkaline water that was moderately rich in nutrients. Diatom increaser taxa indicated a moderately high probability of impairment by sediment [Figure 6-1] and nutrients [Figure 6-3], and a moderately low probability of impairment by metals [Figure 6-2]. A majority of diatoms at site MWB-SBC were tolerant of inorganic nutrients [Figure 6-4] and elevated organic nitrogen [Figure 6-5]. Diatoms requiring high dissolved oxygen levels comprised less than 30% of the taxa at site MWB-SBC, which was the lowest percentage for any CFROU site monitored in 2014. Overall biological integrity at site MWB-SBC was rated as “good”, with only minor impairments related to sediment and possible toxic effects indicated by abnormal diatom cell walls [Table 6-3].

#### **6.3.3.3.3 Silver Bow Creek at Warm Springs (SS-25)**

Nine “major” genera of non-diatom algae were identified at site SS-25 in 2014 [Table 6-2]. The flora was dominated by green algae (five taxa), with four filamentous genera (*Cladophora*, *Oedogonium*, *Stigeoclonium* and *Ulothrix*) and a single-celled desmid (*Cosmarium*) responsible for most of the non-diatom algal biovolume at site SS-25. Four genera of blue-green algae were present as “major” taxa at site SS-25, but none ranked higher than seventh in estimated biovolume. No other algal divisions were represented at site SS-25. The filamentous green algae present were indicative of water relatively rich in nutrients, particularly nitrogen, and are relatively tolerant of metals.

Diatoms ranked second in estimated biovolume at SS-25 [Table 6-2]. Diatom species richness and Shannon diversity values at site SS-25 were slightly depressed compared to the upstream site MWB-SBC [Table 6-3]. A very low disturbance index value at site SS-25 suggested relatively stable conditions and low levels of environmental stress, while a slightly depressed pollution index value and slightly elevated percent abnormal cells indicated likely metals toxicity [Table 6-3]. Several dominant diatom taxa at site SS-25, including *Cocconeis pediculus*, *C. placentula*, *Epithemia sorex*, *Melosira varians* and *Ulnaria ulna*, commonly occur as epiphytes or in association with filamentous algae and aquatic macrophytes in alkaline, nutrient-rich streams. Diatom increaser taxa indicated moderately high probabilities of impairment by metals [Figure 6-2], nutrients [Figure 6-3], and sediment [Figure 6-1] at site SS-25. Diatoms tolerant of elevated inorganic nutrients [Figure 6-4] and organic nitrogen [Figure 6-5] comprised relatively high percentages of taxa at site SS-25, and suggested eutrophic conditions in the reach below the Warm Springs Ponds. The percentage of diatoms requiring high dissolved oxygen levels at site SS-25 was comparable to upstream site MWB-SBC [Figure 6-6]. Biological integrity in 2014 at site SS-25 was rated as “good” with minor impairment of the biota due to toxic metals, indicated by the Pollution Index and abnormal diatom cells [Table 6-3].

#### 6.3.3.3.4 Warm Springs Creek near Mouth (WSC-SBC)

Ten “major” genera of non-diatom algae were identified at site WSC-SBC in 2014 [Table 6-2]. Included within the top five non-diatom genera were the colonial blue-green *Nostoc*, the filamentous blue-green *Phormidium*, the filamentous green algae *Cladophora* and *Oedogonium*, the filamentous red alga *Audouinella*, and the filamentous yellow-green alga *Vaucheria*. All of these algae are indicative of cool, relatively unpolluted water with low to moderate levels of inorganic nutrients. The dominance of *Nostoc* suggests that inorganic nitrogen may have been the limiting nutrient relative to phosphorus at site WSC-SBC.

Diatom species richness at WSC-SBC was the lowest for any site in 2014, while Shannon diversity was slightly below the average for the CFROU sites monitored in 2014 [Table 6-3]. The disturbance index value suggested some environmental instability at WSC-SBC, with *Achnanthes minutissimum* the dominant diatom taxon at 33% relative abundance. Diatom increaser taxa at WSC-SBC indicated moderately low probability of impairment by sediment [Figure 6-1] and metals [Figure 6-2], and a low probability of impairment by nutrients [Figure 6-3]. Most diatom taxa present at WSC-SBC were relatively intolerant of inorganic nutrients [Figure 6-4] and organic nitrogen [Figure 6-5], and required a high level of oxygen saturation [Figure 6-6]. Diatoms with a low tolerance of decomposing organic matter (i.e., biochemical oxygen demand) and requiring moderately high levels of dissolved oxygen saturation were present at site WSC-SBC in some of the highest percentages seen in 2014 [Figure 6-6]. Biological integrity at WSC-SBC was “good”, with minor impairment of the biota indicated by slightly elevated siltation index and disturbance index values, and a slightly depressed Shannon diversity [Table 6-3].

#### 6.3.3.3.5 Clark Fork River near Galen (CFR-03A)

Eight “major” genera of non-diatom algae were identified at Clark Fork River headwaters site CFR-03A in 2014 [Table 6-2]. Six genera of blue-green algae (cyanobacteria) and two genera of green algae were present as major taxa at site CFR-03A; no other algal divisions were represented. Estimated biovolume was distributed relatively evenly between green and blue-green algae, with the cyanobacteria *Nostoc* and *Tolypothrix* and the green algae *Cladophora* and *Oedogonium* ranked as the top four non-diatom taxa. This suggests moderate nutrient enrichment, with somewhat limited levels of nitrogen relative to phosphorus at site CFR-03A. Several genera of cyanobacteria that are epiphytic on large filamentous green algae were also relatively important, including *Chamaesiphon*, *Leptolyngbya* and *Heteroleibleinia*.

Diatom algae ranked third in estimated biovolume at site CFR-03A. Diatom species richness and Shannon diversity at site CFR-03A were fairly comparable to those at tributary sites immediately upstream, and within the range of values for Clark Fork River sites downstream [Table 6-3]. Dominant diatom taxa included *Cocconeis pediculus*, *C. placentula* and *Epithemia sorex*, all forms epiphytic on filamentous algae, the non-motile *Diatoma vulgare* and motile *Nitzschia paleacea*. All of these taxa suggest cool, alkaline water moderately rich in inorganic nutrients. Diatom increaser taxa at site CFR-03A indicated a moderately high probability of impairment by metals [Figure 6-2], and a high probability of impairment by sediment [Figure 6-1] and nutrients [Figure 6-3]. Most of the diatom taxa present were tolerant of elevated inorganic nitrogen [Figure 6-4] and organic nitrogen [Figure 6-5], and required a relatively high



level of dissolved oxygen saturation [Figure 6-6]. Biological integrity at site CFR-03A was rated as “good”, with only minor impairment indicated by a slightly elevated value for siltation index [Table 6-3]. All other diatom metrics for Montana mountain streams indicated “excellent” biological integrity and an unimpaired biota at site CFR-03A in 2014 [Table 6-3]

#### **6.3.3.3.6 Clark Fork River at Galen Road (CFR-07D)**

Ten “major” genera of non-diatom algae were identified at site CFR-07D in 2014, with seven genera of blue-green algae and three genera of green algae present. No other algal divisions were represented as “major” taxa at site CFR-07D [Table 6-2]. The top two non-diatom taxa at site CFR-07D, by biovolume, were the filamentous green algae *Cladophora* and *Oedogonium* followed the colonial cyanobacteria *Nostoc* and the epiphytic cyanobacteria *Chamaesiphon*, *Leptolyngbya* and *Heteroleibleinia*. This assemblage was very similar to that seen at upstream site CFR-03A. Water moderately rich in inorganic nutrients, but possibly somewhat limited in nitrogen, is suggested by the dominant non-diatom algae at CFR-07D.

Diatom species richness was slightly higher, and Shannon diversity slightly lower, at site CFR-07D compared to upstream site CFR-03A [Table 6-3]. The diatom *Diatoma vulgare* was strongly dominant at site CFR-07D, with a relative abundance of nearly 21%. *Diatoma moniliformis*, *Cocconeis placentula* and *Epithemia sorex* were also well represented, and together comprised 35% of diatom abundance. These taxa indicate cool, somewhat alkaline water with moderately high levels of inorganic nutrients. Diatom increaser taxa at site CFR-07D indicated a high probability of impairment by metals [Figure 6-2], and a moderately high probability of impairment by sediment [Figure 6-1] and nutrients [Figure 6-3]. Most of the diatom taxa present at site CFR-07D were tolerant of elevated inorganic nitrogen [Figure 6-4] and organic nitrogen [Figure 6-5], and required a relatively high level of dissolved oxygen saturation [Figure 6-6] similar to those at upstream site CFR-03A. Biological integrity at site CFR-07D was “good”, with only minor impairment related to sediment, and possible effects of toxic metals indicated by abnormal diatom cell walls [Table 6-3].

#### **6.3.3.3.7 Lost Creek at Frontage Road (LC-7.5)**

The site on Lost Creek was sampled at the Frontage Road crossing for the second year in a row. Eight “major” genera of non-diatom algae were present at LC-7.5, the fewest identified at any CFROU tributary site in 2014 [Table 6-2]. Six genera of green algae, one genus of blue-green algae, and one genus of red algae were “major” taxa at LC-7.5 [Table 6-2]. The filamentous green algae *Cladophora* and *Spirogyra* and the macroscopic green alga *Chara* ranked second through fourth in algal biovolume at LC-7.5, after the diatom assemblage. The red alga *Audouinella* and the blue-green *Chamaesiphon* were abundant and ranked fifth and sixth in algal biovolume at LC-7.5. These taxa indicated cool, high quality water moderately rich in nutrients. The occurrence of *Chara* only at site LC-7.5 is consistent with the alkaline nature of Lost Creek, presumably because of limestone geology in the Lost Creek watershed.

Diatom species richness and Shannon diversity values at LC-7.5 were the second lowest of any site in 2014 [Table 6-3]. *Diatoma moniliformis*, *Achnanthes minutissimum* and *D. vulgare* had the highest relative abundance values of the diatoms identified at site LC-7.5, together comprising over 61% of diatom abundance. These taxa prefer cool, well-oxygenated,

alkaline water of moderate conductivity, with low to moderate inorganic nutrients. Four percent of *Diatoma moniliformis* frustules at site LC-7.5 had abnormal cell walls (i.e. teratological growth forms), while 0.25% of *D. vulgaris* frustules were abnormal. This response has been attributed to heavy metals. Diatom increaser taxa indicated a moderate probability of impairment by metals [Figure 6-2], a moderately high probability of impairment by nutrients [Figure 6-3], but a low probability of impairment by sediment [Figure 6-1] at site LC-7.5. A majority of diatoms present at site LC-7.5 were tolerant of inorganic nutrients [Figure 6-4] and organic nitrogen [Figure 6-5], and nearly 50% of diatom relative abundance was contributed by taxa that are intolerant of high biochemical oxygen demand and require high dissolved oxygen saturation [Figure 6-6]. Biological integrity at site LC-7.5 was rated as “fair”, with moderate impairment indicated solely by the percent abnormal diatom cells [Table 6-3]. A biota with minor impairment and “good” biological integrity, or unimpaired with “excellent” biological integrity, was indicated by the remainder the diatom association metrics at site LC-7.5 [Table 6-3].

#### **6.3.3.3.8 Clark Fork River at Gemback Road (CFR-11F)**

Site CFR-11F was sampled for the second year in a row in 2014. Ten “major” genera of non-diatom algae were identified, with three genera of green algae and seven genera of blue-green algae present. No other algal divisions were represented by major taxa at site CFR-11F in 2014 [Table 6-2]. The filamentous green algae *Cladophora* and *Oedogonium* were ranked first and second in biovolume, with diatoms ranked third and the cyanobacteria *Nostoc* ranked fourth at site CFR-11F [Table 6-2]. The non-diatom algae assemblage at site CFR-11F was very similar to that observed at upstream sites CFR-03A and CFR-07D, again suggesting water moderately rich in inorganic nutrients but possibly somewhat limited by nitrogen.

The diatom *Epithemia sorex* was dominant at site CFR-11F with a percent abundance of nearly 13%. This was twice that seen at site CFR-03A and CFR-07D. Other dominant diatom species at site CFR-11F included *Cocconeis pediculus*, *C. placentula* and *Diatoma moniliformis* together comprising nearly 35% of diatom abundance. All of these diatom species prefer water with low to moderate levels of inorganic nitrogen and phosphorus and moderate conductivity, and occur as epiphytes on, or in close association with, filamentous green algae. Diatom increaser taxa at site CFR-11F indicated relatively high probability of impairment by sediment [Figure 6-1], metals [Figure 6-2] and nutrients [Figure 6-3]. The percent abundance of diatoms tolerant of inorganic nutrients [Figure 6-4] and organic nitrogen [Figure 6-5] at site CFR-11F were comparable to upstream sites CFR-03A and CFR-07D. The percent abundance of diatoms at site CFR-11F requiring high dissolved oxygen saturation and intolerant to conditions of high biochemical oxygen demand was relatively high at over 70% [Figure 6-6]. Biological integrity at site CFR-11F was rated “good”, with minor impairment indicated by only a slightly elevated value for percent abnormal diatom cells [Table 6-3]. The remainder of the diatom association metrics for site CFR-11F indicated “excellent” biological integrity with a unimpaired biota [Table 6-3].

#### 6.3.3.3.9 Racetrack Creek at Frontage Road (RTC-1.5)

The site on Racetrack Creek was sampled at the Frontage Road crossing for the second year in a row. A relatively diverse assemblage of eight “major” non-diatom genera from four algal divisions was present at site RTC-1.5 in 2014 [Table 6-2]. The cyanobacterium *Phormidium*, a cosmopolitan taxon with relatively broad ecological tolerances, ranked first in estimated biovolume at RTC-1.5. The yellow-green alga *Vaucheria*, which is often found in somewhat acidic waters containing dissolved humic compounds, ranked third after diatoms. The filamentous green algae *Cladophora* and *Stigeoclonium* were ranked fourth and fifth, respectively, while the filamentous red alga *Audouinella* ranked sixth at site RTC-1.5. This diverse group of filamentous algae suggests cool, circumneutral, relatively unpolluted water with adequate levels of inorganic nitrogen relative to phosphorus.

The diatoms *Achnanthes minutissimum* and *A. pyrenaicum* were dominant at site RTC-1.5 with about 30% and 24% relative abundance, respectively; *Encyonema minutum* and *E. silesiacum* accounted for about 13% and 4% relative abundance, respectively. All of these taxa prefer cool, low-conductivity water that is relatively low in nutrients. *Achnanthes minutissimum* is well adapted to recolonizing recently disturbed substrates, and as such is the basis for the disturbance index. The dominance of *Achnanthes minutissimum* at site RTC-1.5 suggests that physical factors such as high current velocities and substrate scour likely impacted the periphyton assemblage. Diatom increaser taxa indicated a very low probability of impairment by sediment [Figure 6-1], metals [Figure 6-2], or nutrients [Figure 6-3] at RTC-1.5. The diatom assemblage at site RTC-1.5 was relatively indifferent or intolerant of inorganic nitrogen [Figure 6-4], and somewhat tolerant of elevated organic nitrogen [Figure 6-5]. Over 40% of diatom species present at site RTC-1.5 required high levels of dissolved oxygen and were intolerant of conditions with elevated biochemical oxygen demand [Figure 6-6]. Overall biological integrity at site RTC-1.5 in 2014 was rated as “good”, with minor impairment indicated by a slightly depressed Shannon diversity value, and slightly elevated values for percent dominant taxon and the disturbance index [Table 6-3].

#### 6.3.3.3.10 Clark Fork River at Deer Lodge (CFR-27H)

Six “major” non-diatom genera were identified at site CFR-27H in 2014, with two genera of green algae and four genera of blue-green algae present. No other algal divisions were represented by major taxa at site CFR-27H [Table 6-2]. The non-diatom algae *Oedogonium*, *Cladophora* and *Nostoc* were the most numerous forms at site CFR-27H, which was similar to the three mainstem sites upstream of CFR-27H. Along with the diatom assemblage, they ranked as the top four taxa by estimated biovolume. *Cladophora* and *Oedogonium* indicate relatively high-quality water moderately rich in inorganic nutrients. The importance of *Nostoc* suggests that nitrogen may have been limited relative to available phosphorus at site CFR-27H, although the low percent abundance of the diatom *Epithemia sorex* did not support that conclusion.

Diatom species richness and Shannon diversity values at CFR-27H were the lowest found at any of the mainstem sites in 2014 [Table 6-3]. The dominant diatom taxa at site CFR-27H included *Cocconeis pediculus*, *Amphora pediculus* and *Diatoma moniliformis* with a total percent abundance between them of nearly 45%. All of these diatom species prefer water with

low to moderate levels of inorganic nitrogen and phosphorus and moderate conductivity, and occur as epiphytes on, or in close association with, filamentous green algae. Diatom increaser taxa at site CFR-27H indicated the lowest probability of impairment by metals of any of the Clark Fork River mainstem sites in 2014 [Figure 6-2]. A relatively high probability of impairment by sediment [Figure 6-1] and nutrients [Figure 6-3] was indicated by diatom increaser taxa. The diatom assemblage as a whole was relatively tolerant of inorganic and organic nitrogen [Figure 6-4; Figure 6-5], and required a moderately high percent oxygen saturation [Figure 6-6]. Overall biological integrity at CFR-27H was “good”, with slight impairment indicated by the siltation index and percent abnormal diatom cells [Table 6-3].

#### **6.3.3.3.11 Little Blackfoot River at Beck Hill Road (LBR-CFR-02)**

The site on the Little Blackfoot River was moved upstream approximately four miles to the Beck Hill Road crossing in 2014. A very diverse assemblage of 17 “major” genera of non-diatom algae representing five algal divisions was identified at LBR-CFR-02, including seven genera of green algae, six genera of blue-green algae, two genera of yellow-green algae, and one genus each of red algae and brown algae [Table 6-2]. The blue-green alga *Nostoc* was second in estimated abundance, behind only diatom algae, while the filamentous green algae *Cladophora* and *Oedogonium* ranked third and fifth, respectively. Other “major” filamentous forms at LBR-CFR-02 included the red alga *Audouinella*, the yellow-green algae *Vaucheria* and *Tribonema*, the blue-green algae *Tolypothrix*, *Heteroleibleinia* and *Leptolyngbya*, the brown alga *Heribaudiella* and the green algae *Spirogyra* and *Ulothrix*. The green algae *Closterium*, *Cosmarium* and *Staurastrum*, all single-celled desmids, also were “major” taxa in the lower Little Blackfoot River. This diverse non-diatom algae assemblage suggests relatively high quality, nutrient-rich water with little indication of impairment by toxic metals.

Diatom species richness and Shannon diversity at LBR-CFR-02 were near the low end of values for other tributary streams and Clark Fork River mainstem sites in 2014 [Table 6-3]. *Diatoma moniliformis* was the dominant diatom taxon at site LBR-CFR-02, with a relative abundance of over 36%; *Epithemia sorex* was the second most dominant diatom taxa with an abundance of about 10%. *Diatoma moniliformis* prefers cool, well-oxygenated, alkaline water of moderate conductivity, with low to moderate levels of inorganic nutrients. The importance of *Epithemia sorex*, along with the cyanobacteria *Nostoc*, suggests nitrogen was likely the limiting nutrient at site LBR-CFR-02, with inorganic phosphorus relatively abundant. Diatom increaser taxa at LBR-CFR-02 in 2014 indicated a moderately low probability of impairment by both sediment and metals [Figure 6-1; Figure 6-2], and a high probability of impairment by nutrients [Figure 6-3]. Most of the diatom taxa present at LBR-CFR-02 were tolerant of elevated inorganic nitrogen [Figure 6-4] and organic nitrogen [Figure 6-5], and required relatively high dissolved oxygen saturation [Figure 6-6]. Biological integrity at site LBR-CFR was “good”, with minor impairment indicated by slightly depressed values for Shannon diversity index and pollution index, and slightly elevated values for percent dominant diatom taxon and percent abnormal cells [Table 6-3].

#### 6.3.3.3.12 Clark Fork River at Turah (CFR-116A)

Ten “major” non-diatom genera were identified at site CFR-116A in 2014, including two genera of green algae, six genera of blue-green algae, and one genus each of red algae and brown algae [Table 6-2]. The filamentous green alga *Cladophora*, the filamentous red alga *Audouinella* and the colonial blue-green alga *Nostoc* were abundant, and were ranked second through fourth in estimated biovolume, respectively, after diatom algae. The filamentous blue-green algae *Dichothrix*, *Tolypothrix*, *Heteroleibleinia* and *Homoeothrix* and the epiphytic blue-green *Chamaesiphon* all ranked within the top ten in estimated biovolume. The common filamentous green alga *Ulothrix* and the uncommon filamentous brown alga *Heribaudiella* rounded out the ten “major” non-diatom taxa at site CFR-116A. The non-diatom algae assemblage at site CFR-116A was generally indicative of cool, nutrient-rich water, with moderate tolerance to toxic metals.

Diatom species richness was relatively high, and Shannon diversity was the third highest of the sites monitored in 2014 [Table 6-3]. *Epithemia sorex* was the dominant diatom species at site CFR-116A, with a relative abundance of about 18%, likely as an epiphyte on the green alga *Cladophora*. *Epithemia sorex* prefers slightly alkaline water with a relatively low level of organic nitrogen. *Cymbella affinis* was the only other diatom taxon to exceed 10% relative abundance at site CFR-116A. *Cymbella affinis* is a cosmopolitan, stalked form that prefers somewhat alkaline water with moderate nutrient levels. Diatom increaser taxa at CFR-116A indicated a low probability of impairment by sediment [Figure 6-1], a high probability of impairment by heavy metals [Figure 6-2], and a moderate probability of impairment by nutrients [Figure 6-3]. Most of the diatom taxa present at CFR-116A were tolerant of elevated inorganic nitrogen [Figure 6-4], but relatively intolerant of organic nitrogen [Figure 6-5], and required a high level of dissolved oxygen saturation [Figure 6-6]. Biological integrity at site CFR-116A was rated “good”, with minor impairment indicated only by a slightly elevated value for siltation index [Table 6-3]. The remainder the diatom association metrics for site CFR-116A indicated “excellent” biological integrity with a largely unimpaired biota [Table 6-3].

## 7.0 MACROINVERTEBRATES<sup>33</sup>

---

### 7.1 INTRODUCTION

---

The Clark Fork River, a major tributary of the Columbia River, has been impacted by mining and mineral operations occurring in its headwaters at the confluence of Warm Springs and Silver Bow Creeks in Deer Lodge County, Montana. In the late 1800s and early 1900s these tributaries carried wastes to the Clark Fork from mining, milling and smelting operations in the Butte and Anaconda areas. Wastes included hazardous substances such as arsenic, cadmium, copper, lead and zinc that contaminate large areas of the Clark Fork floodplain, river sediments and surface water.

An investigation of the character and extent of the contamination on the Clark Fork River began in 1995 subsequent to the U.S. Environmental Protection Agency (USEPA) designation of a portion of the river from the Warm Springs ponds on Silver Bow Creek to upstream of Milltown Reservoir as a distinct operable unit of the Milltown Reservoir Superfund Site. These investigations showed that natural resources in and around the river were impacted by the release of hazardous substances prompting the development of an adaptive, comprehensive long-term monitoring plan for evaluating the success of restoration and remediation activities [DeArment et al., 2010]. The plan will be implemented over the next decade and includes monitoring techniques and remediation goals for surface water, ground water, instream sediment, vegetation and aquatic biota.

Stream benthic macroinvertebrates are major components of the aquatic biota present in the Clark Fork drainage and thus, play an important role in the comprehensive monitoring plan. The overall plan for macroinvertebrates “is a reduction of acute and chronic risks to aquatic life as measured by.... benthic macroinvertebrate community integrity..... An absence of impacts to macroinvertebrate organisms will be reflected by a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the regions” [Karr and Dudley, 1981]. Attainment of will be reflected by progressive increases in biological integrity [DeArment et al., 2010]. Specifically, the plan for the macroinvertebrate community is “to attain and maintain a ‘nonimpaired’ bioassessment rating (>80%) based in the metrics subset indicating metals pollution which was established by McGuire [DeArment et al., 2010].” Although metals pollution will be used as the primary benchmark for evaluation of the condition of the macroinvertebrate community relative to remediation measures, other metrics will also be used to evaluate overall community integrity.

This report describes the analysis of a subset of the benthic macroinvertebrate monitoring program, specifically the samples collected in the Clark Fork drainage in 2014. The benthic invertebrate fauna was analyzed using an index developed specifically for the Clark Fork

---

<sup>33</sup> Chapter 7 was prepared by Wease Bollman, Sean Sullivan, Jennifer Bowman, and Billie Kerans with Rhithron with minor editing and formatting by RESPEC.



drainage [McGuire, 2010]. This index has been applied over a long course of sampling dating from 1986. The index is divided into three parts: a general subset, an organic pollution subset and a metals subset. In addition, the taxonomic and functional composition of the benthic fauna was investigated to gain information about probable stressors to water quality and habitat integrity. This information is described in a series of site-specific narratives.

## 7.2 METHODS

### 7.2.1 Sampling

Benthic macroinvertebrates were sampled at three Clark Fork River headwater sites, four sites on the mainstem Clark Fork River, and three sites on tributaries of the Clark Fork River on August 7 and 8, 2014. Four sample replicates were collected at each site, using a Hess sampling device. Sites are described in Table 7-1. Samples were delivered to Rhithron Associates, Inc. for processing and identification.

**Table 7-1. Macroinvertebrate sampling sites in the Clark Fork River basin, August 7-8, 2014.**

Site description	Site ID.	Co-located USGS gauge	Latitude (NAD 83)	Longitude (NAD 83)
Mill-Willow Creek at Frontage Road	MCWC-MWB	NA	46.12649	-112.79876
Warm Springs Creek near mouth	WSC-SBC	12323770	46.18041	-112.78592
Silver Bow Creek at Warm Springs	SS-25	12323750	46.18123	-112.77917
Clark Fork near Galen	CFR-03A	12323800	46.20877	-112.76740
Clark Fork at Galen Road	CFR-07D	12323800	46.20877	-112.76740
Clark Fork at Gemback Road	CFR-11F	NA	46.26520	-112.74430
Clark Fork at Turah	CFR-116A	12334550	46.49340	-113.48480
Lost Creek near mouth	LC-7.5	12323850	46.21862	-112.77384
Racetrack Creek near mouth	RTC-1.5	NA	46.28395	-112.74921
Little Blackfoot River near Garrison	LBR-CFR	12324590	46.51964	-112.79312

### 7.2.2 Laboratory Analysis

Samples were completely picked of organisms, following procedures consistent with previous Clark Fork River biomonitoring projects [McGuire, 2010; Bollman, 2010]. Similar to the most recent studies [Bollman and Sullivan, 2013; Bollman et al., 2014], densities of abundant taxa were not estimated, but actual counts were obtained for all organisms. Caton trays [Caton, 1991] were used to distribute the samples for sorting. Each individual sample was thoroughly mixed in its jar(s), poured out and evenly spread into the Caton tray. Grids were systematically selected, and grid contents were examined under stereoscopic microscopes using 10x-30x magnification (Leica S6E and Leica EZ4 stereoscopic dissecting microscopes). All invertebrates were sorted from the substrate, and placed in 95% ethanol for subsequent identification.



Organisms were individually examined by certified taxonomists, using 10x–80x stereoscopic dissecting scopes (Leica S8E) and identified to the lowest practical level consistent with previous Clark Fork River biomonitoring projects [McGuire, 2010], using appropriate published taxonomic references and keys. Midges and worms were carefully morphotyped using 10x–80x stereoscopic dissecting microscopes (Leica S8E) and representative specimens were slide mounted and examined at 200x–1000x magnification under compound microscopes (Olympus BX 51 with Hoffman Contrast and Leica DM1000). Slide mounted organisms were archived at the Rhithron laboratory.

Identification, counts, life stages, and information about the condition of specimens were recorded. Organisms that could not be identified to the taxonomic targets because of immaturity, poor condition, or lack of complete current regionally applicable published keys were left at appropriate taxonomic levels that were coarser than target levels. To obtain accuracy in richness measures, these organisms were designated as “not unique” if other specimens from the same group could be taken to target levels. Organisms designated as “unique” were those that could be definitively distinguished from other organisms in the sample. Identified organisms were preserved in 95% ethanol in labeled vials, and archived at the Rhithron laboratory.

### 7.2.3 Quality Assurance Systems

---

Quality control procedures for macroinvertebrate sample processing involved checking sorting efficiency on two randomly selected quality control samples. These checks were conducted by trained quality assurance technicians who microscopically re-examined 100% of sorted substrate from each quality control sample. Sorting efficiency was evaluated by applying the following calculation:

$$SE = \frac{n_1}{n_1 + n_2} \times 100$$

where: *SE* is the sorting efficiency, expressed as a percentage,  $n_1$  is the total number of specimens in the first sort, and  $n_2$  is the total number of specimens in the second sort.

Quality control procedures for taxonomic determinations of invertebrates involved checking accuracy, precision and enumeration. Two samples were randomly selected and all organisms re-identified and counted by an independent taxonomist. Taxa lists and enumerations were compared by calculating a Bray-Curtis similarity statistic [Bray and Curtis, 1957] for each selected sample. The percent taxonomic disagreement (PTD) and percent difference in enumeration (PDE) were also calculated [Stribling et al., 2003].

### 7.2.4 Data Analysis

---

Taxa lists and counts for each sample were constructed. Standard metric calculations were made using customized database software. McGuire’s indices are “.....specifically designed to evaluate water quality in the Clark Fork River Basin” [McGuire, 2010]. The indices comprise 11 metrics. Two subsets of three metrics each are scored and summed separately to obtain values

for organic/nutrient impairment and for metals impairment. Individual metrics and the expected response of each to environmental stress are described in the project sampling and analysis plan [Naughton et al., 2014].

### 7.2.5 Ecological Interpretations: Approach

---

We use narrative interpretations of taxonomic and functional composition of invertebrate assemblages to reveal the probable stressors in the Clark Fork River Operable Unit. Often canonical procedures are used for stressor identification; however, the substantial data required for such procedures (e.g., surveys of habitat, historical and current data related to water quality, land use, point and non-point source influences, soils, hydrology, geology) were not readily available for this study. Instead our narrative interpretations are based on demonstrated associations between assemblage components and habitat and water quality variables gleaned from the published literature, the writer's own research (especially Bollman [1998]) and professional judgment, and the research (especially Wisseman [1996]) and professional judgment of other expert sources.

We use attributes of invertebrate taxa that are well substantiated in diverse literature and that are generally accepted by regional aquatic ecologists as evidence of water quality and instream and reach-scale habitat conditions. The approach to this analysis uses some assemblage attributes that are interpreted as evidence of water quality and other attributes that are interpreted as evidence of habitat integrity. To arrive at impairment classifications, attributes are considered individually, so information is maximized by not relying on a single cumulative score, which may mask stress on the biota. Such an approach also minimizes the possibility of using inappropriate assessment strategies when the biota at a site is atypical of "characteristic" sites in a region. Replicate samples were electronically combined into composited samples for this analysis. Below we describe the invertebrate attributes that were used and their relationships to water quality and habitat conditions.

Mayfly taxa richness, the Hilsenhoff Biotic Index (HBI) value [Hilsenhoff, 1987], the richness and abundance of hemoglobin-bearing taxa and the richness of sensitive taxa are often used as indicators of water quality. Mayfly taxa richness has been demonstrated to be significantly correlated with chemical measures of dissolved oxygen, pH, and conductivity (e.g., Bollman [1998], Fore et al. [1996], Wisseman [1996]). The HBI has a long history of use and validation [Cairns and Pratt, 1993; Smith and Tran, 2010; Johnson and Ringler, 2014]. In Montana foothills, the HBI was demonstrated to be significantly associated with conductivity, pH, water temperature, sediment deposition, and the presence of filamentous algae [Bollman, 1998]. Nutrient enrichment in Montana streams often results in large crops of filamentous algae [Watson, 1988]. Thus in these samples, when macroinvertebrates associated or dependent on filamentous algae (e.g., LeSage and Harrison [1980], Anderson [1976]) are abundant, the presence of filamentous algae and nutrient enrichment are also suspected. Sensitive taxa exhibit intolerance to a wide range of stressors (e.g., Hellowell [1986], Wisseman [1996], Friedrich [1990], Barbour et al. [1999]), including nutrient enrichment, acidification, thermal stress, sediment deposition, habitat disruption, and others. These taxa are expected to be present in predictable numbers in functioning montane and foothills streams (e.g., Bollman

[1998]). Although the abundance of invertebrates in Hess samples can be highly variable, reflecting the patchy and dynamic areal distribution of the benthos in stony-bottomed streams, McGuire's thresholds for environmental perturbation [McGuire, 2010] are cited as evidence of enrichment or impairment.

The richness and abundance of cold stenotherm taxa [Clark, 1997] and calculation of the temperature preference of the macroinvertebrate assemblage [Brandt, 2001] can predict the thermal characteristics of the sampled site. Hemoglobin-bearing taxa are also indicators of warm water temperatures [Walshe, 1947], since dissolved oxygen is directly associated with water temperature; oxygen concentrations can also vary with the degree of nutrient enrichment. Increased temperatures and high nutrient concentrations can, alone or in concert, create conditions favorable to hypoxic sediments, habitats preferred by hemoglobin-bearers.

The absence of invertebrate groups known to be sensitive to metals and the Metals Tolerance Index [Bukantis, 1998] are considered signals of possible metals contamination. Metals sensitivity for some groups, especially the heptageniid mayflies, is well-known (e.g., Kiffney and Clements [1994]; Clements [1999]; [2004]; Montz et al. [2010]; Iwasaki et al. [2013]). In the present approach, the absence of these groups in environs where they are typically expected to occur is considered a signal of possible metals contamination, but only when combined with a measure of overall assemblage tolerance of metals. The Metals Tolerance Index ranks taxa according to their sensitivity to metals. Weighting taxa by their abundance in a sample, assemblage tolerance is estimated by averaging the tolerance of all sampled individuals.

Characteristics of the macroinvertebrate assemblages can also reveal the condition of instream and streamside habitats. Stress from sediment is evaluated by caddisfly richness and by "clinger" richness [Kleindl, 1995; Bollman, 1998; Karr and Chu, 1999; Wagenhoff et al., 2012; Leitner et al., 2015]. A newer tool, the Fine Sediment Biotic Index (FSBI) [Relyea et al., 2012] shows promise when applied to the montane and foothills regions. This index and its interpretation are modified in this report, based on the author's professional judgment, to more effectively characterize the Clark Fork River and tributaries in the sampled reaches.

The functional characteristics of macroinvertebrate assemblages are based on the morphology and behaviors associated with feeding, and are interpreted in terms of the River Continuum Concept [Vannote et al., 1980] in the narratives. Alterations from predicted patterns in montane and foothills streams may be interpreted as evidence of water quality or habitat disruption. For example, shredders and the microbes they depend on are sensitive to modifications of the riparian zone [Plafkin et al., 1989].

## **7.3 RESULTS**

---

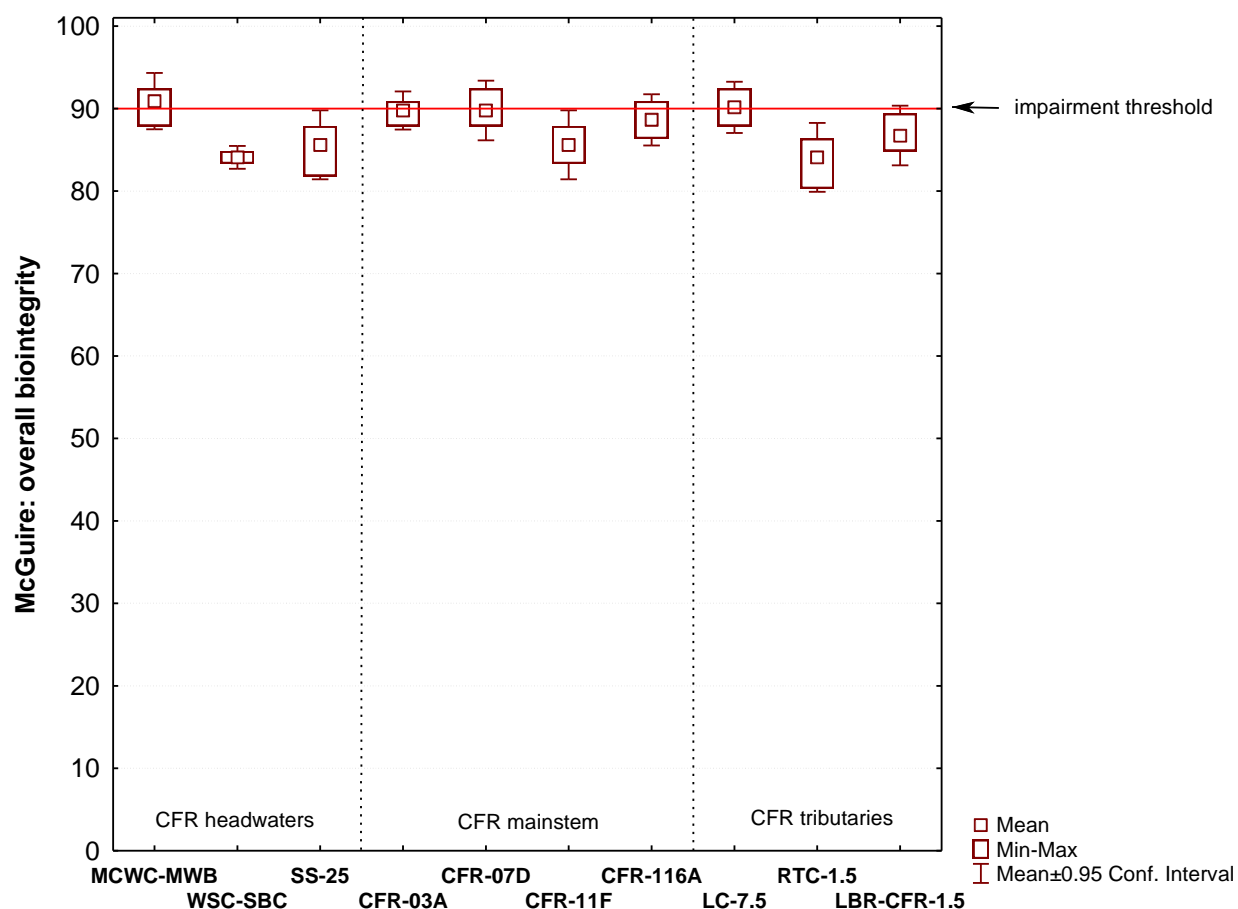
### **7.3.1 Bioassessment**

---

Analytical macroinvertebrate data are presented in Appendix H. Mean bioassessment scores and their associated impairment classifications are given in Table 7-2. Raw scores for each macroinvertebrate replicate sample are given in Appendix I. Quality control and quality assurance results are reported in Appendix J.

### 7.3.1.1 Overall Biointegrity Index

Mean scores for McGuire's overall biointegrity index [Table 7-2] indicate unimpaired biological integrity at the headwaters site on Mill-Willow Creek (MCWC-MWB) and at the tributary site Lost Creek at Frontage Road (LC-7.5). All other studied sites are classified as slightly impaired using this index. There was little variation in overall biological integrity scores among sample replicates. The mean coefficient of variation (CV) among replicates for this index (scores as percent of maximum score) was 2.38%. Mean, maximum and minimum scores, with 95% confidence intervals are graphed in Figure 7-1.

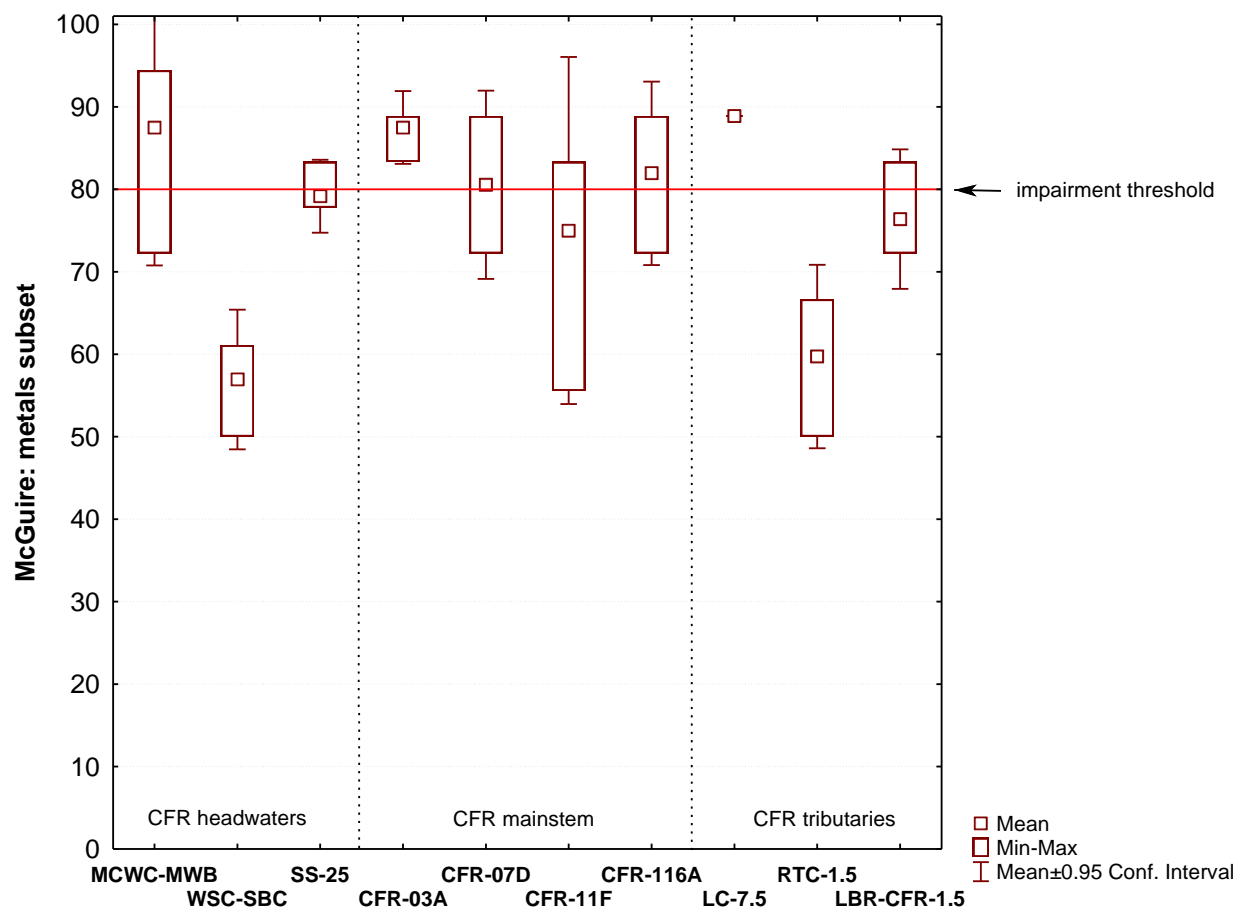


**Figure 7-1. Variability among replicates: mean scores, maximum and minimum scores, and 95% confidence intervals for McGuire's overall biointegrity index. Clark Fork River basin, August 7-8, 2014.**

### 7.3.1.2 Metals Subset

Mean scores for McGuire's metals index [Table 7-2] indicate unimpaired conditions at five sites. Slight metals impairment was indicated at: Silver Bow Creek at Warm Springs (SS-25),

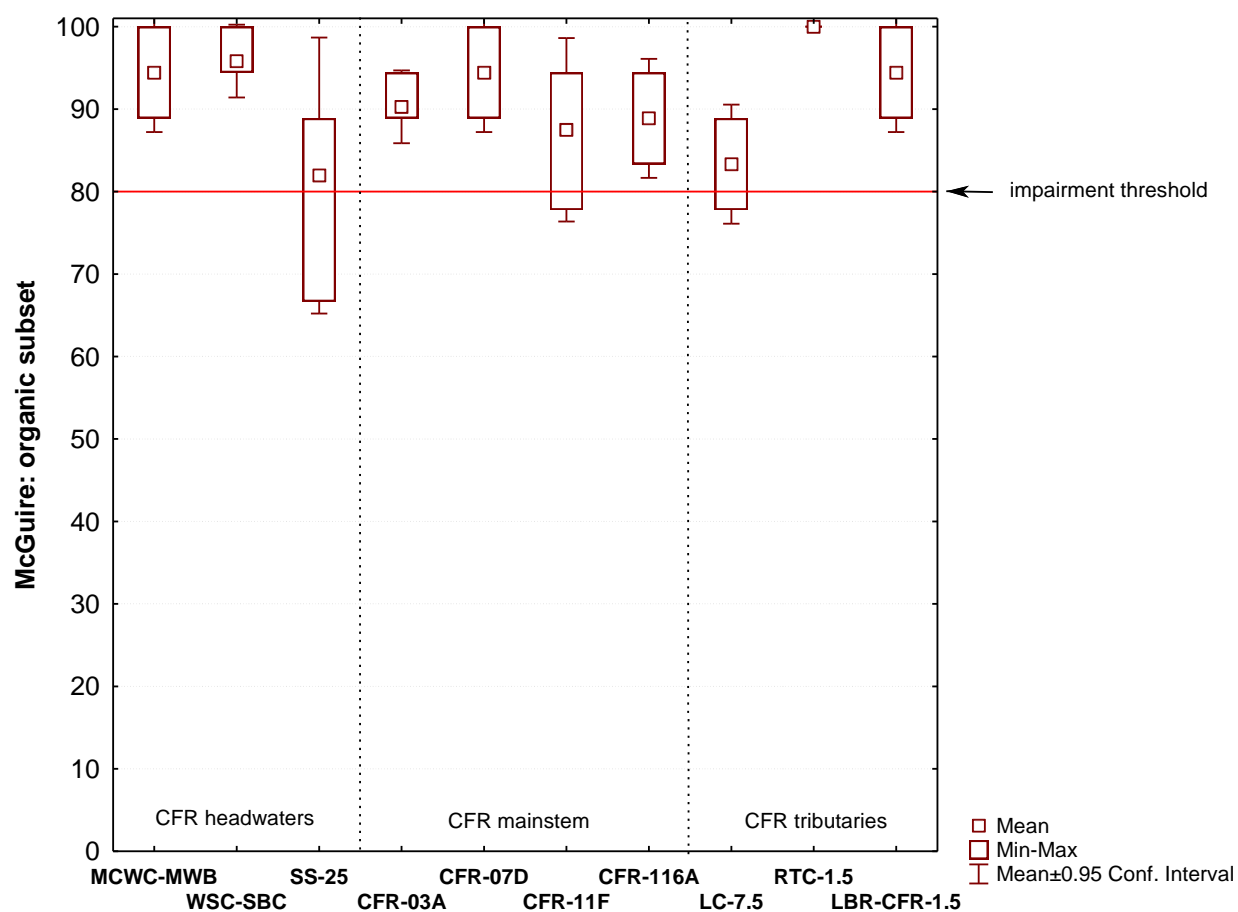
Clark Fork at Gemback Road (CFR-11F), and Little Blackfoot River near Garrison (LBR-CFR). Moderate impairment due to metals was indicated at Warm Springs Creek near mouth (WSC-SBC) and Racetrack Creek at Frontage Road (RTC-1.5). The mean CV among replicates for the metals subset index score (scores as percent of maximum score) was 8.18%, suggesting greater variability in these scores compared to the overall biointegrity scores. Mean, maximum and minimum scores, with 95% confidence intervals are graphed in Figure 7-2.



**Figure 7-2. Variability among replicates: mean scores, maximum and minimum scores, and 95% confidence intervals for McGuire's metals pollution metric subset. Clark Fork River basin, August 7-8, 2014.**

### 7.3.1.3 Organic and Nutrient Subset

Mean scores for McGuire's organic and nutrient index [Table 7-2] indicate unimpaired conditions at all sites. The mean CV among replicates for the organic and nutrient subset index score (scores as percent of maximum score) was 5.17%, indicating moderate variation in these scores. Mean, maximum and minimum scores, with 95% confidence intervals are graphed in Figure 7-3.



**Figure 7-3. Variability among replicates: mean scores, maximum and minimum scores, and 95% confidence intervals for McGuire's organic/nutrient pollution metric subset. Clark Fork River basin, August 7-8, 2014.**

**Table 7-2. Mean macroinvertebrate bioassessment scores and impairment classifications: McGuire's indices for general biointegrity, nutrient/organic impairment, and metals impairment. Scores are mean values over four replicate samples, and are expressed as the percent of maximum score. Clark Fork River basin, August 7-8, 2014.**

Site name	Site identifier	McGuire biointegrity metrics [McGuire, 2010]		McGuire metals-sensitive subset [McGuire, 2010]		McGuire organic/nutrient-sensitive subset [McGuire, 2010]	
		score	impairment class	score	impairment class	score	impairment class
Mill -Willow Creek at Frontage Road	MCWC-MWB	90.9	none	87.5	none	94.4	none
Warm Springs Creek near mouth	WSC-SBC	84.1	slight	56.9	moderate	95.8	none
Silver Bow Creek at Warm Springs	SS-25	85.6	slight	79.2	slight	81.9	none
Clark Fork near Galen at Perkins Lane	CFR-03A	89.8	slight	87.5	none	90.3	none
Clark Fork at Galen Road	CFR-07D	89.8	slight	80.6	none	94.4	none
Clark Fork at Gembach Road	CFR-11F	85.6	slight	75.0	slight	87.5	none
Clark Fork at Turah	CFR-116A	88.6	slight	81.9	none	88.9	none
Lost Creek at Frontage Road	LC-7.5	90.2	none	88.9	none	83.3	none
Racetrack Creek at Frontage Road	RTC-1.5	84.1	slight	59.7	moderate	100.0	none
Little Blackfoot River near mouth near Garrison	LBR-CFR	86.7	slight	76.4	slight	94.4	none



## 7.3.2 Ecological Interpretation of Aquatic Invertebrate Assemblages

---

### 7.3.2.1 Mill-Willow Creek at Frontage Road (MCWC-MWB)

Metric indicators of water quality suggested good conditions at this site: Mayfly taxa richness (11) was high, and the HBI value (3.40) was within expectations for a low-order valley stream, indicating a moderately sensitive invertebrate assemblage. The dominant taxon was the caddisfly *Brachycentrus occidentalis*, accounting for 38% of sampled organisms. The abundance of this filter-feeder suggests that suspended organic particulates were an important energy source in the reach: *B. occidentalis* is typical of dam-outflow environments. Notably, the Metals Tolerance Index (MTI) value (3.91) exceeded the HBI value, suggesting metals contamination. However, heptageniid mayflies (*Ecdyonurus criddlei*) were common in the sample. It seems likely that metals contamination was not a major influence on the composition of the benthic fauna. The thermal preference of the assemblage was estimated at 15.7 C.

The benthic fauna did not appear to be stressed by sediment deposition. Thirteen caddisfly taxa and 29 “clinger” taxa were counted. The FSBI value (5.28) indicated a sediment-sensitive assemblage. High overall taxa richness (59) suggests diverse and intact instream habitats. The presence of eight semivoltine taxa indicates that the fauna was not substantially influenced by catastrophic dewatering, thermal extremes, or severe sediment pulses. Filter-feeders, especially *Brachycentrus occidentalis*, and the midge *Rheotanytarsus* sp., dominated the functional composition of the assemblage. All other expected groups were also present.

### 7.3.2.2 Warm Springs Creek near mouth (WSC-SBC)

Collections at this site were relatively depauperate, the number of organisms in Hess sample replicates ranged from 147 to 244. Low numbers of organisms may be due to very poor water quality, habitat disruption or limitations, sampling error, or a combination of those factors.

Five mayfly taxa were counted, which is somewhat fewer than expected. Nearly all (96.7%) of mayflies in the replicates were baetids (*Acentrella insignificans*, *Baetis tricaudatus* complex, *Diphetero hageni*), among the more tolerant taxa in this insect order. The HBI value (4.04) suggested a mildly tolerant invertebrate assemblage. Similar to the data of 2013, the MTI value (4.66) was higher than the HBI value, and metals-sensitive taxa such as heptageniid mayflies and *Lepidostoma* sp. were uncommon. Based on these findings, metals contamination cannot be ruled out here. The thermal preference calculated for the fauna was 14.8 C.

It seems likely that sediment deposition did not appreciably limit colonization of stony substrates, since 12 caddisfly taxa and 23 “clinger” taxa were collected. The FSBI value (4.84) indicated a sediment-sensitive assemblage. Overall taxa richness (41) was somewhat lower than expected: instream habitats may have been monotonous or disrupted. Semivoltine taxa (8) were well-represented, indicating that dewatering or thermal stress did not interrupt long life cycles. All functional groups were present, but shredders were notably rare, suggesting limited riparian inputs of organic material, or hydrologic conditions that did not favor retention of such material.

### 7.3.2.3 Silver Bow Creek at Warm Springs (SS-25)

Mayfly taxa richness (5) was lower than expected, and the HBI value (4.99) was higher than expected for a low-order valley stream. These findings suggest that the invertebrate assemblage may be stressed by impaired water quality. Nearly half of the sampled organisms were taxa tolerant to nutrient pollution: these included amphipods (*Hyaella* sp.), isopods (*Caecidotea* sp.), and leeches (*Helobdella stagnalis*). Hemoglobin-bearing midges (*Cryptochironomus* sp., *Microtendipes* sp., *Polypedilum* sp., and *Pseudochironomus* sp.) further suggest that hypoxic conditions may be present. Abundant hydroptilid caddisflies (*Hydroptila* sp. and *Ochrotrichia* sp.) suggest the presence of filamentous algae. Large crops of filamentous algae may be associated with nutrient enrichment. In addition, warm water temperatures are suggested by large numbers of the caddisfly *Cheumatopsyche* sp. and the mayfly *Tricorythodes* sp. The thermal preference of the assemblage was calculated at 16.3 C. No heptageniid mayflies were present in the sample, but the MTI value (4.59) was lower than the HBI value. There is no definitive evidence of metals contamination.

Thirteen caddisfly taxa and 20 “clinger” taxa were counted in the composited samples. It seems likely that stony substrate habitats were not excessively compromised by deposited sediment. The FSBI value (3.19) indicated a moderately sediment-tolerant assemblage. High overall taxa richness (61) may be related to diverse and intact instream habitats. Catastrophic dewatering, thermal stress, or sediment pulses seem unlikely, since the site supported at least 5 semivoltine taxa. Filterers, especially among the hydropsychid caddisflies (*Ceratopsyche cockerelli*, *Cheumatopsyche* spp., *Hydropsyche occidentalis*), blackflies (*Simulium* sp.), and the midges (*Microtendipes* spp.) dominated the functional mix. This suggests that fine organic particles in suspension were an important energy source, and may be evidence of nutrient enrichment. All other expected feeding groups were present, although shredders were notably scarce. A poor showing of shredders suggests that large organic material such as leaves and woody debris from riparian inputs may have been limited, or that hydrologic conditions did not favor retention of such material.

### 7.3.2.4 Clark Fork near Galen (CFR-03A)

Similar to the samples collected in 2013, the midge *Cricotopus* (*Nostococladius*) sp. dominated collections taken at this site in 2014, accounting for 26% of the sampled fauna. The relatively high tolerance value (6) assigned to this midge may overestimate its tolerance, and resulted in an HBI value of 4.68, higher than expected for a low- to mid-order stream in the Valley and Foothill ecoregion. Mayfly taxa richness (7) was within expectations. It seems likely that nutrient pollution did not substantially influence the macroinvertebrate assemblage here. Nitrogen was likely a limiting nutrient, since abundant *C. (Nostococladius)* sp. suggests a large crop of the blue-green alga *Nostoc* sp. The MTI value (4.50) was lower than the HBI value, but metals-sensitive taxa such as heptageniid mayflies and the caddisfly *Lepidostoma* sp. were poorly represented. Based on these data, there is no definitive evidence of metals contamination. The thermal preference of the fauna was calculated at 15.9 C.

At least 24 “clinger” taxa and 15 caddisfly taxa were supported at this site, suggesting that stony substrates were largely free of deposited sediment. The FSBI value (4.19) indicated a moderately sediment-sensitive fauna. Overall taxa richness (58) was moderately high and may have been related to intact and diverse instream habitats. The dominance of *C. (Nostococladius)* sp. suggests that the benthic substrate may have been composed primarily of *Nostoc* sp. colonies. Seven semivoltine taxa were counted in samples, and several of these taxa were abundant. Catastrophes such as dewatering, scouring sediment pulses, or thermal extremes were probably not influential here. Shredders, especially *C. (Nostococladius)* sp. were abundant, but this midge does not respond to riparian inputs of large organic material: this type of material may have been limited in the reach. Filter-feeders, collectors, and scrapers were also abundant.

#### 7.3.2.5 Clark Fork at Galen Road (CFR-07D)

Mayfly taxa richness (6) was moderate in samples collected at this site, and the HBI value (4.32) was somewhat higher than expected for a mid-order valley stream. The midge *Cricotopus (Nostococladius)* sp. was common, and its overestimated tolerance value (6) influenced the HBI calculation. It seems likely that nutrient pollution, if present, was mild at this site. Metals contamination, however, cannot be ruled out: the MTI value (4.41) was higher than the HBI value. In addition, common metals-sensitive taxa were rare here: no heptageniid mayflies were counted, and the caddisfly *Lepidostoma* sp. was represented by a single specimen. The thermal preference of the benthic fauna was calculated at 16.1 C.

Sediment deposition probably did not influence this assemblage to an appreciable extent: the site supported no fewer than 11 caddisfly taxa and 21 “clinger” taxa. The FSBI value (4.05) indicated a moderately sediment-sensitive assemblage. Overall taxa richness (50) was somewhat lower than expected, suggesting limited instream habitats. Dewatering or thermal extremes probably did not influence the composition of the benthic fauna, since seven semivoltine taxa were counted in samples. Filterers, especially the caddisflies *Ceratopsyche cockerelli* and *Brachycentrus occidentalis*, dominated the functional composition, suggesting that suspended fine organic material was a major energy source in the reach. All other feeding groups were present, but shredders indicative of riparian inputs were not common.

#### 7.3.2.6 Clark Fork at Gemback Road (CFR-11F)

Although mayfly taxa richness (10) was high, the HBI value (4.34) indicated a relatively tolerant benthic fauna at this site. Hydroptilid caddisflies (*Hydroptila* sp.) and midges in the genus *Orthocladus* spp. were common in the samples: these taxa are typically associated with filamentous algae, large crops of which may suggest nutrient enrichment. Cool to warmwater temperatures may have also been influential here, since several warmwater preferring taxa were present, including the caddisflies *Helicopsyche* sp. and *Oecetis* sp., and the mayfly *Tricorythodes* sp. The thermal preference of the entire assemblage was calculated at 16.8 C.

Eleven caddisfly taxa were collected, but “clinger” richness was slightly lower than expected, suggesting mild influence of sediment deposition. The FSBI value (4.04), however, indicated a

moderately sediment-sensitive assemblage. Lower than expected taxa richness (45) may be related to monotonous or disrupted instream habitats. Semivoltine taxa were well represented: six such taxa were counted in samples. Catastrophic dewatering or thermal extremes did not appear to be influential. Filterers, especially among the hydropsychid caddisflies (*Ceratopsyche cockerelli*, *Cheumatopsyche* sp., and *Hydropsyche occidentalis*), dominated the functional mix, suggesting abundant fine organic particulates in suspension. Some nutrient enrichment may be indicated. Although all other feeding groups were represented, shredders were notably uncommon. Riparian inputs of large organic material such as leaves and woody debris may have been limited in the reach.

#### 7.3.2.7 Clark Fork at Turah (CFR-116A)

At least 12 unique mayfly taxa were supported at this site. The HBI value (4.47) indicated a mildly tolerant assemblage, which seems appropriate for a higher-order riverine system in the Valley and Foothill ecoregion. Although taxa typically associated with filamentous algae (*Hydroptila* sp., *Cricotopus* spp., *Orthocladius* spp.) were present, nutrient enrichment was probably mild. This assemblage yielded the highest thermal preference (17.4 C) of any site in this study. Cool to warmwater taxa, such as *Asioplax edmundsi*, *Tricorythodes* sp., immature gomphid dragonflies, and the aquatic larvae of moths (*Petrophila* sp.) were common in samples collected here.

The site supported at least nine caddisfly taxa and 22 “clinger” taxa, suggesting that colonization of stony substrates was not inhibited by deposited sediment. The FSBI value (4.53) indicated a sediment sensitive assemblage. Overall taxa richness (53) was high, suggesting diverse instream habitats. Eight semivoltine taxa were counted in samples: catastrophic dewatering or thermal stress probably did not influence the biota in this reach. Filterers, especially among the hydropsychid caddisflies (*Hydropsyche occidentalis*, *Cheumatopsyche* sp., and *Ceratopsyche cockerelli*), dominated the functional mix. Gatherers were also abundant. This pattern is sometimes interpreted as evidence of nutrient enrichment. Shredders associated with leafy and woody debris from riparian sources were more common here than at other Clark Fork River sites in this study.

#### 7.3.2.8 Lost Creek at Frontage Road (LC-7.5)

Although seven mayfly taxa were collected at this site, the high HBI value (5.41) indicated a tolerant invertebrate assemblage. Impaired water quality seems to be indicated. Tolerant taxa were abundant: these included large numbers of the amphipods *Hyaella* sp. and *Gammarus* sp., snails (*Gyraulus* sp., *Physella* sp.), leeches (*Helobdella stagnalis*, *Glossiphonia complanata*), hydroptilid caddisflies (*Hydroptila* sp.) and other tolerant caddisflies (*Helicopsyche* sp., *Oecetis* sp.). Some of these taxa are associated with filamentous algae, large crops of which may be an indication of nutrient enrichment. There was no discernible evidence of metals contamination. The thermal preference of the invertebrate fauna was calculated at 16.9 C.

The site supported at least 12 caddisfly taxa, but there were fewer “clinger” taxa (18) than expected. These findings suggest that sediment deposition may have compromised stony

substrate habitats. However, the FSBI value calculated for the assemblage was 4.25, indicating a moderately sediment-sensitive fauna. Overall taxa richness (57) was high, suggesting diverse instream habitats. Six semivoltine taxa were counted in samples: catastrophic dewatering or thermal extremes probably did not influence the biota in this reach. All expected functional groups were present: gatherers and filterers were the most common organisms. This pattern is sometimes interpreted as evidence for nutrient enrichment.

#### 7.3.2.9 Racetrack Creek at Frontage Road (RTC-1.5)

High mayfly taxa richness (12) and low HBI value (3.04) suggest that nutrient enrichment was not influential here. The benthic fauna included several moderately sensitive taxa, including the mayflies *Ameletus* sp. and *Rhithrogena* sp., as well as the caddisfly *Agapetus* sp. Of concern is the high MTI value (5.16), which exceeded the HBI value. A few specimens of metals-sensitive taxa (*Ecdyonurus criddlei*, *Rhithrogena* sp., *Lepidostoma* sp.) were present; abundance of these taxa was so limited that metals contamination cannot be ruled out at this site. The most abundant taxon, the midge *Pagastia* sp., accounted for 24% of sampled organisms, and is considered to be tolerant of metals contamination. The thermal preference of the assemblage was calculated at 14.6 C.

Eight caddisfly taxa and 21 “clinger” taxa were collected, suggesting that sediment deposition did not appreciably limit colonization of stony substrates. The hyporheic stonefly *Paraperla* sp. was present, indicating that interstitial spaces were not compromised by sediment or embedded substrates. The FSBI value (4.80) indicated a sediment-sensitive fauna. Overall taxa richness (54) was high, even though invertebrate abundance was lower than expected. Replicate sample sizes ranged from 201 to 444 organisms: only 1,182 specimens were present in the four replicate samples collected here. Three of the six semivoltine taxa counted in samples were pioneering taxa (dytiscid and haliplid beetles) with more mobility than other benthic invertebrates. Still, it seems unlikely that the site was influenced by catastrophic dewatering, thermal extremes or scouring sediment pulses. Gatherers overwhelmed the functional composition of the assemblage, filterers were rare, and other feeding groups were uncommon. This pattern represents a likely disturbance of the expected functional condition, which may be related to either water quality problems, habitat disruption, or both.

#### 7.3.2.10 Little Blackfoot River at Beck Hill Road (LBR-CFR)

Nine mayfly taxa were counted in samples collected at this site, but the elevated HBI value (4.60) suggests a moderately tolerant assemblage. The HBI value is at least partly influenced by abundant *Cricotopus* (*Nostococladius*) sp., which has a tolerance value assignment that seems to underestimate its sensitivity. But large numbers of the midges *Eukiefferiella* spp. and *Tvetenia* spp. suggest that filamentous algae may be common in the reach. Large crops of filamentous algae may be associated with nutrient enrichment. Hemoglobin-bearing taxa, including the midge *Polypedilum* sp., were common, supporting a hypothesis of nutrient pollution. The MTI value (4.32) was lower than the HBI value, and heptageniid mayflies (*Ecdyonurus criddlei*) were present, as was the metals-sensitive caddisfly *Lepidostoma* sp. It

seems likely that the site was not contaminated by metals pollution. The thermal preference of the benthic fauna was estimated at 15.7 C.

Twelve caddisfly taxa were collected at this site, and samples yielded 28 “clinger” taxa. Sediment deposition probably did not substantially limit colonization of stony substrate habitats here. The FSBI value (5.41) indicated a sediment-sensitive fauna. Overall taxa richness (62) was high, suggesting diverse and intact instream habitats. Nine semivoltine taxa were counted: year-round surface flow and absence of events that would interrupt long life cycles are indicated. All expected functional groups were represented. The functional composition was dominated by gatherers and filterers, a pattern which is sometimes interpreted as evidence of impaired water quality.

## 7.4 CONCLUSIONS

---

Among Clark Fork River headwaters and tributary sites, five sites had metals pollution subset scores below 80% including Warm Springs Creek near mouth (WSC-SBC) with a mean score of 56.9%, Silver Bow Creek at Warm Springs (SS-25) with a mean score 79.2%, the Clark Fork River site at Gemback Road (CFR-11F) with a mean score of 75.0%, Racetrack Creek at Frontage Road (RTC-1.5) with a mean score of 59.7%, and the Little Blackfoot River near Garrison (LBR-CFR) with a mean score of 76.4%.

On the basis of the taxonomic composition of the macroinvertebrate fauna and the performance of the MTI, the influence of metals contamination was a possible stressor at two headwaters sites: Warm Springs Creek near mouth (WSC-SBC) and Silver Bow Creek at Warm Springs (SS-25). Metals contamination could not be ruled out at the mainstem Clark Fork River sites near Galen at Perkins Lane (CFR-03A) and at Galen Road (CFR-7D), and at the tributary site on Racetrack Creek (RTC-1.5). Table 7-3 summarizes the probable stressors suggested by the taxonomic and functional composition of macroinvertebrate assemblages at each site.

**Table 7-3. Clark Fork River basin sites and probable stressors as suggested by the composition of macroinvertebrate assemblages. Clark Fork River basin, August 7-8, 2014.**

Site name	Site ID	Low abundance	Nutrient and/or organic pollution	Metals	Sediment deposition	Thermal extremes	Habitat instability
Mill -Willow Creek at Frontage Road	MCWC-MWB						
Warm Springs Creek near mouth	WSC-SBC	+	+	+			
Silver Bow Creek at Warm Springs	SS-25		+				
Clark Fork near Galen at Perkins Lane	CFR-03A						
Clark Fork at Galen Road	CFR-07D			+			
Clark Fork at Gemback Road	CFR-11F		?		?		
Clark Fork at Turah	CFR-116A						
Lost Creek at Frontage Road	LC-7.5		+		?		
Racetrack Creek at Frontage Road	RTC-1.5	+		?			
Little Blackfoot River near mouth near Garrison	LBR-CFR		?				

+ Composition of the assemblage suggests stress.  
 ? Evidence from the assemblage was contradictory or inconclusive.



### 8.1 INTRODUCTION

---

Metal mining and milling operations began in Silver Bow Creek and the Upper Clark Fork River (UCFR) Basin as early as the 1860s. These operations expanded as the focus of mining shifted from gold to copper in the 1880s. Over the next century, an estimated 100 million tons of copper mine waste were deposited in the UCFR and the adjacent floodplain [Andrews, 1987]. Waste products from these mining operations contain high concentrations of metals that are known to be hazardous to fish [Wood, 2012]. These metals, especially copper, have been linked to increased mortality of adult and juvenile trout in the UCFR [Schreck et al., 2012; Mayfield, 2013; Richards et al., 2013].

Metals such as copper and zinc have been shown to enter fish tissues through multiple pathways including diet and the uptake of water through the gills [Marr et al., 1995a, 1995b; Woodward et al., 1995a]. Concentrations of these substances in fish tissues are a function of ambient metal concentration and duration of exposure to contaminated water [Marr et al. 1996; Gundogdu and Erdem, 2008]. Copper is transferred from the water into fish tissue through sodium (Na<sup>+</sup>) and copper-specific uptake mechanisms [Wood, 2012]. Water-borne metals not only accumulate metals in fish tissue, but also can directly damage gill epithelium and inhibit olfaction [Wood, 2012]. Aquatic invertebrates are a large part of trout diets, and contaminants within these diet items are integrated into fish tissue when consumed. Several studies have demonstrated metal accumulation in fishes fed invertebrates from the UCFR [Frag et al, 1994; Woodward et al., 1995a; Louma et al., 2008]. Aquatic invertebrates typically represent the largest source by which copper enters fish in the Clark Fork River. Regardless of the pathway into fish, metal exposure causes a variety of negative effects. Potential effects include cell damage [Frag et al., 1994; Woodward et al., 1995a], reduced growth [Marr et al.1996], behavioral changes [Woodward et al., 1995b; Hansen et al., 1999], and mortality [Frag et al., 2003].

In addition to heavy metal contamination, high water temperatures are often cited as a factor that negatively affects fish populations in the UCFR Basin. Elevated water temperatures can cause stress and can worsen effects of other stressors and diseases [Wahli et al., 2002; Hari et al., 2006; Jonsson and Jonsson, 2009]. High water temperatures also increase susceptibility to metals exposure through increased respiration [Sorensen, 1991]. The upper thermal limit for Brown Trout is 19.0°C, above which growth rate approaches zero [Elliot, 1994]. During the summer months, temperatures routinely exceed 19°C in some reaches of the UCFR. For example, water temperatures in the Clark Fork River near Deer Lodge exceeded 20°C for 31-56 days annually between 2001 and 2004 [Naughton, 2015]. These high water temperatures may make trout in the UCFR more likely to succumb to toxic effects of heavy metal contamination.

---

<sup>34</sup> Chapter 8 was prepared by Nathan Cook, Pat Saffel, Brad Liermann, Jason Lindstrom, and Trevor Selch of Montana Fish, Wildlife, and Parks with minor editing and formatting by RESPEC.

Effects on trout of various concentrations of water borne heavy metals have been well studied (e.g., Dixon and Sprague [1981]; Marr et al. [1995a]; Hansen et al. [2002]). However, metal concentrations and toxicities vary depending on flows and water chemistry, which makes getting an adequate representation of river contamination through water sampling difficult. Thus, using whole body metal tissue burdens have become an important tool in monitoring contamination and ongoing remediation in the UCFR. Other than a study conducted by Montana Fish, Wildlife and Parks (MFWP) in 2013 [Leon et al., 2014], no studies have related fish survival directly to the concentration of heavy metals within fish tissue. More understanding of the relationship between tissue burdens and fish survival is needed.

In 2014, MFWP received funding from Montana Department of Environmental Quality (MDEQ) to complete a caged fish study similar to those conducted by Leon et al. [2014] and Richards et al. [2013] and Schreck et al. [2012] as well as to collect fish population information on the mainstem Clark Fork River. The goals of this project are to document current levels of metals contamination in the Upper Clark Fork River, assess potential impacts these metals have on fishes, and collect baseline fish population monitoring data for future assessment of remediation efforts.

### **8.1.1 Objectives**

---

1. Document status and trends of fish populations in the upper Clark Fork River.
2. Identify water quality factors affecting the growth, condition, and mortality of young trout.
3. Determine survival rates of age 0 Brown Trout in the upper Clark Fork River at nine sites (from Warm Springs Ponds to Bearmouth, Montana), two tributary streams, and one handling control site.
4. Draw comparisons between tissue burdens of: 1) tributary and mainstem sites, 2) sites upstream and downstream of the construction area in Warm Springs, Montana, and 3) fish collected in different months of the year.
5. Explore possible trends between data collected in previous years and the current year.
6. Provide information to remediation project managers that will aid in the planning and implementation of cleanup efforts.

## **8.2 METHODS**

---

### **8.2.1 Population Monitoring**

---

Mark-recapture population estimates were calculated for the following sample reaches of the Upper Clark Fork River in 2014: Bearmouth, Flint Creek Mouth, Phosphate, Williams-Tavener, Below Sager Lane, and pH Shack. Field methods were conducted in the same manner as Lindstrom (2011). During the month of April, fish were collected with the use of a 14 ft long aluminum drift boat with a mounted electrofishing unit and two front boom anodes and one netter. The system was powered by a 5,000-watt generator and current was modified with a Coffelt VVP-15 or Smith-Root VVP-15B rectifying unit. Estimates were made using two mark

passes and two recapture passes of which recapture passes were completed roughly one week later. All captured trout were identified to species, weighed (g) and measured (mm), and given a small fin clip unique to the sampling section and day. Resulting data were analyzed by sample reach and species and summarized by the population estimate (if available; standardized to number of fish per mile), 95% confidence interval with upper and lower bounds, capture efficiencies, number of fish handled, mean length, length range, and percent of species composition. Population estimates were generated using the Chapman modification [Chapman, 1951] of the Petersen method provided in MFWP's Fisheries Information System database. Estimates and capture efficiencies were calculated for trout species that had a minimum of 4 marked fish that were recaptured [B. Liermann, MFWP, personal communication, 2014]. Due to low numbers and/or poor capture efficiency of smaller size classes, only estimates for fish greater than 175 mm (~7 in) in length were reported.

Estimates from previous years (2008-2013) included in this report are part of the long-term dataset required for this study. A Chapman modification of the Petersen method, as described above, was used to generate estimates in the Fisheries Information System for data from 2011-2014, two sample reaches from 2010 (Bearmouth and Flint Creek Mouth), and two sample reaches from 2009 (Bearmouth and Flint Creek Mouth). Estimates from 2008, remaining sample reaches in 2009 (pH Shack, Below Sager Lane, Williams-Tavanner, and Phosphate), and remaining sample reaches in 2010 (pH Shack, Below Sager Lane, Williams-Tavanner, and Phosphate) were generated using a Chapman estimator for the Peterson method provided in Montana Fish, Wildlife and Park's Fisheries Analysis Plus (FA+) software package, and are presented here as originally reported in Lindstrom [2011]. Both programs produce identical population estimates, but confidence intervals around the estimates are calculated differently, with FA+ assuming sample data is normally distributed and the Fisheries Information System assuming sample data is binomially distributed (see Ogle [2013] for details).

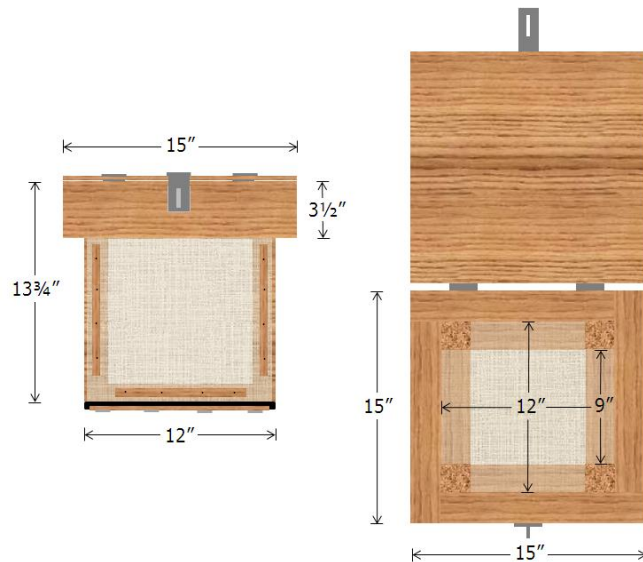
When sampling for these population estimates, only trout and char (members of *Salmo*, *Oncorhynchus*, and *Salvelinus* genera) are netted. Thus, other species present in the Clark Fork River are not captured, enumerated, weighed, or measured during population estimate sampling events. Because remediation in the Upper Clark Fork River has the potential to affect all fish species present, two reaches were sampled in which all fish were netted, weighed, and measured. These reaches were one mile long and were located upstream of the town of Deer Lodge ("Above Deer Lodge") and upstream from the Jens Road Bridge ("Jens"). One electrofishing pass was conducted at each sampling reach using methods similar to those listed above. Resulting data were analyzed by sample reach and species and summarized by catch per unit effort (fish per mile or river and fish per minute of electrofishing), mean length, length range, and percent of species composition.

## 8.2.2 Cage Construction

---

Thirty-six wooden cages were constructed in winter 2011, prior to the first year of the Upper Clark Fork caged fish study. The cages resembled those used to hold Rainbow Trout in the Middle Clark Fork River, but were 34% larger to accommodate the Brown Trout used in this study [Figure 8-1]. The internal volume of the cages was 0.75 ft<sup>3</sup> (actual volume of water

available). Knotless nylon seine material (1/16 inch bar mesh) was used for the netting on the sides and bottom of the cages. Cages were also fitted with floats to provide buoyancy.



**Figure 8-1. Dimensions of the cages constructed for the study.**

### 8.2.3 Study Sites

Cages were deployed at twelve locations in the Upper Clark Fork River Drainage in late March 2014 [Figure 8-2]. Sites were numbered from 1 to 12 starting at the Pond 2 Outlet and progressing downstream in the drainage. Nine treatment sites were located at the following locations:

1. Pond 2 Outlet at Warm Springs, Montana (Pond 2)
2. Silver Bow Creek at Warm Springs, Montana (Silver Bow)
3. Warm Springs Creek near the mouth (Warm Springs)
4. Clark Fork River at Perkins Lane Bridge (Perkins Lane)
5. Clark Fork River at Galen Road Bridge (Galen)
6. Clark Fork River upstream of Racetrack Creek confluence (Racetrack)
7. Clark Fork River at Deer Lodge, Montana (Deer Lodge)
8. Clark Fork River upstream of the Little Blackfoot River (U/S Lil Black)
11. Clark Fork River near the Bearmouth FAS (Bearmouth)

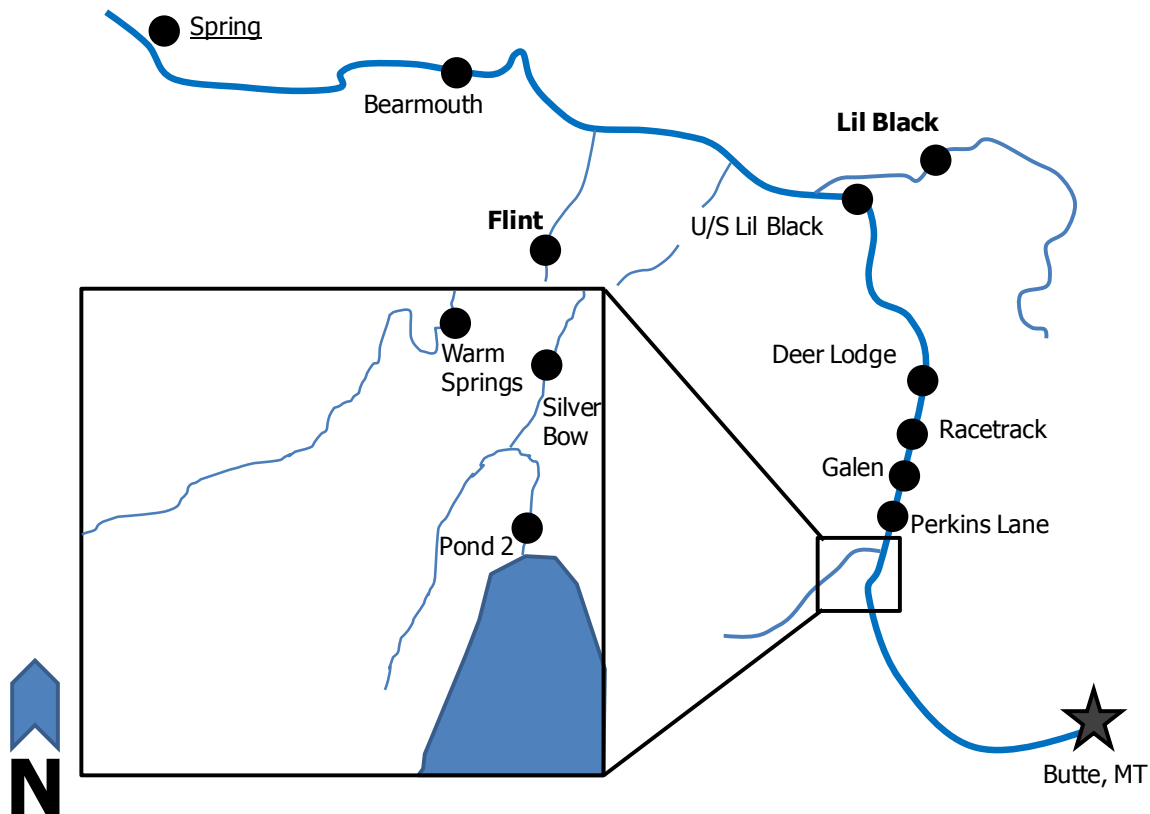
Two control sites were located on tributaries:

9. Lower Little Blackfoot River (Lil Black)
10. Flint Creek (Flint)

One handling control site was located in a spring-fed channel.

12. Clinton, Montana (Spring)

The Clinton Spring handling control served as a reference to establish baseline mortality rates. The Clinton site was used to determine if handling during cage checks (e.g., cleaning and relocating) or stress from initial fish delivery to the cages negatively impacted survival, independent of water quality. All sites except Pond 2, Galen, Racetrack, and Spring were located near U.S. Geological Survey (USGS) gauging stations equipped to measure discharge four times per hour.

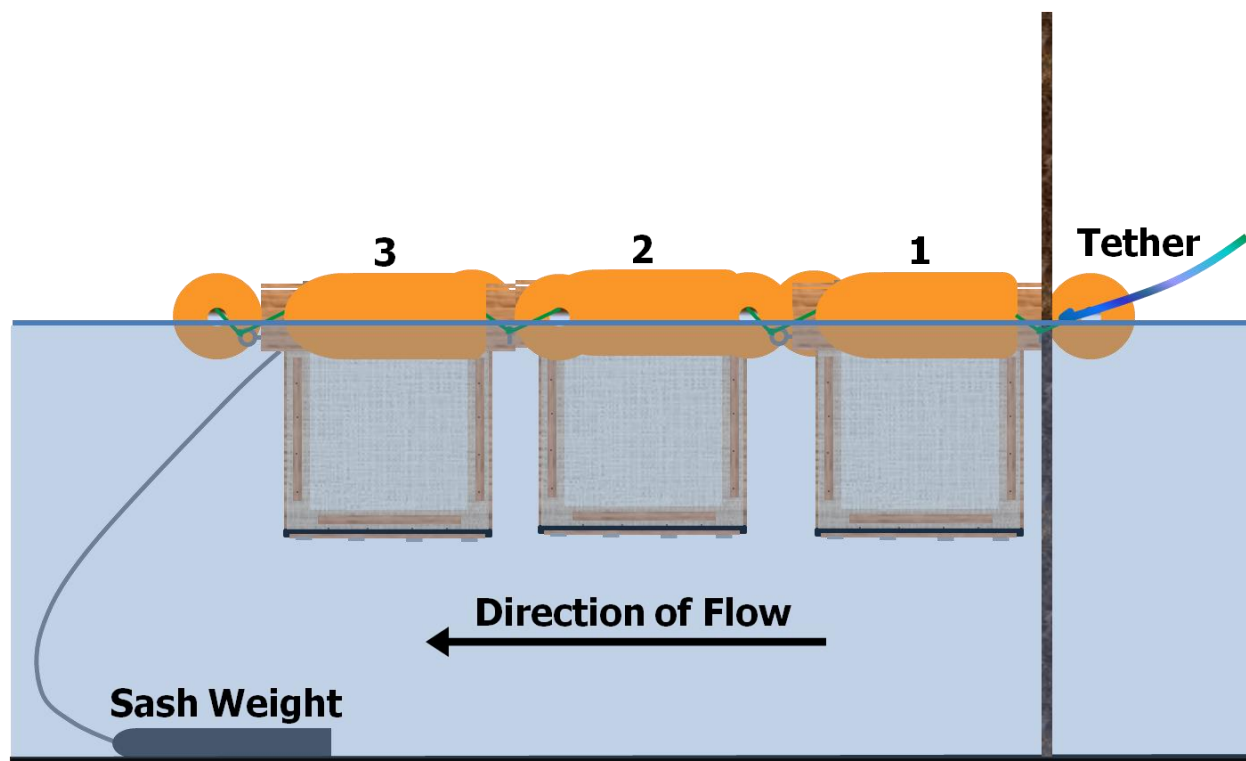


**Figure 8-2. Distribution of the twelve study sites in the Upper Clark Fork River drainage. Tributary control sites are shown in bold and the handling control is underlined**

#### 8.2.4 Cage Deployment

Within each site exact locations of the cages were dependent on the availability of low velocity habitats with access to refuge during periods of high runoff. Cages were positioned in velocities less than 0.75 ft/s. Three cages were deployed at each site. Cages were secured with sections of reinforcing bar (rebar) driven into the substrate, as well as sash weights and tether lines [Figure 8-3]. The sash weights provided additional anchoring during rising water levels, and tether ropes insured the cages were not completely lost should a flood event occur. Temperature loggers (HOBO ® U22 Pro v2) were attached to the rebar securing the cages in the channel and the units were most often set 6-12 inches above the substrate. The loggers were programmed to take a measurement once every half hour.

Two cages served as treatment cages (i.e., one replicate) and the third held fish for replacement of individuals in the treatment cages and live fish collection. The study began with 25 Brown Trout per cage and these densities were maintained in the treatment cages as long as possible by replacing them with individuals from the replacement cage. However, high fish mortality during 2014 led to the third cage at most sites becoming empty of fish before the field season was completed. This required that fish from the treatment cages (cages one and two) be used for live fish collections and resulted in fewer than 25 fish in most treatment cages at most sites.



**Figure 8-3. Representation of cage deployment (arrangement of cages differed by site, and cages often drifted together).**

Brown trout were selected for this study given their dominance in the Upper Clark Fork River. Due to low densities of young trout in the upper river, fingerling study specimens were obtained from a state hatchery. In late March approximately 900 fingerling Brown Trout were obtained from Big Springs Hatchery in Lewistown, Montana. The trout were transported from the hatchery via an aerated cooler.

At each site trout were anesthetized with clove oil, measured for total length (mm), weighed to the nearest 0.1 g and divided into one of the three cages. Lengths of fingerlings ranged from 56-95 mm (mean = 75 mm) and weights ranged from 1.9-9.8 g (mean = 4.1 g). Fingerlings were feed-trained on pellet feed prior to leaving the hatchery. Prior to being anesthetized, fish were acclimated to the water temperature at each site with the addition of onsite water. Water temperature in the coolers was 6.7 °C before stocking. Water temperatures at the first six sites stocked ranged from 5.0 °C to 5.6 °C.



### 8.2.5 Mortality Monitoring

---

Beginning the last week of March, trout mortality was monitored twice per week. At each visit the trout in each cage were fed one tablespoon of Bio Oregon BioClark's Starter #1 pellet feed (pellet size 0.6 mm). It should be noted that both the size and brand of feed was different in 2014 than previous years. For example, in the first three months of the 2013 study, trout were fed 1.0 mm sinking feed (Silver Cup Extruded Salmon). During the remaining months of 2013, trout were fed slightly larger No. 3 sinking feed (Silver Cup Crumbled Salmon/Trout).

Cages were repositioned to seams and eddies as needed to maintain water velocities near 0.75 ft/s around the cages. Velocities around the cages were measured periodically to ensure they were near to 0.75 ft/s. The exterior of the cages were brushed clean as needed to provide for exchange of water between the cage and the site.

At each visit mortalities were removed from the cages and weighed and measured. In previous years, mortalities removed from the treatment cages (cages 1 and 2) were replaced with live individuals from the replacement cage (cage 3). However, the rapid depletion of fish caused by high mortality and live fish sampling meant that most sites ran out of replacement fish at some point during the 2014 study. As a result, most treatment cages could not be maintained at 25 fish. All mortalities were held in a freezer at the Region 2 MFWP headquarters after collection.

As in previous years of the caged fish study, the only time period considered for survival analysis was after an acclimation period and before August. The acclimation period included mortalities that were thought to be due to moving fish from a controlled hatchery environment to cages in more variable stream environments. In previous years the acclimation period was considered the first week of the study. In 2014 the acclimation period was extended to two weeks (ending April 10) because mortality tended to be high at most sites up to this date. August mortalities are typically excluded because of significant mortality at the Clinton Spring control site during this month. Survival within a cage was expressed as the number of fish remaining in the cage on July 31 divided by the net number of fish placed in the cage up to that time. Survival can be expressed as:

$$Survival = (Fish\ remaining) / (net\ number\ of\ fish\ added)$$

or

$$Survival = (Fish\ remaining) / (Initial\ 50\ fish + replacements - removals)$$

Numbers of fish remaining and added were combined for cages one and two at each site to yield an overall survival estimate for that site. Survival at each of the nine mainstem treatment sites were compared to survival at the tributary sites (Lil Black and Flint) with chi-square tests incorporating Yates's correction for continuity [Yates, 1934]. This test is identical to a test of two proportions where fish remaining are "hits" or "successes" and total fish added are "events". Numbers of fish remaining and fish added at Lil Black and Flint were averaged for analysis and these averages were used as the control to which survival at each treatment site was compared. Alpha was set as 0.05 for statistical analyses.



## 8.2.6 Growth and Condition

---

Lengths and weights of half (450) of the total number (900) of specimens placed in cages were taken prior to stocking the fish cages. Initial lengths did not differ significantly among sites in 2014 ( $F_{5,444} = 1.1230$ ,  $p\text{-value} = 0.3473$ ), so mean of all measured fish was used as the initial length to compare growth over the field season. At the completion of the field season a subsample of 30 fish (10 surviving fish randomly selected from cages 1, 2, and 3) were measured and weighed. If there were less than 30 surviving fish at the end of the field season all surviving fish at a site were sampled. Growth was calculated as the mean change in length at each site. Relative weight (Wr) was used as an index of conditions. Relative weight was calculated using the standard weight equation of Milewski and Brown [1994]. Although Milewski and Brown [1994] developed their standard weight equation for Brown Trout >140 mm, and fish in this caged fish study were all <140 mm, Wr still provides a meaningful way to compare body condition between live and dead fish, between sites, and over time. Mean Wr for live and dead fish each month at each site were depicted graphically. Only fish from cages one and two were used for growth and condition calculations.

Because most sites were depleted of replacement (cage 3) fish by the end of the field season, cages one and two contained different numbers of fish by the end of the season at all sites except Deer Lodge. There was some concern that growth and condition would be dependent on the density of fish in the cages. All cages received the same amount of food, so it is possible that competition would result in less food available for each individual in the cages with more fish. To test for density dependent growth and condition, two general linear models were performed. Mean increase in length and mean Wr for each cage (cages one and two at each site), were considered response variables in separate models. For each of these models, fish remaining in the cages (an index of fish density) was the continuous predictor variable and site was used as a categorical predictor variable. The site variable was necessary to account for significantly different growth and condition between sites (see Section 8.3).

Rates of feeding, digestion, absorption, excretion, and metabolism for fish are heavily dependent on water temperature [Elliot, 1994; Ojanguren et al., 2001]. As a result water temperature is a primary determinant of growth. Elliot et al. [1995] developed a model to quantify the effects of varying water temperatures on growth in weight of Brown Trout in a controlled laboratory setting. This model predicts increased growth at water temperatures near the optimum temperature of 13.1 °C and slower growth as temperatures approach the lower (3.6 °C) and upper (19.5 °C) thermal limits for Brown Trout growth. Specifically, the Elliot et al. [1995] model predicts the final weight of a fish of a given initial weight after a given length of time at a given temperature. Mean weight of the 450 Brown Trout weighed prior to cage stocking (4.2 g) was used for the initial weight in the model. Mean daily temperatures recorded by temperature loggers mounted to the fish cages at each site were input into the model to predict daily growth. These daily growth increments were summed for the entire time fish were in the cages (March 27 to the time the fish was sampled), resulting in a predicted final weight of individual fish at each site. The observed mean weight of surviving live fish at each site was plotted against weights predicted by the temperature based model. Differences in observed

weights from those predicted by the temperature model could be evidence of influences of factors other than temperature (i.e., food availability, heavy metal toxicity) on growth.

### 8.2.7 Tissue Metals Burdens

---

Three live fish were collected from each site the last week of the month April-July for tissue burden analysis. Three fish from each site were also collected upon the completion of the field season on September 2, 2014. Five fish from the hatchery were sacrificed prior to stocking fish cages in order to determine baseline tissue metals burdens. In addition to live fish, a subsample of fish that died during the 2014 season was collected for tissue burden analysis. However, preliminary analyses indicated that tissue burdens of the dead fish were abnormally, perhaps artificially high. A previous study conducted on an estuarine species (*Mummichog*, *Fundulus heteroclitus*) suggested that fish corpse may gain copper and zinc after death, thus limiting the research value of whole body metal concentrations from dead fish [Eisler and Gardener, 1973]. Due to these concerns, only tissue burden data from fish collected alive will be discussed in the remainder of this report.

Fish samples were submitted to the Montana Department of Health and Human Services Environmental Laboratory in Helena for determination of whole-fish metal concentrations. Fish samples were blended to a powder to ensure homogeneity, and then the samples were weighed, dried, and reweighed to determine moisture content. The dried samples were then crushed and dissolved with nitric acid, diluted with deionized water, and analyzed for copper and zinc with inductively coupled plasma optical emission spectrometry (ICP-OES) using the U.S. Environmental Protection Agency (USEPA) Method 200.7 [USEPA, 2001]. All results were reported as  $\mu\text{g/g}$  dry weight.

Graphical comparisons were made between tissue metals burdens (copper and zinc) and each of the following variables: site, month, and site location (hatchery controls vs. tributary sites vs. mainstem sites, upstream construction vs. downstream construction.) For the purposes of these comparisons between tributary and mainstem sites, Clinton Spring was not included because it does not experience significant temperature and flow fluctuations typical of the flowing water sites. For each comparison, 95% confidence intervals were displayed and tissue burden values were considered statistically different if their confidence intervals did not overlap. Statistical differences in tissue burdens between sites were also assessed using an analysis of variance (ANOVA). Pairwise T tests (with Bonferroni-adjusted *p-values* to account for multiple comparisons) were then conducted to identify pairs of sites with statistically different tissue burdens.

To evaluate possible temporal trends in copper and zinc tissue burdens, annual mean tissue burdens at each site were compared. Mean tissue burdens from caged fish studies conducted 2011-2014 [Schreck et al., 2012; Richards et al, 2013; Leon et al., 2014] were compared graphically by site. Tissue samples from individual fish were combined into composite samples in 2011 and 2012 to reduce costs, which did not allow for measures of variation such as confidence intervals or ANOVA. Tissue burdens in 2013 and 2014 were analyzed for individual fish, so confidence intervals could be generated for these years. Average annual survival at each site used in caged fish studies 2011-2014 were also compared to evaluate potential temporal

trends in fish survival. Annual survival comparisons could also reveal sites that have consistently low fish survival due to high metal tissue burdens, high water temperatures, or some combination of these factors.

### 8.2.8 Water Contaminants

---

MFWP collected water samples at each of the twelve sites on 4/21/14 and 7/28/14. An additional collection was done on 8/14/14 at the eight sites upstream of confluence of the Little Blackfoot River. One sample was collected at the U/S Lil Black site on 7/21/14 which was four days after a large mortality event at that site. Samples were collected using the techniques outlined by the MDEQ Field Procedures Manual for Water Quality Assessment Monitoring [MDEQ, 2012a]. All samples were delivered to Energy Laboratories Inc. in Helena, Montana and were analyzed for dissolved and total recoverable metals including copper, arsenic, lead, cadmium, and zinc, as well as calcium, magnesium, and total ammonia nitrogen (NH<sub>3</sub>-N). RESPEC Consulting collected additional water data under a contract for MDEQ during the quarterly monitoring of the Clark Fork River Operating Unit (CFROU).

Performance standards have been identified for contaminants in the upper Clark Fork River [USEPA, 2004] and are defined as the more stringent of the freshwater aquatic life standards (ALS) published by the MDEQ [2012b]. Because the chronic ALS is the most stringent and since this study focuses on chronic effects, the chronic ALS was used to evaluate contaminant data. Freshwater ALS are a function of total water hardness and are evaluated on the basis of total recoverable metals concentrations [MDEQ, 2012b]. Chronic freshwater ALS values were obtained from the table of standards for Montana waters or calculated using the hardness relationships described by MDEQ [2012b]. The chronic ALS values were calculated as:

$$Chronic = exp.\{mc[\ln(hardness)]+bc\}$$

where *mc* and *bc* = values listed by MDEQ [2012b]. Chronic ALS compliance ratios were calculated by dividing the measured contaminant values by the calculated chronic ALS values. Compliance ratio values <1 indicate contaminant levels below the chronic ALS, while values >1 indicate contaminant levels above the chronic ALS.

### 8.2.9 Discharge and Water Temperature

---

Discharge data presented in this report were obtained from USGS gauge stations recording measurements four times per hour. Estimates of mean daily discharge were downloaded from the USGS National Water Information System web interface. It is important to note that not all estimates presented in this report have been reviewed and approved for publication. No station existed at the Pond 2, Galen, Racetrack, and Spring sites. Maximum daily water temperatures were obtained for each site with water temperature data loggers mounted to fish cages described above.

## 8.2.10 Water Quality

---

Water quality parameters were recorded in the Clark Fork River at five sites in 2014 with continuously recording multiparameter water quality probes (Hydrolab ® MS5). Cross referencing of Hydrolab data was achieved by sampling intermittently at the nine mainstem and three control sites using a handheld multiprobe (YSI ® 556 MPS). Hydrolab and YSI probes were calibrated periodically during the field season. Probes were deployed at Pond 2, Silver Bow, Galen, Racetrack, and U/S Lil Black in 2014. Water quality parameters recorded include temperature, pH, specific conductivity, and luminescent dissolved oxygen (LDO) at all sites, with the addition of total ammonia ( $\text{NH}_4 + \text{NH}_3$ ) at Pond 2 and Silver Bow. Toxicity of total ammonia is dependent on other water parameters including water temperature and pH [Emerson et al., 1975; MDEQ, 2012b]. The increased toxicity is due to the conversion of the generally inert form ( $\text{NH}_4$ ) to the highly toxic form ( $\text{NH}_3$ ) through the process of de-ionization [Barton, 1996]. Acute freshwater ammonia ALS values were calculated as:

$$\text{Acute} = [0.275 / (1 + 10^{7.204 - \text{pH}})] + (39.0 / (1 + 10^{7.204 - \text{pH}})]$$

and the chronic ALS were calculated as:

$$\text{Chronic} = [0.0577 / (1 + 10^{7.688 - \text{pH}}) + 2.487 / (1 + 10^{\text{pH} - 7.688})] \times \text{MIN}(2.85, 1.45 \times 10^{0.028 \times (25 - T)})$$

where T = temperature (°C). Ammonia and ALS value were then plotted graphically to determine if and when exceedance events occurred.

## 8.3 RESULTS

---

### 8.3.1 Trout Population Monitoring

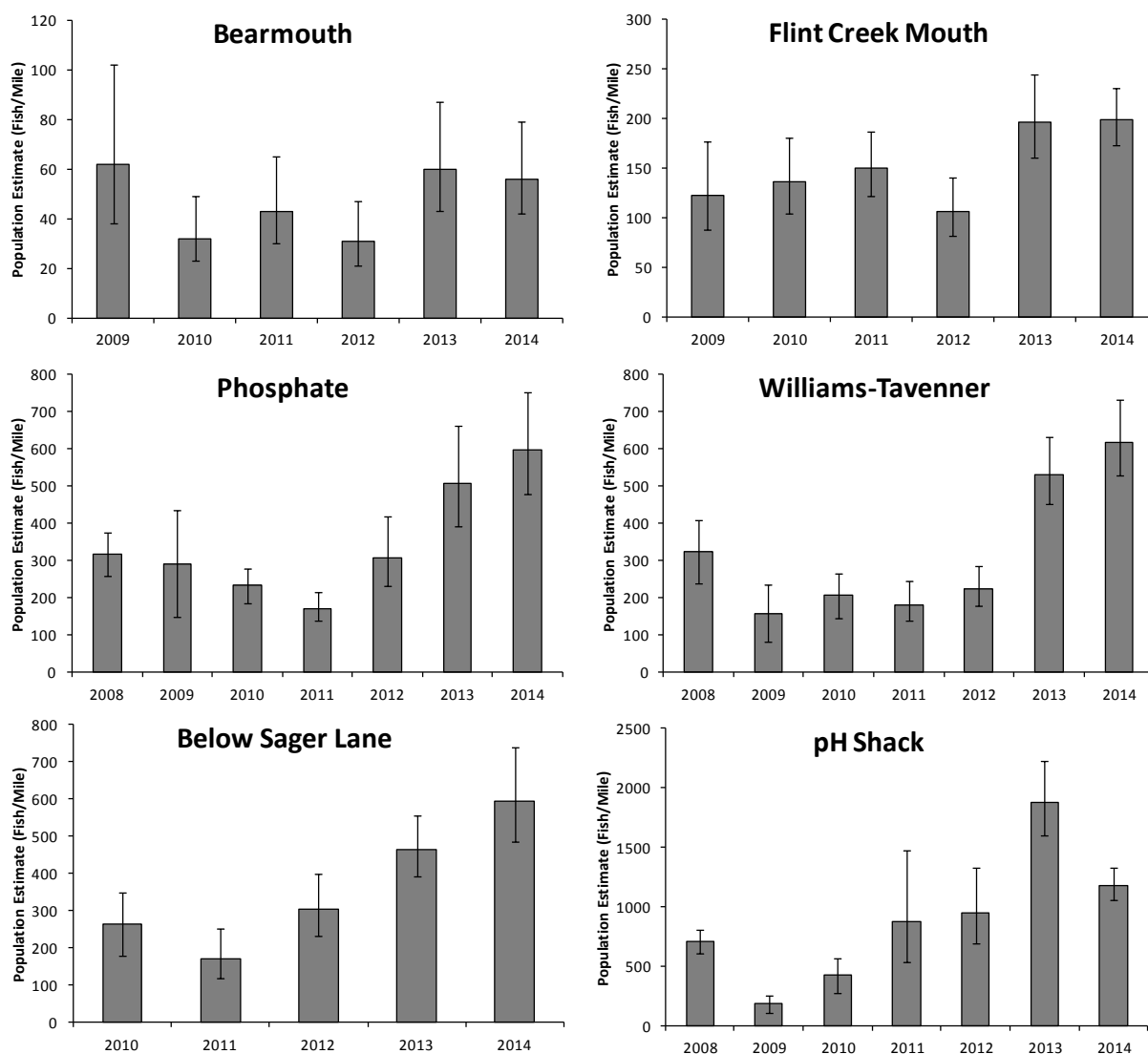
---

Figure 8-4 displays all Brown Trout population estimates by sample reach from 2008-2014, including population estimates reported in Lindstrom [2011]. Population estimates from 2008-2010 for the Below Sager Lane, Williams-Tavener, and Phosphate electrofishing sections from Lindstrom [2011] are included in Appendix K. The pH shack Section had the highest Brown Trout population estimate in 2014 with 1,177 fish/mile. Conversely, the Bearmouth Section had the lowest Brown Trout population estimate, with 57 fish/mile in 2014. Flint Creek Mouth, Below Sager Lane, Williams-Tavener, and Phosphate sections had 2014 Brown Trout population estimates of 199, 594, 618, and 596 fish/mile respectively.

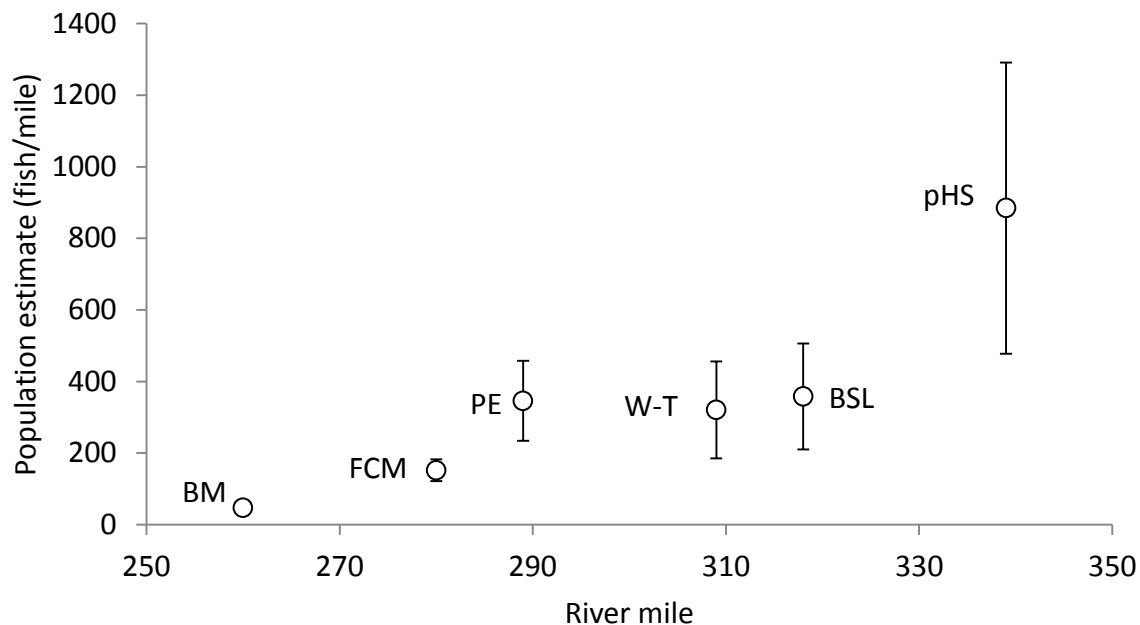
Across all years that Brown Trout population estimates were available, Bearmouth consistently had the lowest numbers, while pH Shack had the highest numbers [Figure 8-5]. Estimates at Flint Creek Mouth tended to be relatively low while Phosphate, Williams-Tavener, and Below Sager Lane tended to have intermediate Brown Trout numbers. At most sections, Rainbow or Cutthroat trout recaptures were too low to generate population estimates.

Generally speaking, the Bearmouth section tends to have higher numbers of Cutthroat and Rainbow trout than other reaches [Table 8-1 through Table 8-6].

At the two sampling sections where all fish species were netted, a total of eight species were captured including Brown Trout, Longnose Dace (*Rhinichthys cataractae*), Longnose Sucker (*Catostomus catostomus*), Largescale Sucker (*Catostomus macrocheilus*), Mountain Whitefish (*Prosopium williamsoni*), Redside Shiner (*Richardsonius balteatus*), Slimy Sculpin (*Cottus cognatus*), and Westslope Cutthroat Trout [Table 8-7; Table 8-8]. Mountain Whitefish were the most commonly captured species at both sections. Brown Trout were the second most common species found at the Jens section whereas Largescale Sucker were the second most common species captured at the Above Deer Lodge section.



**Figure 8-4. Clark Fork River Brown Trout population estimates from 2008-2014 by sample reach. Sample reaches are displayed downstream to upstream, left to right then top to bottom. Please note that x-axis and y-axis values are not the same for every sample reach.**



**Figure 8-5. Average Brown Trout population estimates and 95% confidence intervals for the six monitoring sections in the upper Clark Fork River by river mile. All years of available estimates were averaged for each section. Number of years with estimates varied among (see Figure 8-4 for years averaged for each). Station abbreviations are Bearmouth (BM), Flint Creek Mouth (FCM), Phosphate (PE), Williams-Tavener (W-T), Below Sager Lane (BSL), pH Shack (pHS).**

**Table 8-1. Electrofishing data collected on the Upper Clark Fork River at the pH Shack Section from 2011-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout.**

<b>Year</b>	<b>Trout Species</b>	<b>Population Estimate (fish/mile)</b>	<b>Capture Efficiency (%)</b>	<b># Fish Handled</b>	<b>Mean Length (mm)</b>	<b>Length Range (mm)</b>	<b>Species Composition (%)</b>
2011	Brown	878 (531-1476)	13	265	311	89-498	98
	Rainbow	-	-	2	531	472-590	1
	Cutthroat	-	-	3	350	292-424	1
	Cutt x Rbow	-	-	1	423	-	<1
2012	Brown	943 (686-1322)	17	403	293	105-473	98
	Rainbow	-	-	7	369	256-540	2
	Cutthroat	-	-	2	306	292-319	<1
	Cutt x Rbow	-	-	1	323	-	<1
2013	Brown	1,878 (1,595-2,223)	19	1,056	296	156-630	98
	Rainbow	-	-	13	447	314-610	1
	Cutthroat	-	-	6	327	271-352	1
	Cutt x Rbow	-	-	1	282	-	<1
2014	Brown	1,177 (1054-1322)	38	1,018	323	160-518	99
	Rainbow	-	-	12	367	240-541	1



**Table 8-2. Electrofishing data collected on the Upper Clark Fork River at the Below Sager Lane Section from 2011-2014. Population estimates and capture efficiencies are for Brown Trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval.**

<b>Year</b>	<b>Trout Species</b>	<b>Population Estimate (fish/mile)</b>	<b>Capture Efficiency (%)</b>	<b># Fish Handled</b>	<b>Mean Length (mm)</b>	<b>Length Range (mm)</b>	<b>Species Composition (%)</b>
2011	Brown	170 (119-251)	20	205	313	103-495	98
	Cutthroat	-	-	4	335	280-392	2
	Brook	-	-	1	202	-	<1
2012	Brown	302 (232-397)	17	533	240	90-595	96
	Cutthroat	-	-	6	314	277-347	1
	Brook	-	-	15	216	134-273	3
2013	Brown	462 (390-553)	25	655	308	139-497	99
	Rainbow	-	-	1	324	-	<1
	Cutthroat	-	-	2	323	308-337	<1
	Brook	-	-	6	245	194-275	1
2014	Brown	594 (484-737)	19	666	350	122-532	99
	Rainbow	-	-	1	197	-	<1
	Cutthroat	-	-	2	321	300-342	<1
	Brook	-	-	2	297	245-350	<1

**Table 8-3. Electrofishing data collected on the Upper Clark Fork River at the Williams-Tavener Section from 2011-2014. Population estimates and capture efficiencies are for Brown Trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval.**

<b>Year</b>	<b>Trout Species</b>	<b>Population Estimate (fish/mile)</b>	<b>Capture Efficiency (%)</b>	<b># Fish Handled</b>	<b>Mean Length (mm)</b>	<b>Length Range (mm)</b>	<b>Species Composition (%)</b>
2011	Brown	182 (140-244)	26	247	311	108-514	90
	Cutthroat	15 (9-28)	29	24	275	213-328	9
	Brook	-	-	2	203	196-209	1
2012	Brown	224 (180-285)	29	351	266	109-497	88
	Cutthroat	23 (18-34)	46	48	301	170-373	12
	Brook	-	-	1	221	-	<1
2013	Brown	532 (453-632)	26	636	317	129-507	93
	Cutthroat	33 (22-56)	32	47	295	193-383	7
	Brook	-	-	1	320	-	<1
2014	Brown	618 (528-731)	25	712	368	138-535	95
	Cutthroat	-	-	34	351	260-443	4
	Brook	-	-	2	292	272-312	<1

**Table 8-4. Electrofishing data collected on the Upper Clark Fork River at the Phosphate Section from 2011-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout.**

Year	Trout Species	Population Estimate (fish/mile)	Capture Efficiency (%)	# Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2011	Brown	171 (140-215)	41	239	300	104-474	97
	Cutthroat	-	-	7	294	207-378	3
	Cutt x Rbow	-	-	1	367	-	<1
2012	Brown	308 (231-419)	21	282	270	111-464	92
	Rainbow	-	-	2	423	215-630	1
	Cutthroat	-	-	23	267	187-364	7
	Brook	-	-	1	305	-	<1
2013	Brown	506 (393-664)	22	387	301	120-461	96
	Cutthroat	-	-	14	305	255-357	3
	Cutt x Rbow	-	-	1	389	-	<1
2014	Brown	596 (479-751)	22	490	328	124-452	98
	Cutthroat	-	-	10	354	289-416	2
	Cutt x Rbow	-	-	1	415	-	<1

**Table 8-5. Electrofishing data collected on the Upper Clark Fork River at the Flint Creek Mouth Section from 2009-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout. Brook x Bull represents a phenotypic hybrid between an eastern Brook and Bull trout.**

Year	Trout Species	Population Estimate (fish/mile)	Capture Efficiency (%)	# Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2009*	Brown	123 (88-177)	18	273	369	97-550	95
2010	Brown	136 (105-181)	20	377	345	115-535	94
	Rainbow	-	-	4	389	326-421	1
	Cutthroat	-	-	16	284	227-355	4
	Cutt x Rbow	-	-	4	332	305-352	1
2011	Brown	150 (122-187)	25	481	311	110-509	89
	Rainbow	-	-	3	441	425-468	1
	Cutthroat	14 (8-24)	20	54	275	195-390	10
	Brook	-	-	1	287	-	<1
	Brook x Bull	-	-	1	393	-	<1
2012	Brown	107 (82-141)	19	334	293	124-515	87
	Rainbow	-	-	6	352	232-468	2
	Cutthroat	-	-	42	289	186-445	11
	Bull	-	-	2	374	373-375	1
2013	Brown	197 (161-245)	20	572	315	195-502	96
	Cutthroat	6 (3-11)	21	25	326	220-378	4
	Bull	-	-	1	273	-	<1
2014	Brown	199 (173-231)	26	778	357	185-519	96
	Rainbow	-	-	2	294	250-374	<1
	Cutthroat	4 (2-7)	36	25	351	202-451	3
	Bull	-	-	2	270	252-288	<1

\* In 2009 entire Upper Clark Fork River was sampled and as a result the Flint Creek Mouth Section is roughly half a mile longer than in other years.

**Table 8-6. Electrofishing data collected on the Upper Clark Fork River at the Bearmouth Section from 2009-2014. Population estimates and capture efficiencies are for trout greater than 175 mm (~7") in total length. Numbers following the population estimate (in parentheses) represent the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a Cutthroat and Rainbow trout.**

Year	Trout Species	Population Estimate (fish/mile)	Capture Efficiency (%)	# Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2009*	Brown	62 (38-102)	13	134	358	119-528	84
	Cutthroat	7 (4-14)	27	26	314	152-410	16
2010	Brown	32 (23-49)	35	106	362	157-525	68
	Rainbow	-	-	13	345	242-442	8
	Cutthroat	6 (4-11)	42	27	308	100-400	17
	Bull	-	-	2	321	297-345	1
	Cutt x Rbow	-	-	8	371	320-458	5
2011	Brown	43 (30-65)	27	123	342	152-523	59
	Rainbow	7 (4-13)	38	28	342	152-479	14
	Cutthroat	13 (9-20)	38	54	309	182-414	26
	Bull	-	-	2	424	362-486	1
2012	Brown	31 (21-47)	29	95	326	177-502	32
	Rainbow	21 (14-34)	31	69	285	178-467	23
	Cutthroat	41 (30-59)	27	134	290	168-434	45
	Bull	-	-	2	266	260-272	<1
2013	Brown	60 (43-87)	21	169	339	191-476	48
	Rainbow	19 (11-35)	24	49	344	230-455	14
	Cutthroat	45 (32-66)	27	134	321	175-426	38
	Bull	-	-	3	379	337-400	<1
2014	Brown	56 (42-79)	24	173	367	183-534	55
	Rainbow	28 (16-49)	21	68	331	188-493	21
	Cutthroat	19 (14-28)	36	74	355	180-452	25

\* In 2009 entire Upper Clark Fork River was sampled and as a result the Flint Creek Mouth Section is roughly half a mile longer than in other years.

**Table 8-7. Electrofishing data collected on the Upper Clark Fork River at the Jens CPUE section.**

Year	Trout Species	CPUE (fish/mile)	CPUE (fish/min)	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2014	Brown Trout	58	1.98	343	165-460	29
	Cutthroat Trout	1	0.03	405	-	<1
	Mountain Whitefish	129	4.41	338	228-445	64
	Largescale Sucker	10	0.34	507	440-578	5
	Sculpin	1	0.03	74	-	<1
	Redside Shiner	1	0.03	87	-	<1
	Longnose Dace	1	0.03	97	-	<1

**Table 8-8. Electrofishing data collected on the Upper Clark Fork River at the Above Deer Lodge CPUE section.**

Year	Trout Species	CPUE (fish/mile)	CPUE (fish/min)	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2014	Brown Trout	36	1.40	349	261-440	14
	Mountain Whitefish	181	7.03	323	142-463	70
	Largescale Sucker	39	1.52	505	-	15
	Longnose Sucker	1	0.04	116	-	<1

### **8.3.2 Cage Fish Mortality, Discharge, and Water Temperature**

Figure 8-6 through Figure 8-17 depict total mortalities in cages one and two combined, maximum daily water temperatures, and mean daily discharges at cage sites in 2014. The solid red horizontal line in each figure represents the upper critical temperature threshold for Brown Trout of 19.0 °C [Elliot, 1994]. At temperatures above this critical threshold, significant disturbances to normal Brown Trout behavior may occur, including cessation of feeding and growth and ultimately death [Elliot, 1994]. The dashed red horizontal line in each figure represents the upper incipient lethal temperature for Brown Trout of 24.7 °C, above which thermal stress is lethal with mortality being a function of exposure time [Elliot, 1994].

In 2014, most cage sites displayed bimodal mortality with some mortality occurring early in the study season on the ascending limb of the hydrograph, and some mortality on the descending limb as water temperatures approached and/or exceeded 19 °C. Early season mortality was generally high until early- to mid- April, although sites such as Pond 2, Silver Bow, Warm Springs, Little Blackfoot, and Flint had significant early season mortality that continued until May. Mortality at most sites was relatively low during May and early June then increased as flows decreased and temperatures increased during the summer. Site specific

descriptions of discharge, water temperatures, and timing of mortalities at each site are outlined below in order from upstream to downstream.

Of the mainstem sites, U/S Lil Black had the lowest survival at 44% and the Deer Lodge site had the highest survival at 90% [Table 8-9]. Survival at the Flint Creek tributary site was 72% and 79% at the Lil Black tributary site. The average survival estimate at the two tributary sites (0.76) was compared to each mainstem site with chi-square tests. Results of these tests revealed that U/S Lil Black, Silver Bow, and Pond 2 had significantly lower survival than the tributary sites [Table 8-9]. No sites had survival that was significantly higher than tributaries in 2014. From a spatial perspective, survival was  $\geq 85\%$  at mainstem sites from Perkins Lane to Deer Lodge [Figure 8-18]. The three most upstream treatment sites (Pond 2, Silver Bow, and Warm Springs) had survival  $\leq 60\%$ .

#### **8.3.2.1 Pond 2**

There are no discharge data available for Pond 2 in 2014 because there is not a USGS station present at this site. Peak maximum daily water temperature at Pond 2 in 2014 was 24.1 °C on July 14 [Figure 8-7]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 63 days and never exceeded the upper incipient lethal temperature for Brown Trout of 24.7 °C [Figure 8-6]. Pond 2 experienced lower survival than tributary sites [Table 8-9], with most mortality occurring in April. Another peak in mortality occurred at this site in early July after temperatures exceeded 19.0 °C [Figure 8-7].

#### **8.3.2.2 Silver Bow**

Peak mean daily discharge at Silver Bow in 2014 was 331 ft<sup>3</sup>/s on May 26. In 2014 peak maximum daily water temperature at Silver Bow was 23.6 °C on August 11 [Figure 8-8]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 52 days and never exceeded the upper incipient lethal temperature for Brown Trout of 24.7 °C [Figure 8-8]. Silver Bow experienced significantly lower survival than tributary sites [Table 8-9], with most mortality occurring early and late in the study season.

#### **8.3.2.3 Warm Springs**

Peak mean daily discharge at Warm Springs in 2014 was 244 ft<sup>3</sup>/s on May 29. In 2014 peak maximum daily water temperature at Warm Springs was 19.1 °C on August 11 [Figure 8-9]. August 11 was the only day maximum daily water temperature exceeded 19.0 °C. The upper incipient lethal temperature for Brown Trout of 24.7 °C was never exceeded [Figure 8-9]. Warm Springs experienced significantly lower survival than the tributary sites [Table 8-9], with most mortality occurring early in the study season before runoff, as well as on the descending limb of the hydrograph water temperatures approached 19.0 °C [Figure 8-9].



#### **8.3.2.4 Perkins Lane**

Peak mean daily discharge at Perkins Lane in 2014 was 526 ft<sup>3</sup>/s on May 27. In 2014 peak maximum daily water temperature at Perkins Lane was 21.9 °C on August 1 [Figure 8-10]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 49 days and the upper incipient lethal temperature for Brown Trout of 24.7 °C was never exceeded [Figure 8-10]. Survival rate of fish at Perkins Lane was not significantly different from tributaries [Table 8-9]. Most mortalities at this site occurred on the ascending and descending limbs of the hydrographs [Figure 8-10].

#### **8.3.2.5 Galen**

There are no discharge data available for Galen in 2014 because there is not a USGS station present at this site. In 2014 peak maximum daily water temperature at Galen Right was 21.9 °C on August 1 [Figure 8-11]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 45 days and the upper incipient lethal temperature for Brown Trout of 24.7 °C was never exceeded [Figure 8-11]. Survival rate of fish at Galen was not significantly different from tributaries [Table 8-9]. Most mortalities at this site occurred during the time period when water temperatures were above 19.0 °C, although four mortalities did occur earlier in the season [Figure 8-11].

#### **8.3.2.6 Racetrack**

There are no discharge data available for Racetrack in 2014 because there is not a USGS station present at this site. In 2014 peak maximum daily water temperature at Racetrack was 22.7 °C on August 1 [Figure 8-12]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 44 days and never exceeded 24.7 °C [Figure 8-12]. Survival rate of fish at Racetrack was not significantly different from tributaries [Table 8-9]. Nine mortalities (69%) at this site occurred during the time period when water temperatures were above 19.0 °C, although four mortalities also occurred in April and May [Figure 8-12].

#### **8.3.2.7 Deer Lodge**

Peak mean daily discharge at Deer Lodge in 2014 was 748 ft<sup>3</sup>/s on June 28. In 2014 peak maximum daily water temperature at Deer Lodge was 24.3 °C on July 13 [Figure 8-13]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 50 days and never exceeded 24.7 °C [Figure 8-13]. Survival rate of fish at Deer Lodge was not significantly different from tributaries [Table 8-9]. Mortality at this site exhibited a bimodal pattern, occurring in the first few weeks of study season on, as well as on the descending limb of the hydrograph as water temperatures began to exceed 19.0 °C [Figure 8-13].

#### **8.3.2.8 Upstream of the Little Blackfoot River**

Peak mean daily discharge at U/S Lil Black in 2014 was 978 ft<sup>3</sup>/s on June 28. In 2014 peak maximum daily water temperature at U/S Lil Black was 25.1 °C on July 13 [Figure 8-14]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 52 days and exceeded the upper incipient lethal temperature for Brown Trout of 24.7 °C for one day [Figure 8-14]. Fish at the U/S Lil Black site experienced significantly lower survival than the tributary sites [Table 8-9], with 28 (93%) of the mortalities occurring when water temperatures were above 19.0 °C [Figure 8-14].

#### **8.3.2.9 Lower Little Blackfoot River (Tributary)**

Peak mean daily discharge at Lil Black in 2014 was 1010 ft<sup>3</sup>/s on June 5. In 2014 peak maximum daily water temperature at Lil Black was 21.4 °C on July 12 [Figure 8-15]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 36 days and never exceeded 24.7 °C [Figure 8-15]. Nineteen (90%) of the 21 mortalities occurred during the month of April, with the other two mortalities occurring when water temperatures were above 19.0 °C [Figure 8-15].

#### **8.3.2.10 Flint Creek (Tributary)**

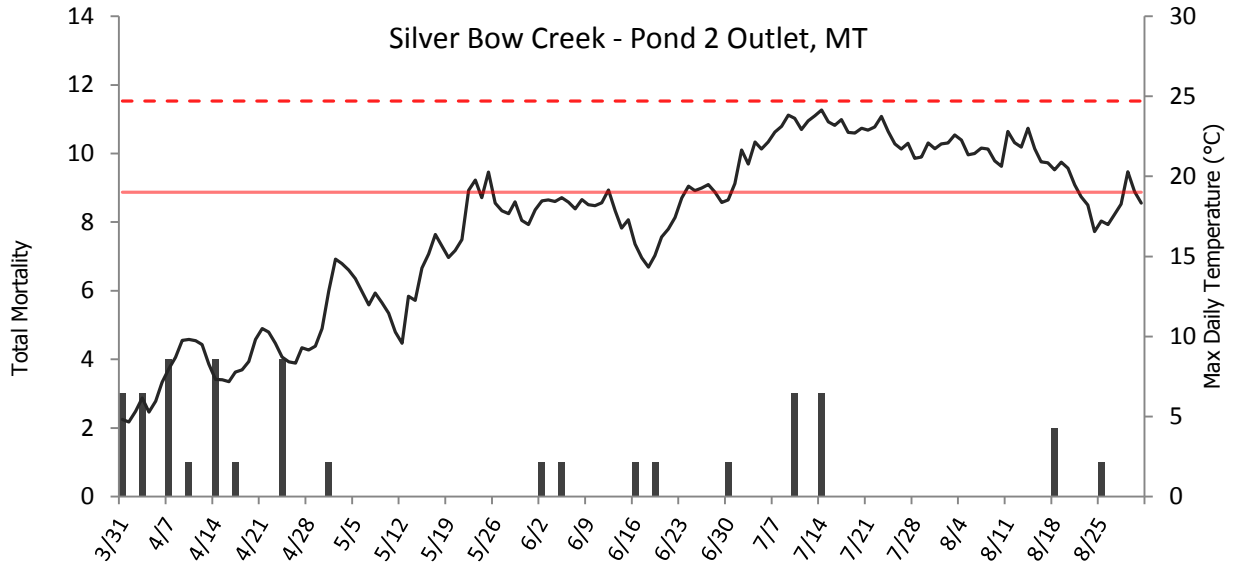
Peak mean daily discharge at Flint in 2014 was 282 ft<sup>3</sup>/s on April 9. In 2014 peak maximum daily water temperature at Flint was 19.6 °C on July 13 and August 14 [Figure 8-16]. Maximum daily water temperature in 2014 exceeded 19.0 °C for 8 days and never exceeded 24.7 °C [Figure 8-16]. Twenty-six (90%) of the mortalities at this site occurred between the beginning of the study and May 12 [Figure 8-16].

#### **8.3.2.11 Bearmouth**

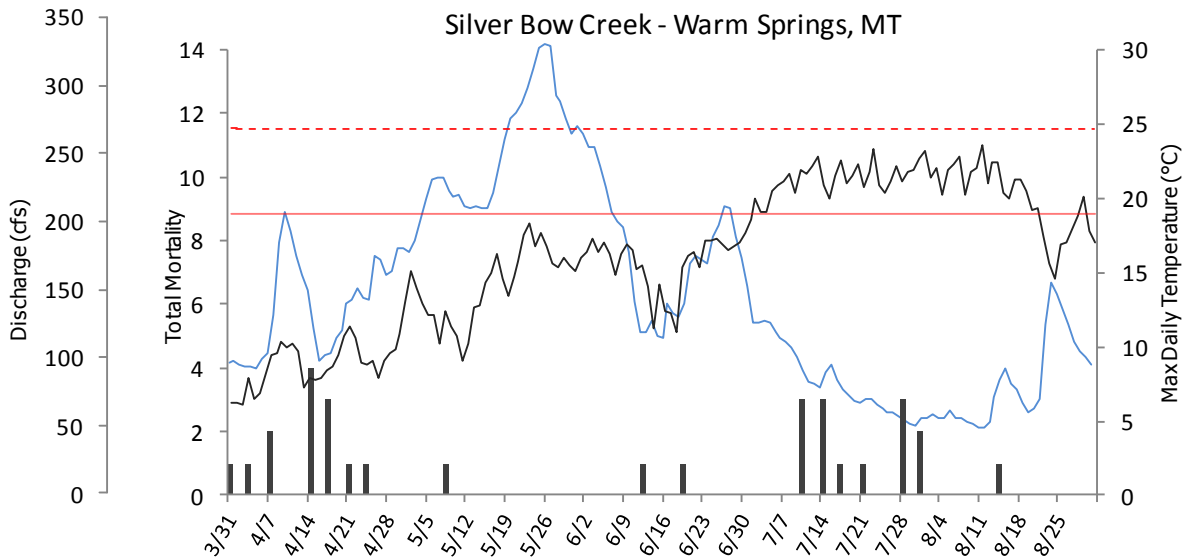
Peak mean daily discharge at Bearmouth was 1,080 ft<sup>3</sup>/s on May 31. In 2014 peak maximum water temperature was 23.8 °C on July 13. Maximum daily water temperature in 2014 exceeded 19.0 °C for 52 days and never exceeded 24.7 °C [Figure 8-17]. Survival rate of fish at Bearmouth was not significantly different from tributaries [Table 8-9]. The number of mortalities at this site generally increased after flows went down and water temperatures exceeded 19 °C [Figure 8-17].

#### **8.3.2.12 Clinton Spring (Handling Control)**

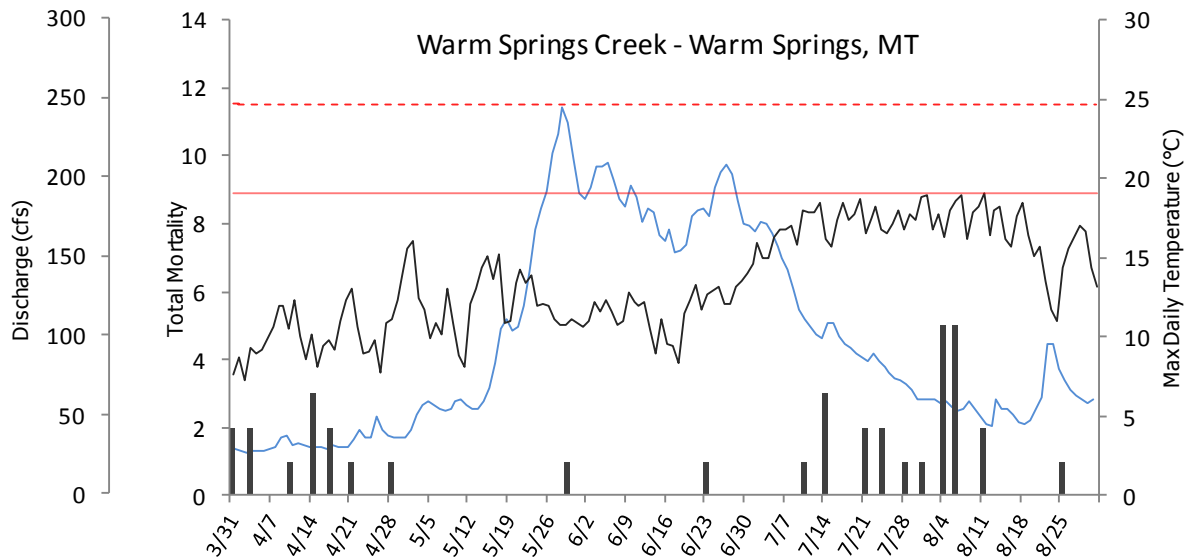
There are no discharge data available for Clinton Spring because there is not a USGS station present at this site. In 2014 peak maximum daily water temperature at Clinton Spring was 15.9 °C on August 18 [Figure 8-18]. Maximum daily water temperature never exceeded 19.0 °C or 24.7 °C in 2014 [Figure 8-18]. A relatively large mortality event occurred at this site between August 14-18, when nine fish died. Other mortalities occurred near the beginning of the study and one mortality occurred in June.



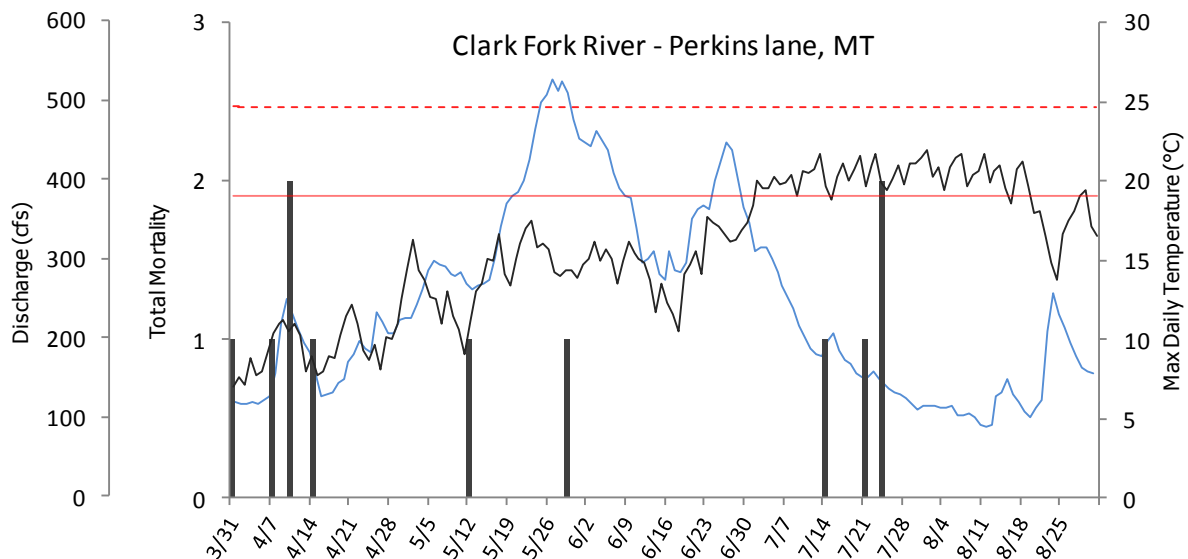
**Figure 8-6.** Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line) for 2014 in Silver Bow Creek at the Pond 2 outlet site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.



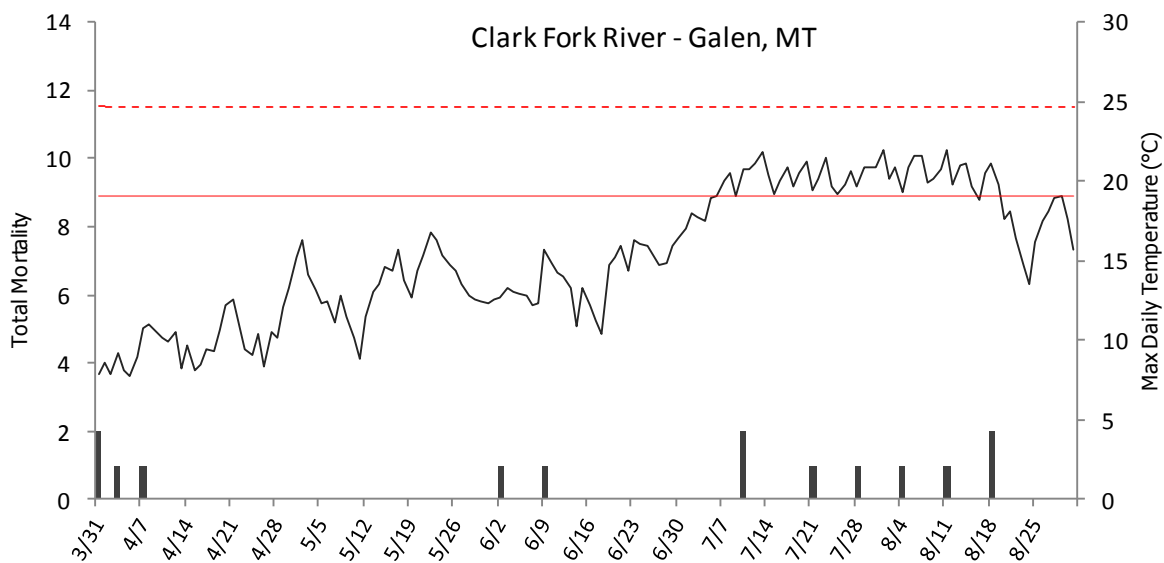
**Figure 8-7.** Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in Silver Bow Creek, Warm Springs, MT. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.



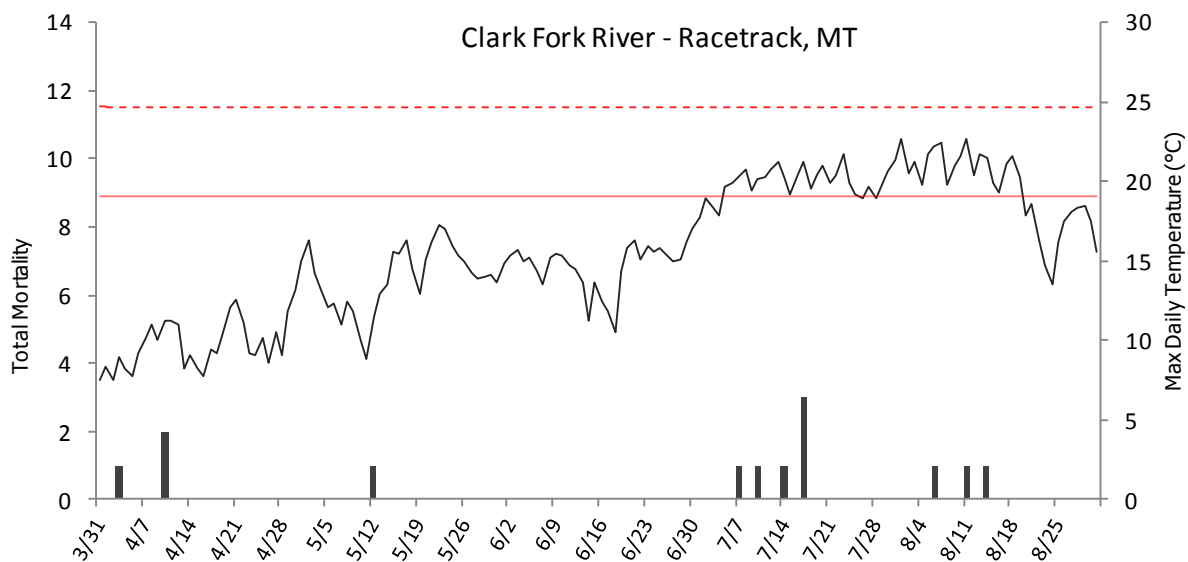
**Figure 8-8. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in Warm Springs Creek at Warm Springs, MT. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.**



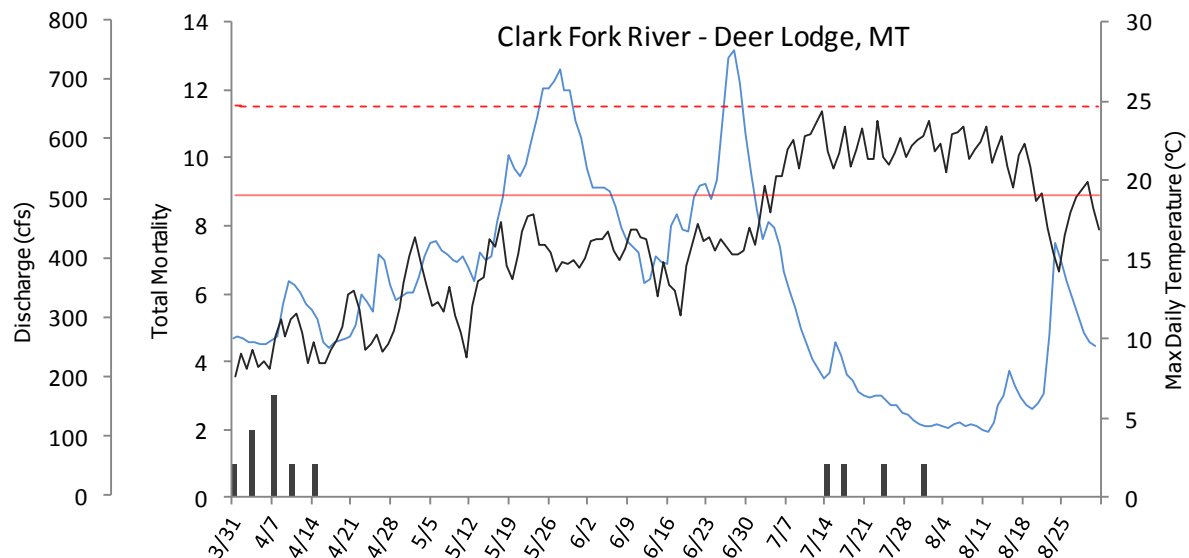
**Figure 8-9. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in the Clark Fork River at the Perkins Lane site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.**



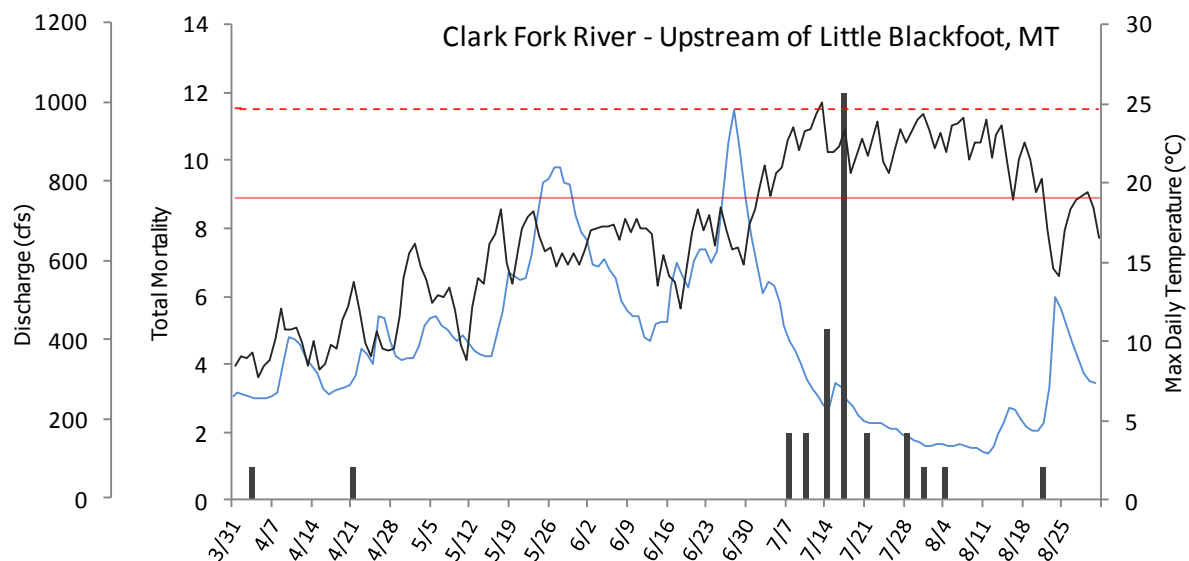
**Figure 8-10.** Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line) in the Clark Fork River at the Galen site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.



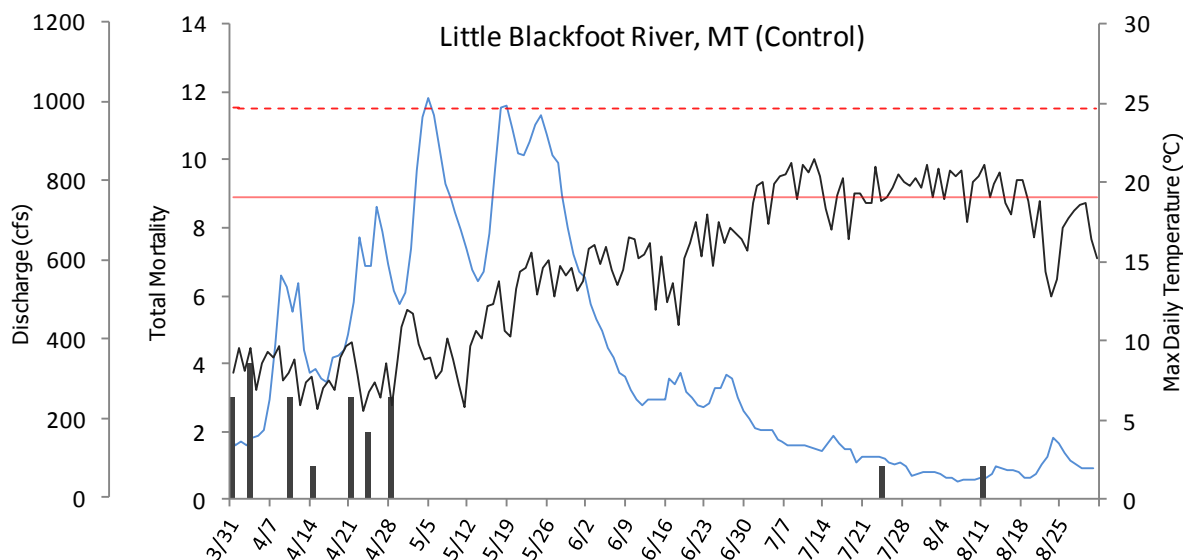
**Figure 8-11.** Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line) in the Clark Fork River at the Racetrack site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.



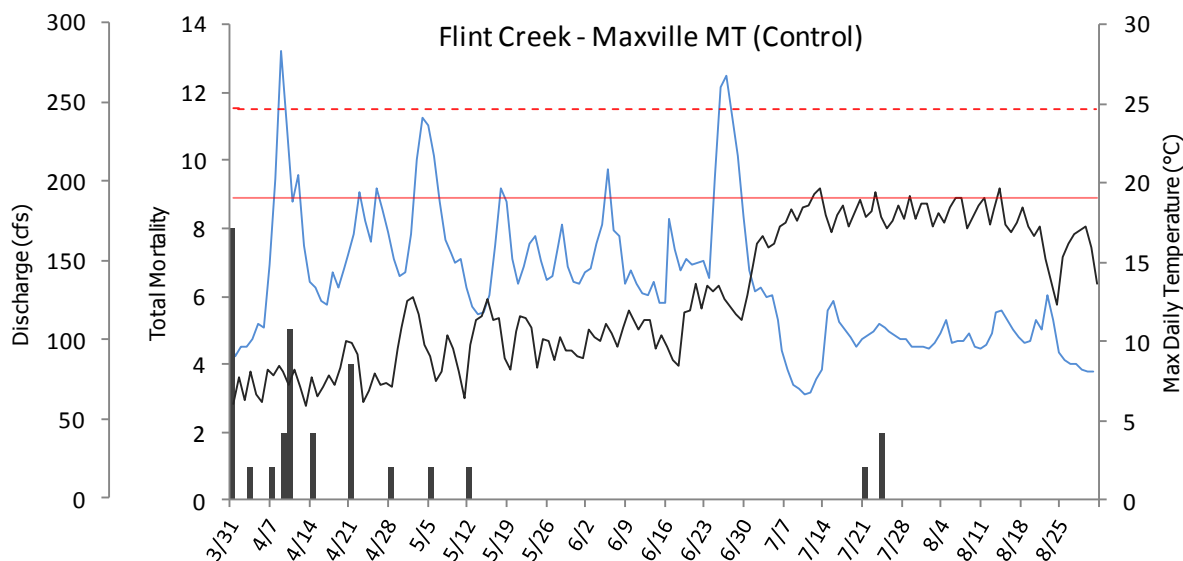
**Figure 8-12. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in the Clark Fork River at the Deer Lodge site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.**



**Figure 8-13. Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 in the Clark Fork River at the site upstream of the Little Blackfoot River. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.**

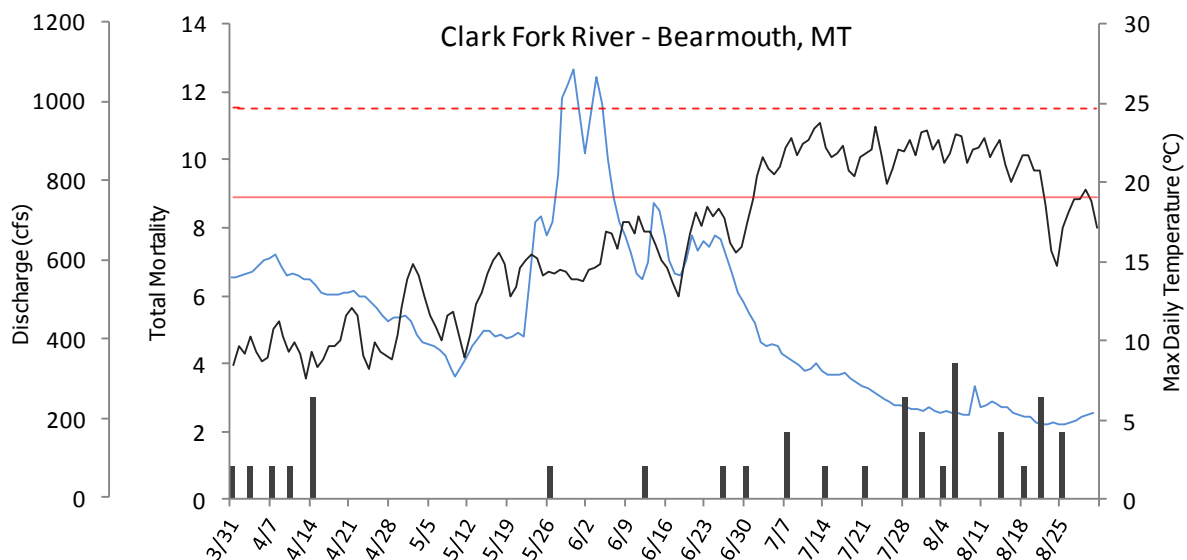


**Figure 8-14.** Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 at the tributary site in Little Blackfoot River. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.

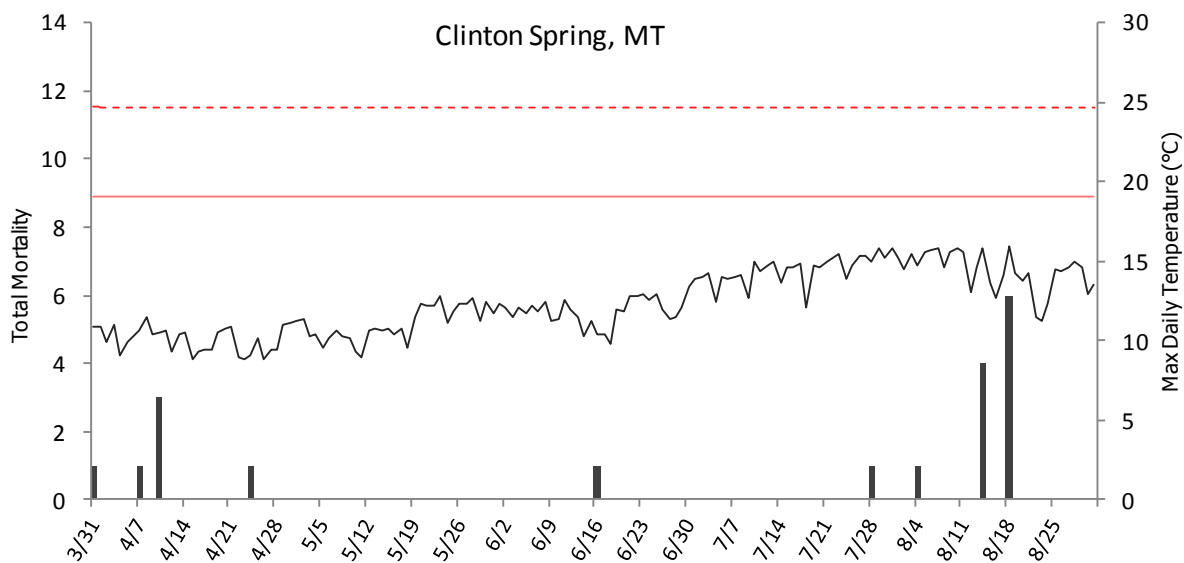


**Figure 8-15.** Total mortalities between cages one and two combined (gray bars), maximum daily water temperature (black line), and mean daily discharge (blue line) for 2014 at the tributary site in Flint Creek. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.





**Figure 8-16.** Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line) and mean daily discharge (blue line) for 2014 in the Clark Fork River at the Bearmouth site. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.



**Figure 8-17.** Total mortalities between cages one and two combined (gray bars) and maximum daily water temperature (black line) for 2014 at the control site in the spring channel near Clinton, Montana. The solid red line indicates the upper critical temperature threshold and the dashed red line represents the upper incipient lethal temperature for Brown Trout.

**Table 8-9. Survival, net number of fish added during the survival study period (April 14 – July 31) and fish remaining in cages one and two on July 31. Results of  $\chi^2$  tests (df = 1 for all tests) between survival at mainstem treatment sites and mean survival at two tributary control sites are also presented. Statistically significant *p*-values are in bold.**

Site	Fish remaining	Net fish added	Survival	$\chi^2$	<i>p</i> -value
<b>Mainstem</b>					
Bearmouth	39	56	0.7	0.22	0.6386
U/S Lil Black	21	48	0.44	8.68	<b>0.0032</b>
Deer Lodge	46	51	0.9	2.63	0.1051
Racetrack	49	56	0.88	1.61	0.204
Galen	38	44	0.86	1	0.3167
Perkins Lane	40	47	0.85	0.75	0.3872
Warm Springs	29	48	0.6	1.89	0.1696
Silver Bow	25	50	0.5	5.71	<b>0.0169</b>
Pond 2	22	43	0.51	4.81	<b>0.0284</b>
Mainstem average	34.3	49.2	0.7	0.02	0.6631
<b>Tributary</b>					
Flint	31	43	0.72		
Lil Black	38	48	0.79		
Tributary average	34.5	45.5	0.76		

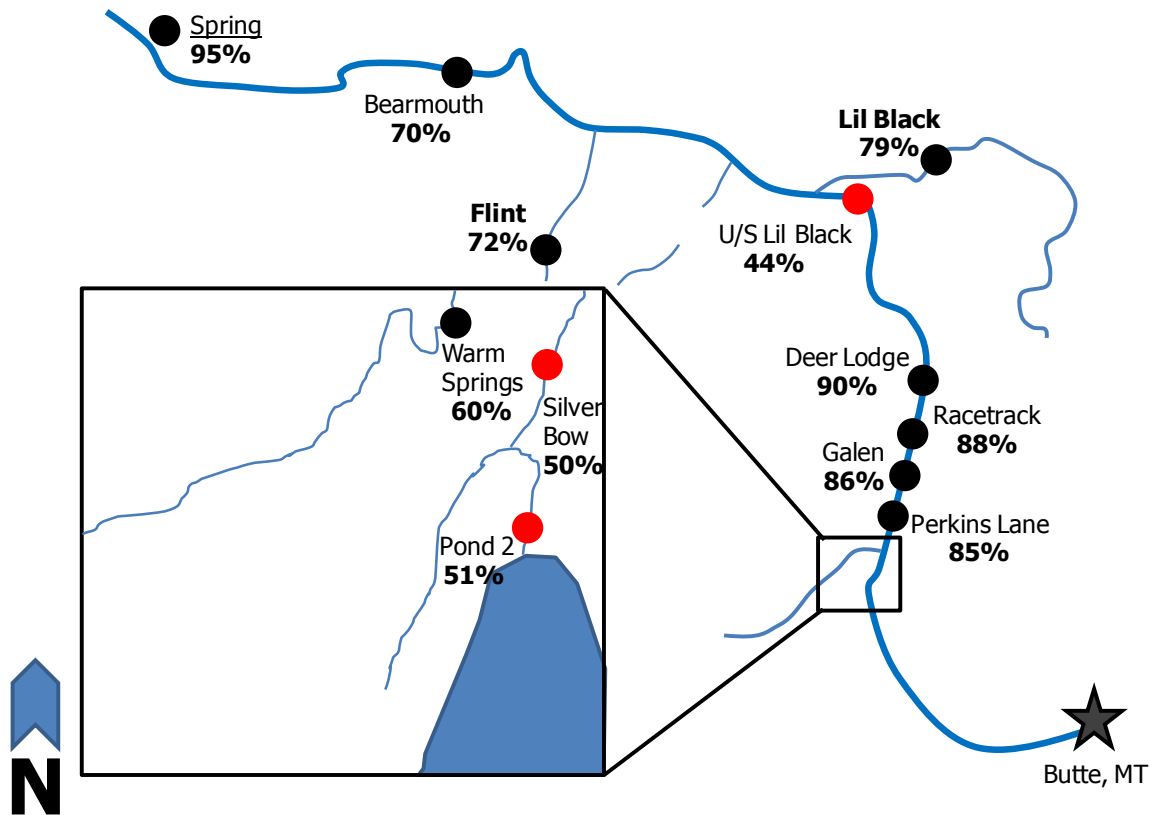


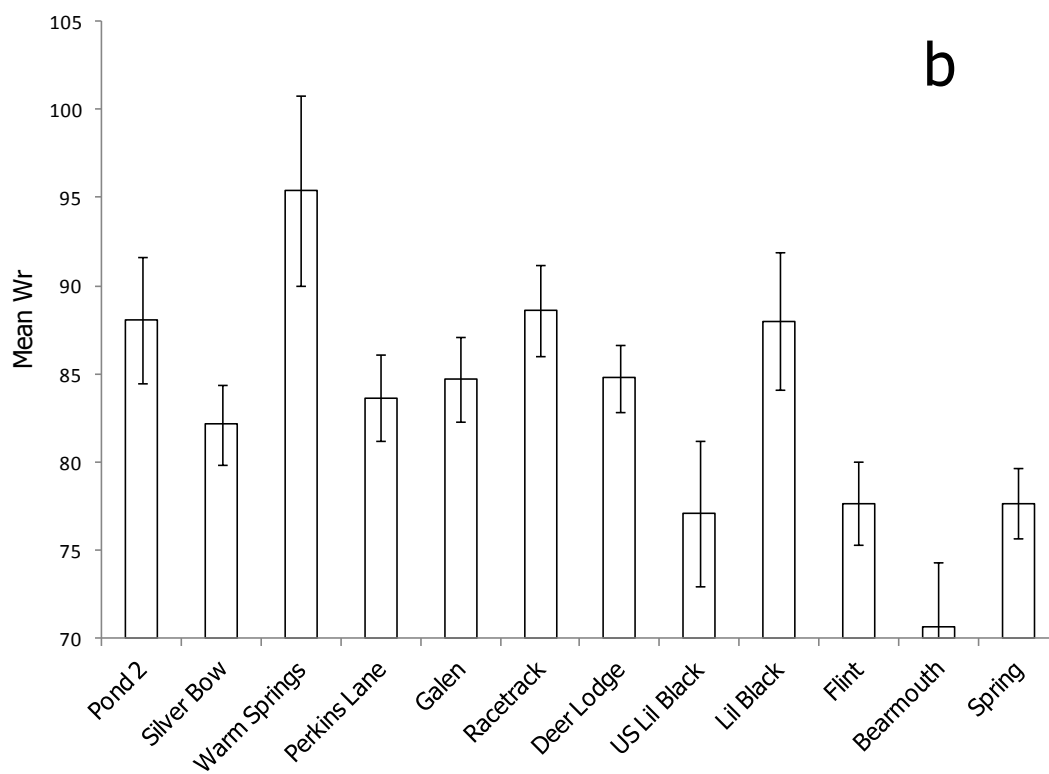
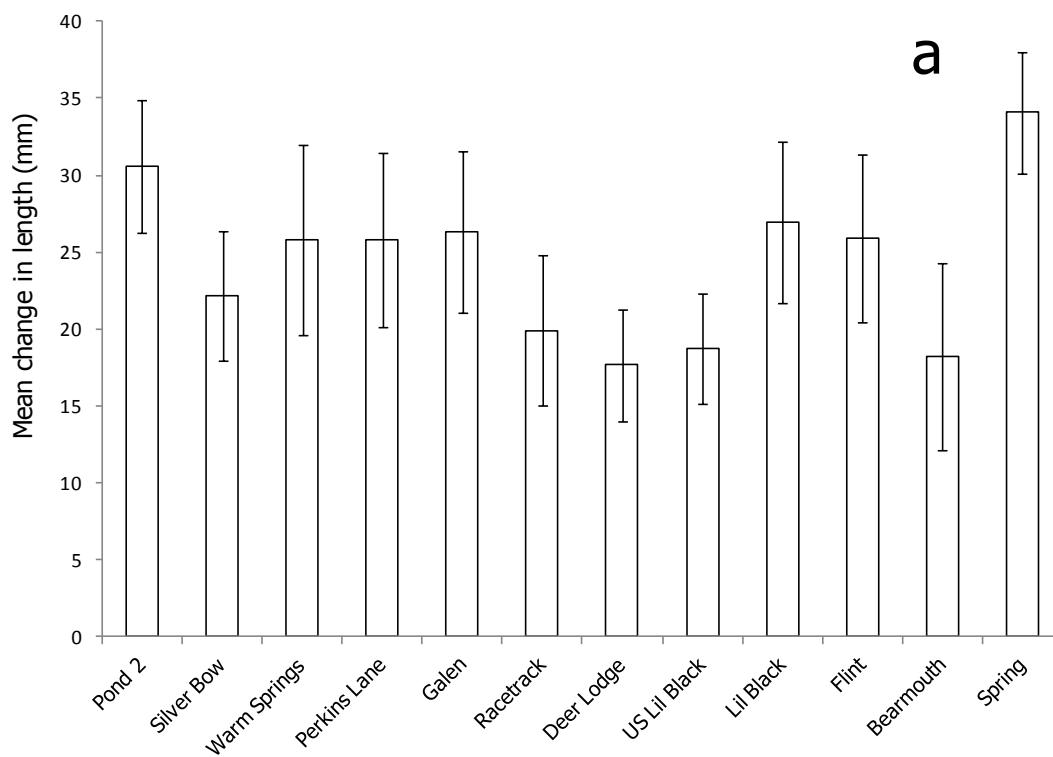
Figure 8-18. Cumulative brown trout survival from April 14th to July 31st, 2014. Tributary sites are shown in bold and the handling control is underlined. Red dots denote sites with survival that was significantly lower than the average of the two tributary control sites. No sites had significantly higher survival than control sites in 2014.

### 8.3.3 Growth and Condition

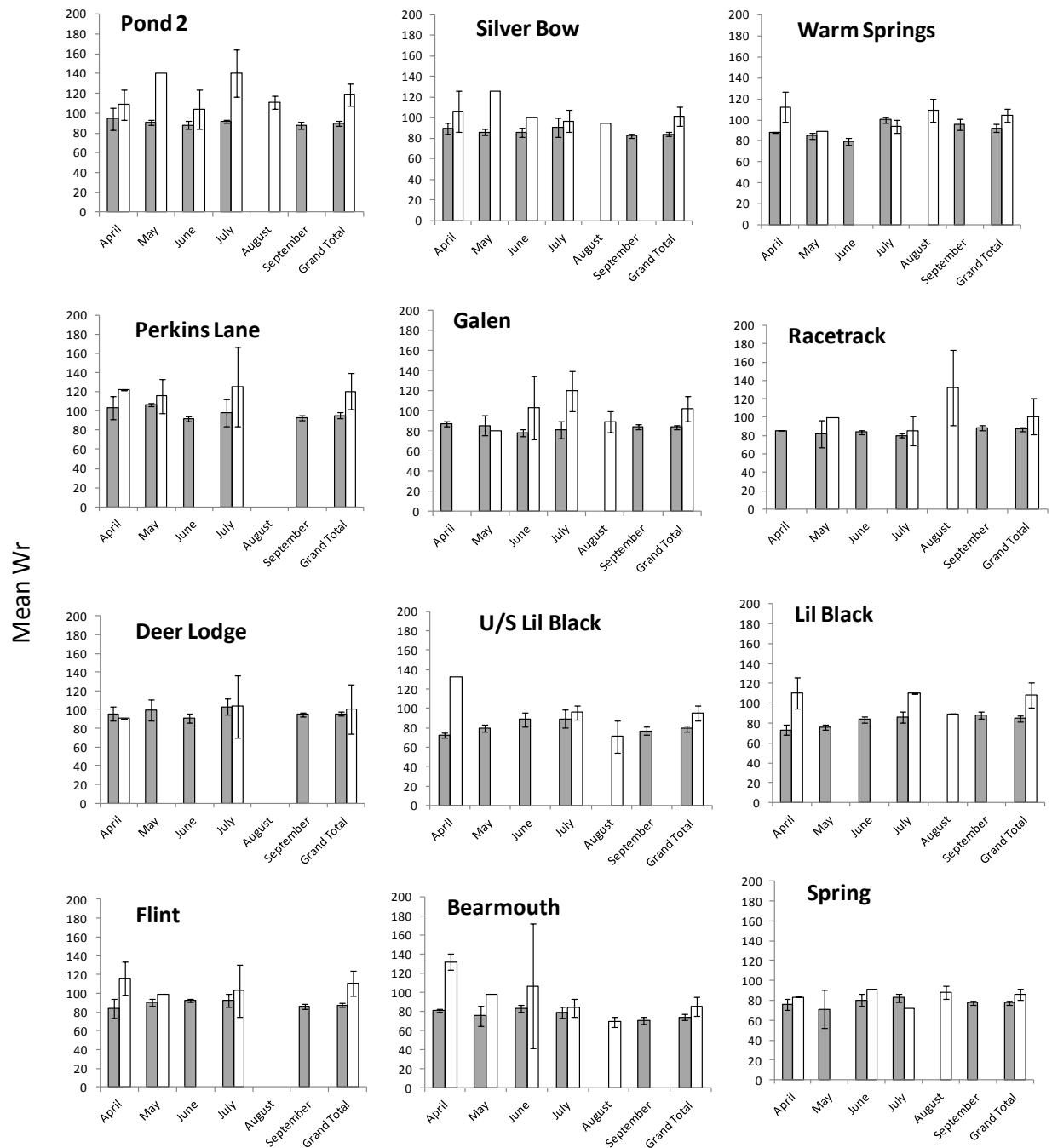
Fish at the Deer Lodge site had the lowest increase in length of all sites, growing an average of 17.6 mm over the course of the study [Figure 8-19a]. Fish in the Spring control site grew 34.1 mm on average, the most of any site. Bearmouth fish had the lowest  $W_r$  for fish surviving to the end of the field season (mean = 71; Figure 8-19b) whereas the Warm Springs site had fish in the best condition at the end of the study (mean  $W_r$  = 95). Dead fish tended to have higher  $W_r$  than live fish at all sites and during most months [Figure 8-20]. Mean  $W_r$  of all dead fish measured and weighed in 2014 was 99.5 ( $n$  = 202; SD = 24.2) compared to a mean  $W_r$  of 83.3 ( $n$  = 417; SD = 8.7) for all live fish. The  $W_r$  data of dead fish should be interpreted with caution because many of this fish had saprolegnia coating their bodies, which may have absorbed water and increased the weight of these specimens. Also, fish in freshwater tend to gain water when osmoregulation is disrupted by stress or death, which would also increase post-mortem weight [Mazeaud et al., 1977; Bronstein et al., 1985]. There were not statistically significant relationships between the number of fish remaining in the cages and the increase in mean

length ( $p$ -value = 0.879) or  $W_r$  ( $p$ -value= 0.778) within cages. Thus, there was no evidence of density dependent growth or condition.

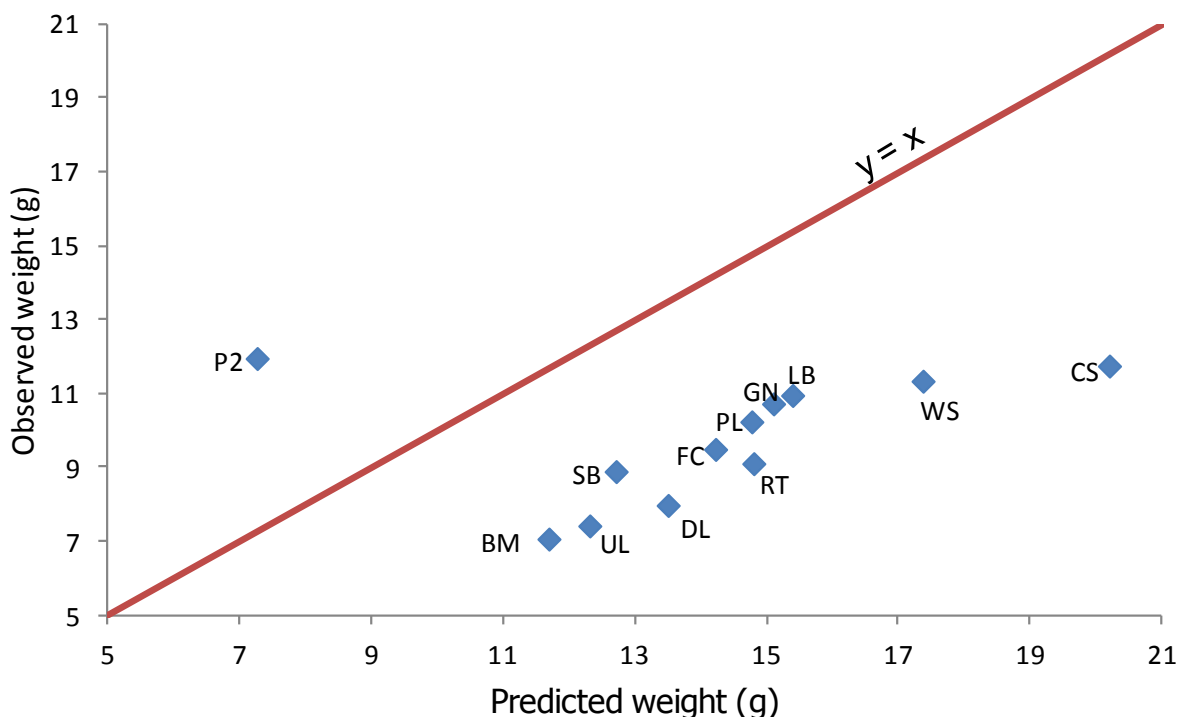
Growth (increase in weight) at all but one site was lower than the Elliot et al. [1995] temperature based model predicted [Figure 8-21]. Fish at the Pond 2 site was predicted to have the lowest increase in weight of any site, but growth at this site was actually greater than at any other site. High growth and productivity at this site has been attributed to a tail water effect in previous caged fish studies [Richards et al., 2013; Leon et al., 2014]. After removing the Pond 2 site from analysis, a linear regression of observed weights versus predicted weights indicated a significant relationship ( $p$ -value = 0.003;  $r^2$  = 0.776), suggesting a strong influence of temperature on Brown Trout growth in this study.



**Figure 8-19. Mean change in length (a) and mean relative weight (b) by site for live fish at the end of the 2014 caged fish study. Error bars are 95% confidence intervals.**



**Figure 8-20. Mean relative weight (Wr) for live (white bars) and dead (grey bars) fish by site and month for the 2014 caged fish study. Error bars are 95% confidence intervals.**



**Figure 8-21. Observed mean final weight of live fish versus weights predicted by the temperature based model of Elliot et al. [1995] for twelve caged fish sites in the Upper Clark Fork River drainage, 2014. Site abbreviations are Pond 2 (P2), Silver Bow (SB), Warm Springs (WS), Perkins Lane (PL), Galen (GN), Racetrack (RT), Deer Lodge (DL), Upstream of the Little Blackfoot (UL), Little Blackfoot (LB), Flint Creek (FC), Bearmouth (BM), and Clinton Spring (CS). The red line represents the 1:1 line.**

### 8.3.4 Tissue Metals Burdens

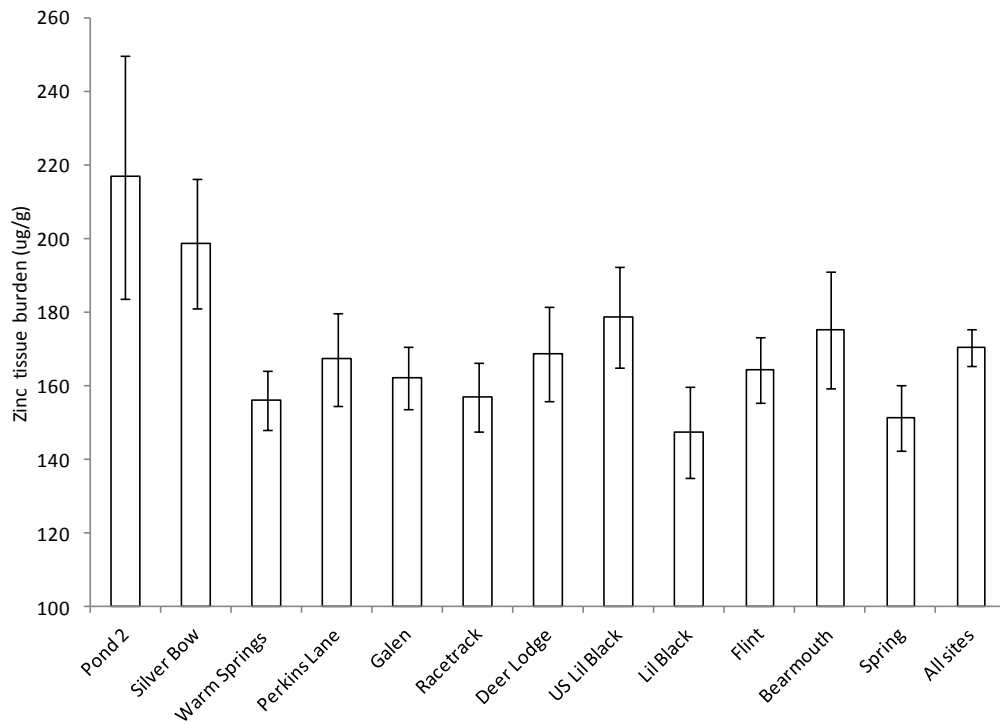
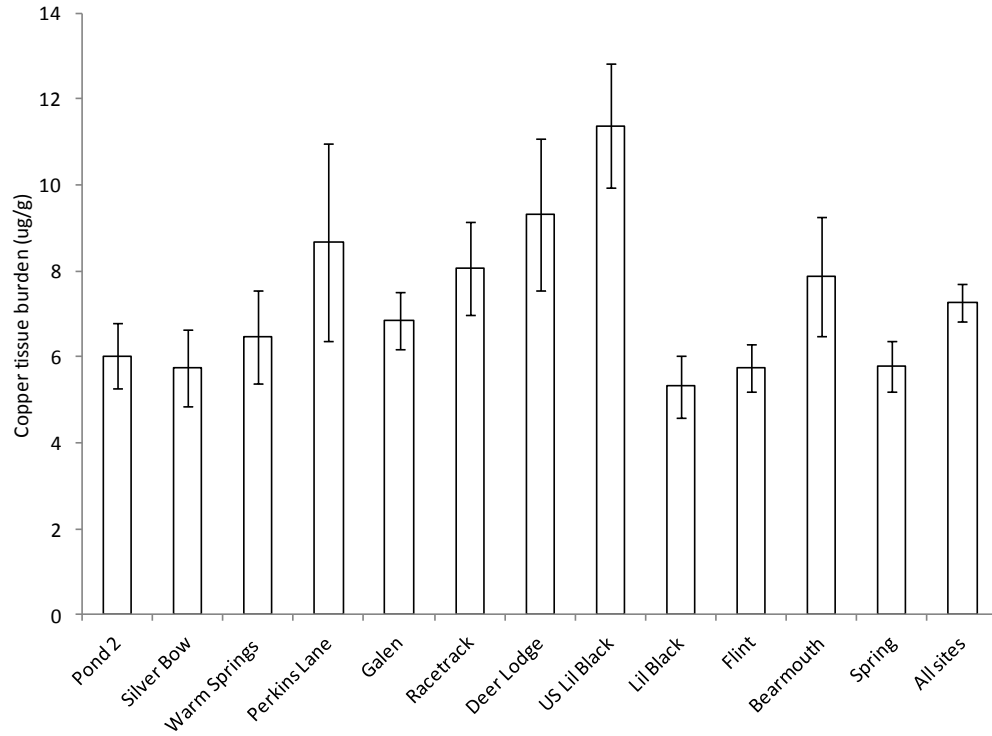
Mean ( $\pm$  95% CI) whole body metal concentrations in the five hatchery control Brown Trout were 4.31 ( $\pm$  1.26)  $\mu\text{g/g}$  for copper and 136.8 ( $\pm$  9.45)  $\mu\text{g/g}$  for zinc. Therefore, concentrations above these values for fish held in cages represent accumulation of copper or zinc while in the cages. U/S Lil Black had the highest average copper tissue burden (11.4  $\mu\text{g/g}$ ; SD = 2.9; Figure 8-22), followed by Deer Lodge (9.3  $\mu\text{g/g}$ ; SD = 3.5), and Perkins Lane (8.67  $\mu\text{g/g}$ ; SD = 4.5). Copper tissue burdens at U/S Lil Black were significantly higher than every site except Deer Lodge and Perkins Lane [Table 8-10]. Copper tissue burdens at Deer Lodge were significantly higher than Pond 2, Silver Bow, and the tributary and control sites. Perkins Lane had higher tissue burdens than the Lil Blackfoot site. Of the mainstem sites, Silver Bow had the lowest copper tissue burdens (5.7  $\mu\text{g/g}$ ; SD = 1.7), followed by Pond 2 (6.0  $\mu\text{g/g}$ ; SD = 1.5), and Galen (6.83  $\mu\text{g/g}$ ; SD = 1.3). The tributary sites and Clinton Spring the lowest copper tissue burdens of all the sites. Copper tissue burdens generally increased upstream to downstream from the Pond 2 to the U/S Lil Black sites.

The Pond 2 site had the highest zinc tissue burdens (216.8  $\mu\text{g/g}$ ; SD = 65.1), followed by Silver Bow (198.7  $\mu\text{g/g}$ ; SD = 34.5), and U/S Lil Black (178.7; 27.0). Zinc tissue burdens at Pond



2 were significantly higher than all sites except Silver Bow [Table 8-11]. Silver Bow had zinc tissue burdens significantly higher than Warm Springs, Galen, Racetrack, Lil Black, and Spring. Racetrack had the lowest zinc tissue burdens (156.9 µg/g; SD = 156.9) of the mainstem sites, followed by Galen (162.3 µg/g; SD = 16.8), and Perkins Lane (167.2 µg/g; SD = 25.1).

Copper Tissue Burdens reached the highest levels of the season in July and or September at Pond 2, Silver Bow, Warm Springs, Galen, Deer Lodge, Lil Black, and Bearmouth [Figure 8-23 through Figure 8-26]. Other sites had less distinct patterns in tissue burdens over the season. Zinc Tissue Burdens were highest in July and/or September at Pond 2, Silver Bow, and Bearmouth [Figure 8-23 through Figure 8-26].



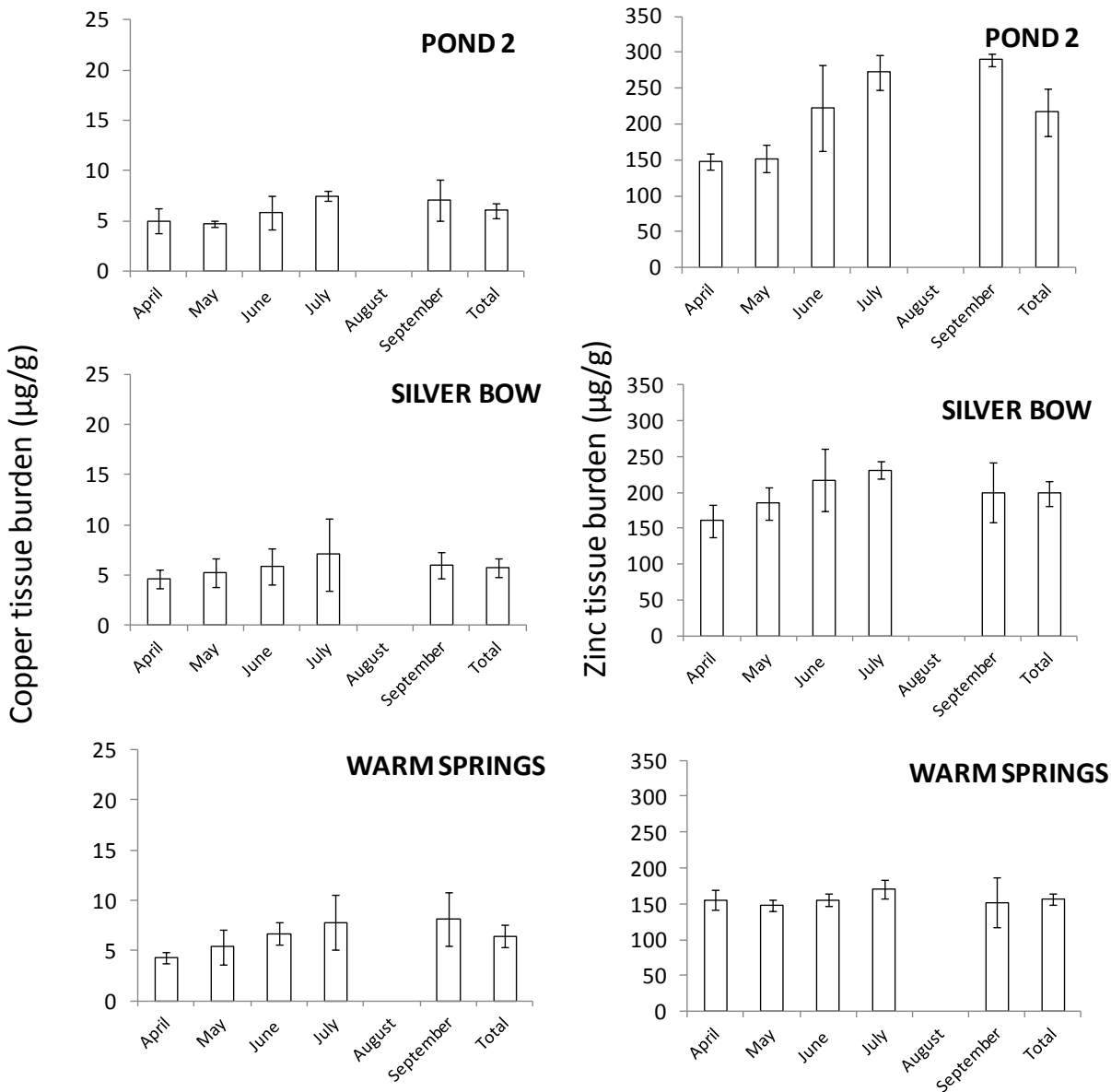
**Figure 8-22. Mean whole body concentrations of copper (a) and zinc (b) at twelve study sites in the 2014 Upper Clark Fork River Drainage caged fish study. Error bars are 95% confidence intervals.**

Table 8-10. Bonferroni-corrected  $p$ - values from pairwise  $t$ -tests of whole body copper tissue burdens between 12 sites in the Upper Clark Fork River Drainage. Values <0.05 are in bold.

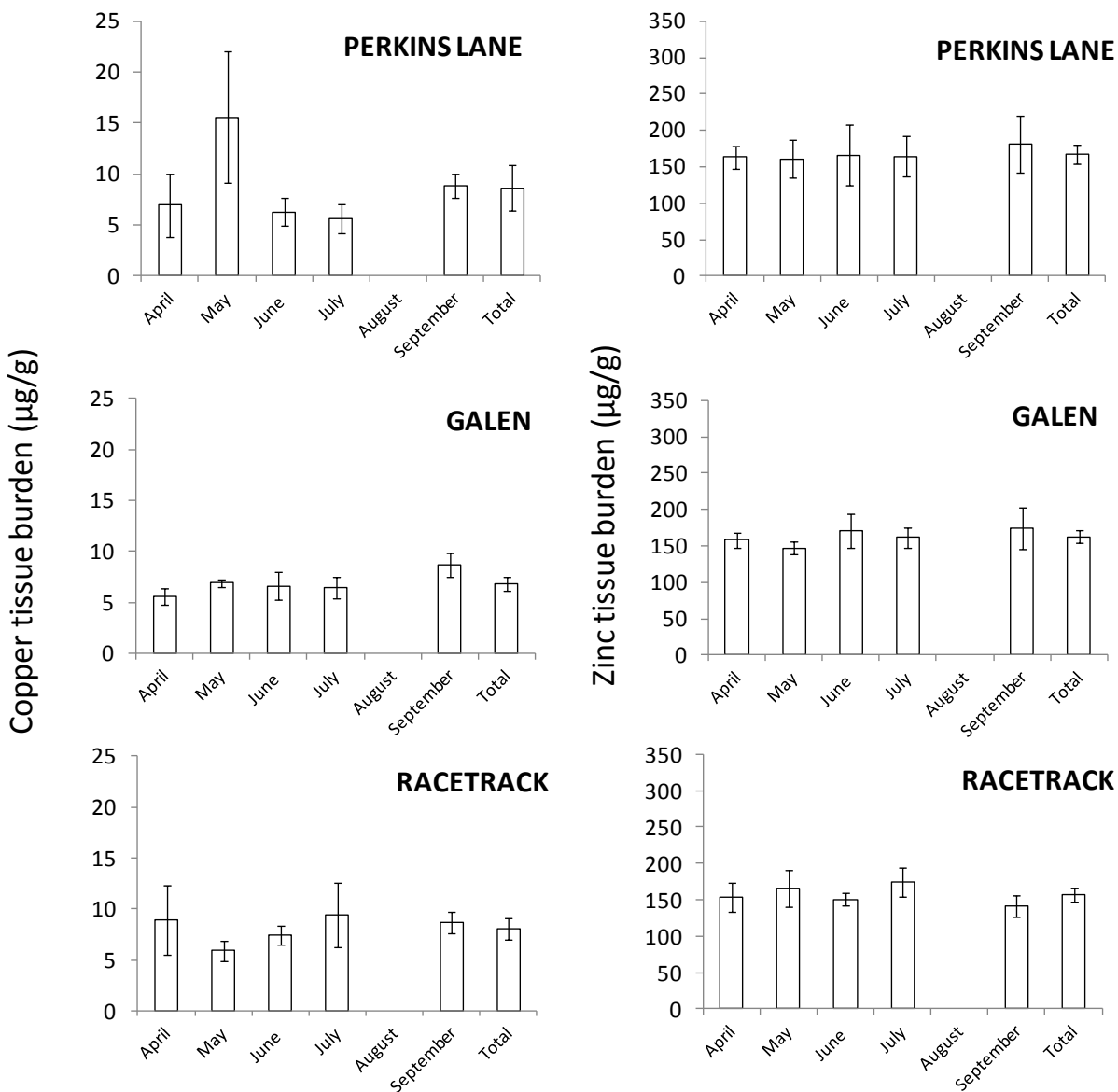
	Pond 2	Silver Bow	Warm Springs	Perkins Lane	Galen	Racetrack	Deer Lodge	US Lil Black	Lil Black	Flint	Bearmouth
Pond 2	-	-	-	-	-	-	-	-	-	-	-
Silver Bow	1	-	-	-	-	-	-	-	-	-	-
Warm Springs	1	1	-	-	-	-	-	-	-	-	-
Perkins Lane	0.1912	0.0685	0.857	-	-	-	-	-	-	-	-
Galen	1	1	1	1	-	-	-	-	-	-	-
Racetrack	1	0.5868	1	1	1	-	-	-	-	-	-
Deer Lodge	<b>0.0146</b>	<b>0.0044</b>	0.0879	1	0.262	1	-	-	-	-	-
US Lil Black	<b>0</b>	<b>0</b>	<b>0</b>	0.1552	<b>0</b>	<b>0.0144</b>	1	-	-	-	-
Lil Black	1	1	1	<b>0.0124</b>	1	0.1364	<b>0.0006</b>	<b>0</b>	-	-	-
Flint	1	1	1	0.0708	1	0.6035	<b>0.0046</b>	<b>0</b>	1	-	-
Bearmouth	1	1	1	1	1	1	1	<b>0.0065</b>	0.2645	1	-
Spring	1	1	1	0.079	1	0.6617	<b>0.0052</b>	<b>0</b>	1	1	1

Table 8-11. Bonferroni-corrected *p*-values from pairwise *t*-tests of whole body zinc tissue burdens between 12 sites in the Upper Clark Fork River Drainage. Values <0.05 are in bold.

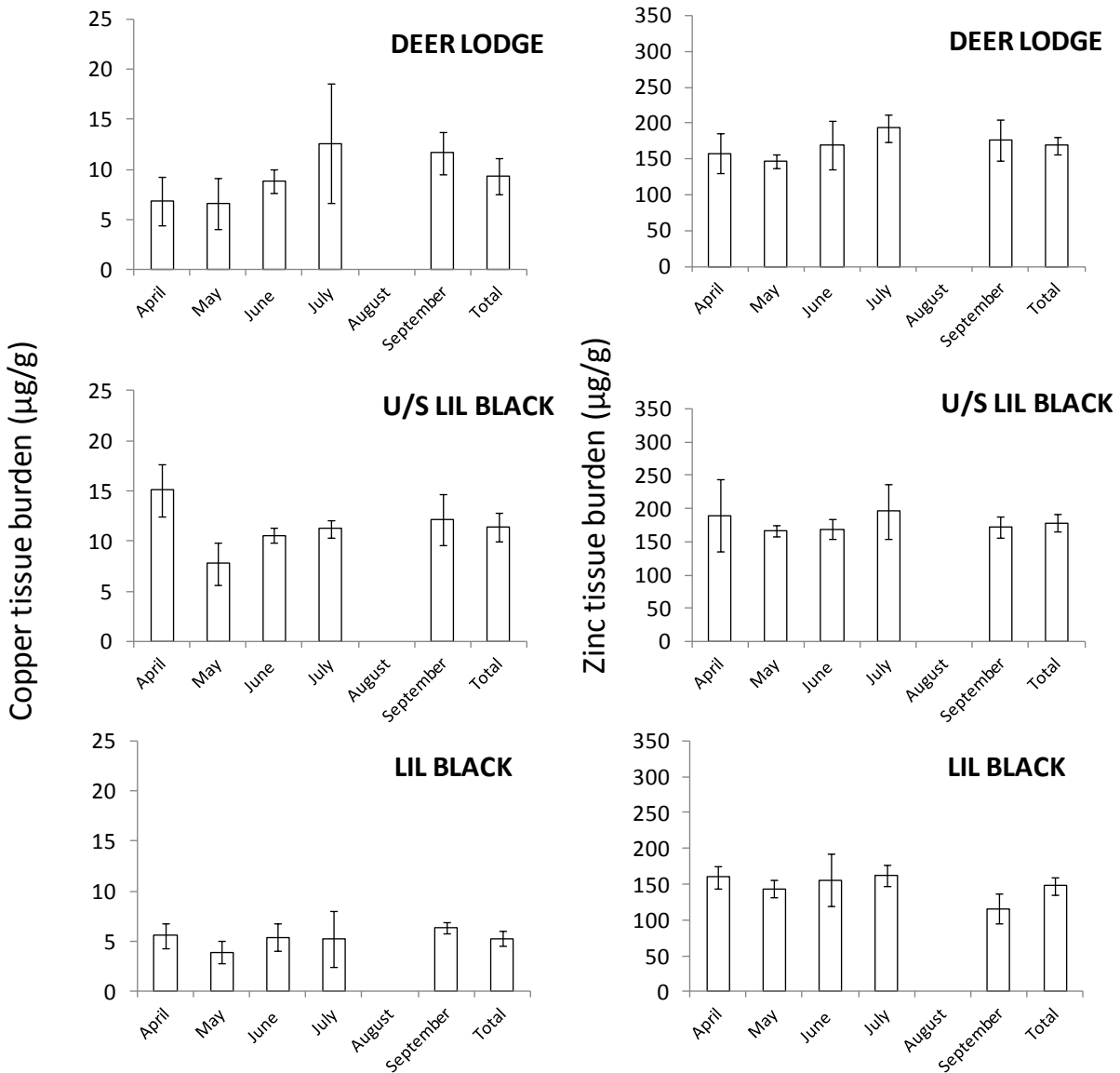
	Pond 2	Silver Bow	Warm Springs	Perkins Lane	Galen	Racetrack	Deer Lodge	US Lil Black	Lil Black	Flint	Bearmouth
Pond 2	-	-	-	-	-	-	-	-	-	-	-
Silver Bow	1	-	-	-	-	-	-	-	-	-	-
Warm Springs	0	0.008	-	-	-	-	-	-	-	-	-
Perkins Lane	0.0006	0.2673	1	-	-	-	-	-	-	-	-
Galen	0	0.0393	1	1	-	-	-	-	-	-	-
Racetrack	0	0.0101	1	1	1	-	-	-	-	-	-
Deer Lodge	<b>0.001</b>	<b>0.3945</b>	1	1	1	1	-	-	-	-	-
US Lil Black	<b>0.035</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	1	-	-	-	-
Lil Black	0	0.0003	1	<b>1</b>	1	1	<b>1</b>	<b>0.2755</b>	-	-	-
Flint	0.0002	0.1204	1	1	1	1	<b>1</b>	<b>1</b>	1	-	-
Bearmouth	0.0111	1	1	1	1	1	1	<b>1</b>	0.6911	1	-
Spring	0	0.0014	1	1	1	1	<b>1</b>	<b>0.8118</b>	1	1	1



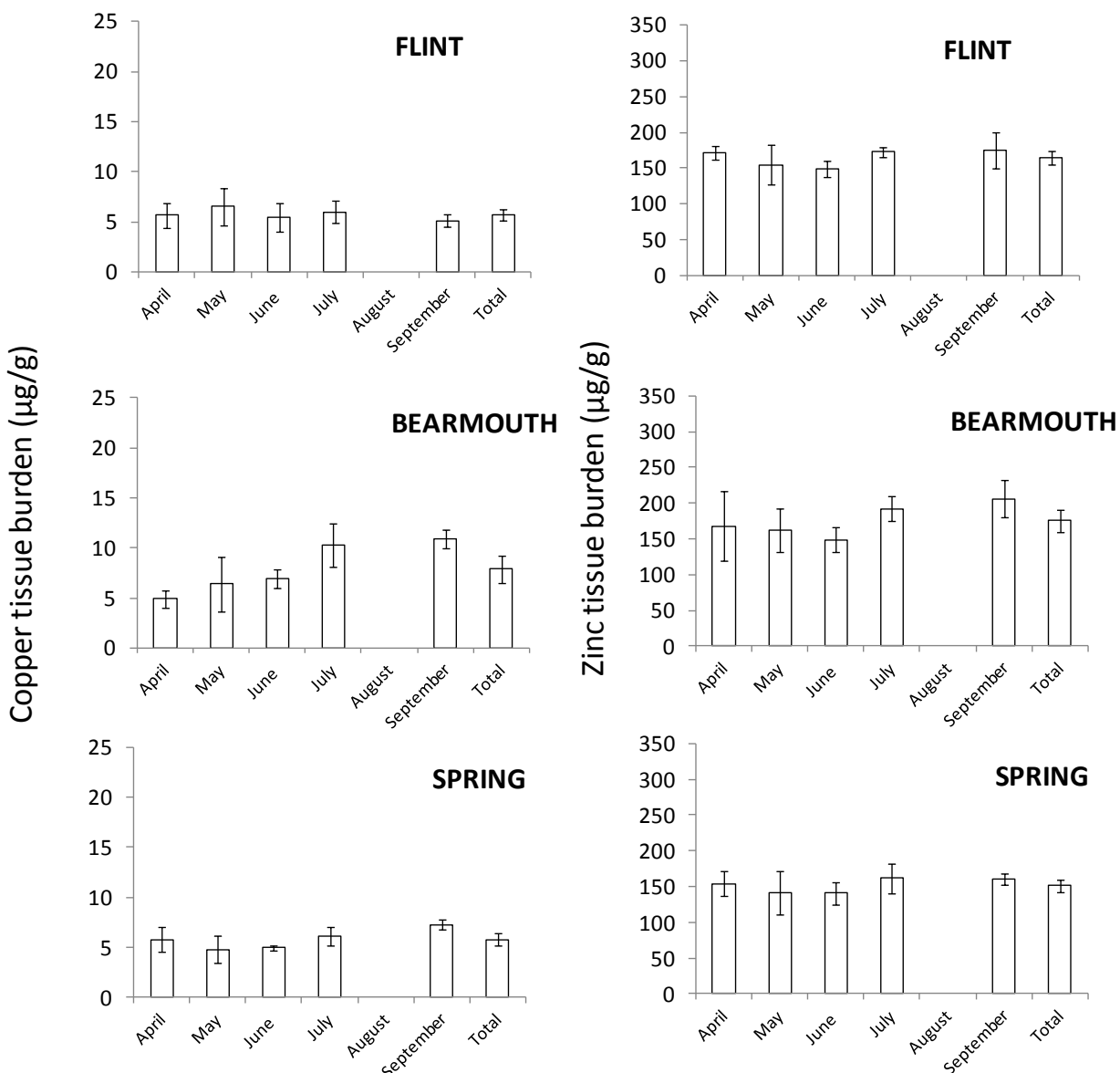
**Figure 8-23. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Pond 2, Silver Bow, and Warm Springs caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals.**



**Figure 8-24. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Perkins Lane, Silver Galen, and Racetrack caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals.**



**Figure 8-25. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Deer Lodge, Upstream Lil Black, and Lil Black caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals.**



**Figure 8-26. Mean whole body copper (left panels) and zinc (right panels) tissue burdens for the Flint, Bearmouth, and Spring caged fish sites in the Upper Clark Fork River Drainage. Error bars are 95% confidence intervals.**

### 8.3.5 Comparisons

#### 8.3.5.1 Tributary vs. Mainstem

For the purposes of the analysis between control tributaries and mainstem treatment sites, Clinton Spring was not included as a control site. For both copper and zinc, tributary sites had significantly lower tissue burdens than mainstem sites and greater tissue burdens than the hatchery controls [Figure 8-28]. The difference in tissue burdens between mainstem and tributary sites was greatest in September for both metals.



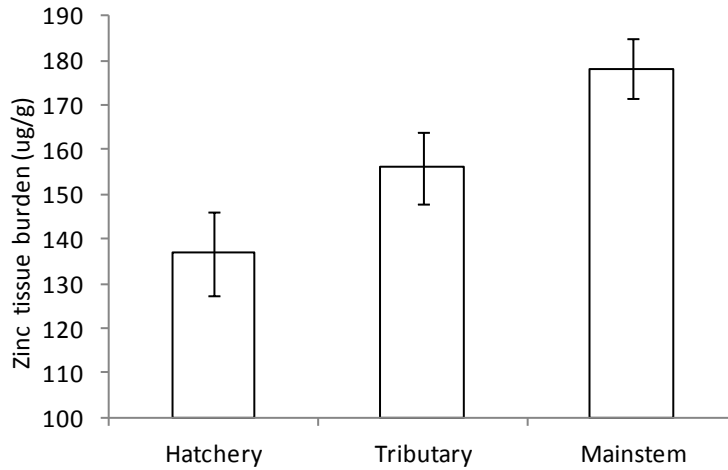
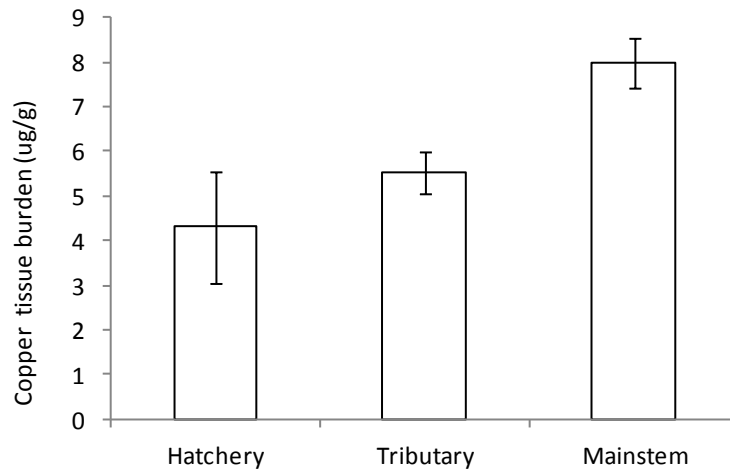
### **8.3.5.2 Upstream Construction versus Downstream Construction**

For the purposes of the analysis, sites located above and below the Phase 5 and 6 construction area near Galen, Montana were compared. The Galen site was considered above the construction area and the Racetrack site was considered downstream of the construction. The tributary sites were analyzed separately. Generally, upstream sites were found to have lower copper tissue burdens than downstream sites [Figure 8-29]. There were greater differences in copper tissue burdens between upstream sites and downstream sites than zinc tissue burdens [Figure 8-29].

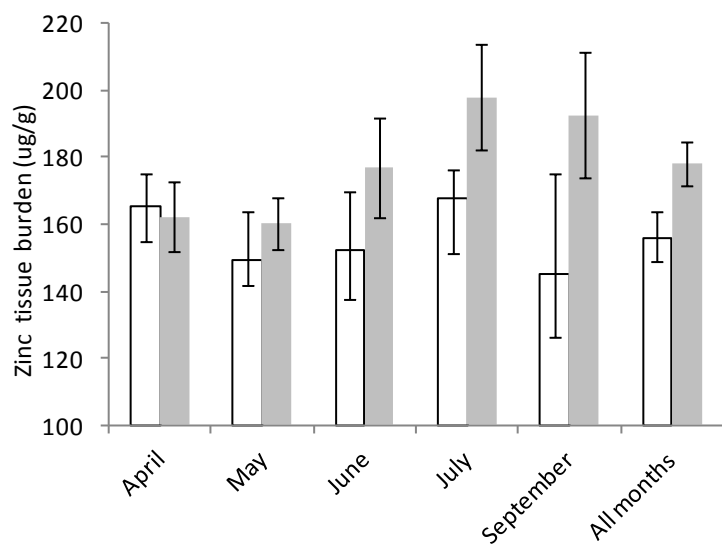
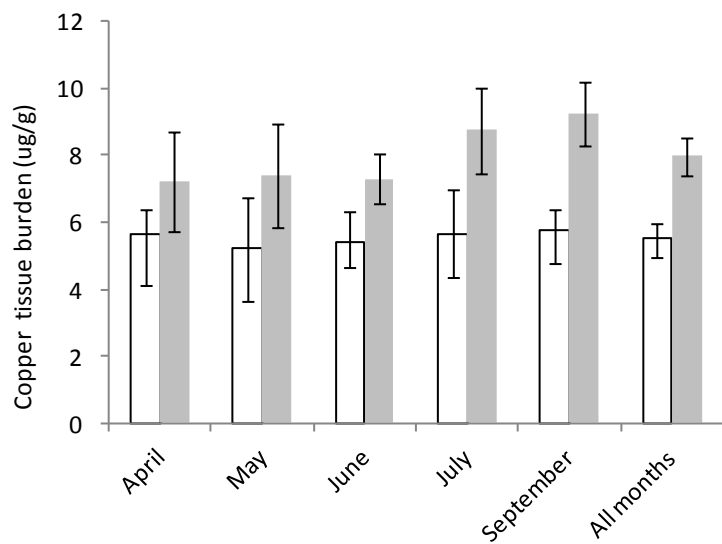
### **8.3.5.3 Annual Comparisons**

The number of years with metals tissue burden and fish survival data varied between sites [Figure 8-30; Figure 8-31]. Pond 2, Perkins Lane, Deer Lodge, U/S Lil Black, Lil Black, Flint, and Spring were sampled all four years for tissue burdens and survival. Bearmouth and Turah were sampled for three years. The remaining sites were sampled for fewer than two years. There was generally more variation in metal tissue burdens between sites than between years at a site. The tributary sites (Flint and Lil Black) consistently had lower copper tissue burdens than most mainstem sites. Deer Lodge and U/S Lil Black tended to have higher copper tissue burdens than other sites over the four years of caged fish studies.

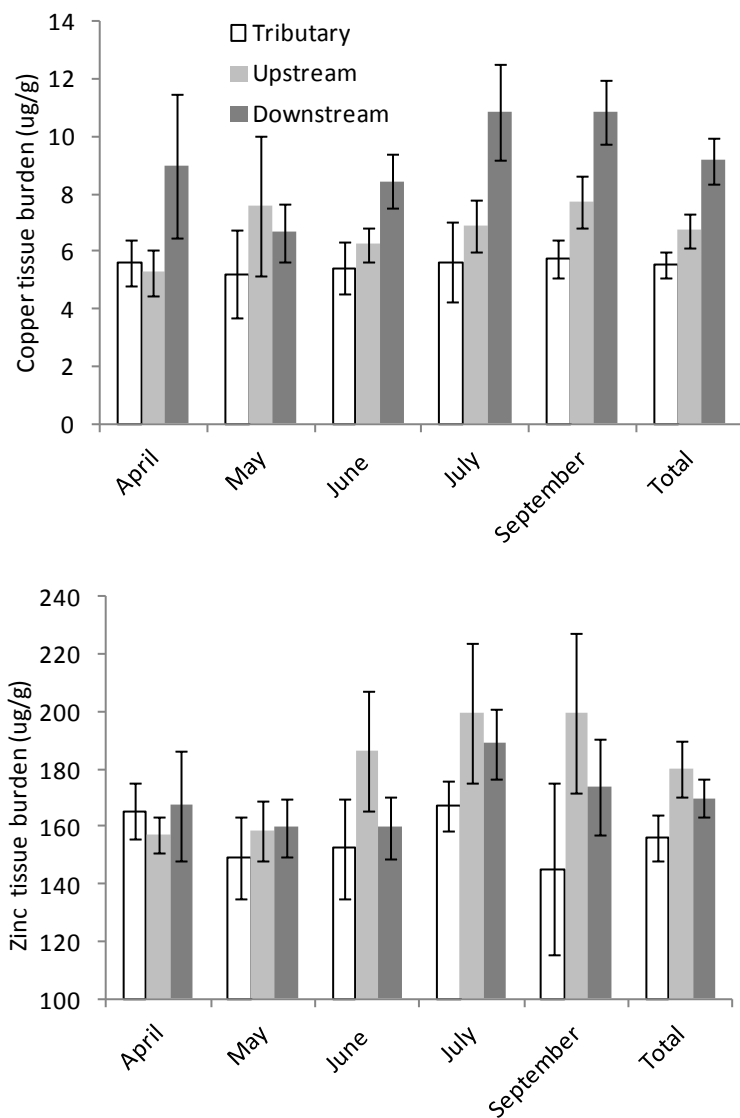
The Spring control site consistently had high survival in each year of caged fish studies [Table 8-12]. Deer Lodge had relatively consistent survival from year to year averaging 90% (range 89-91%). Tributary sites (Flint and Lil Black) had inconsistent survival from year to year. The Pond 2 site had the lowest survival of all sites in the 2012 and 2013 studies and the second lowest survival in the 2014 study. Other sites had inconsistent survival from year to year or lacked enough survival estimates to make conclusions about temporal trends.



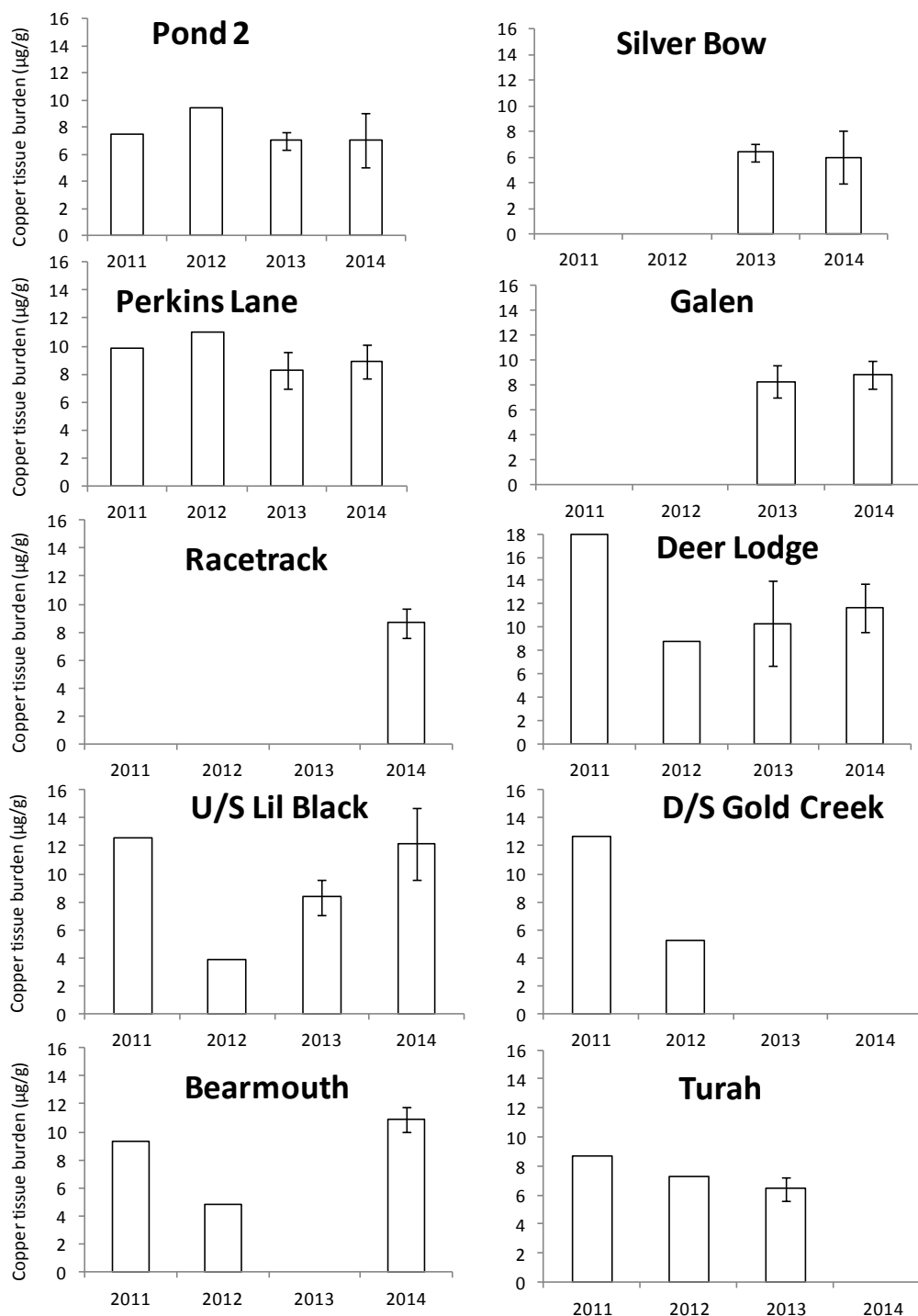
**Figure 8-27. Comparisons between copper and zinc tissue burdens in Brown Trout collected immediately from the hatchery, from cages in tributary sites, and cages in mainstem sites. Error bars are 95% confidence intervals.**



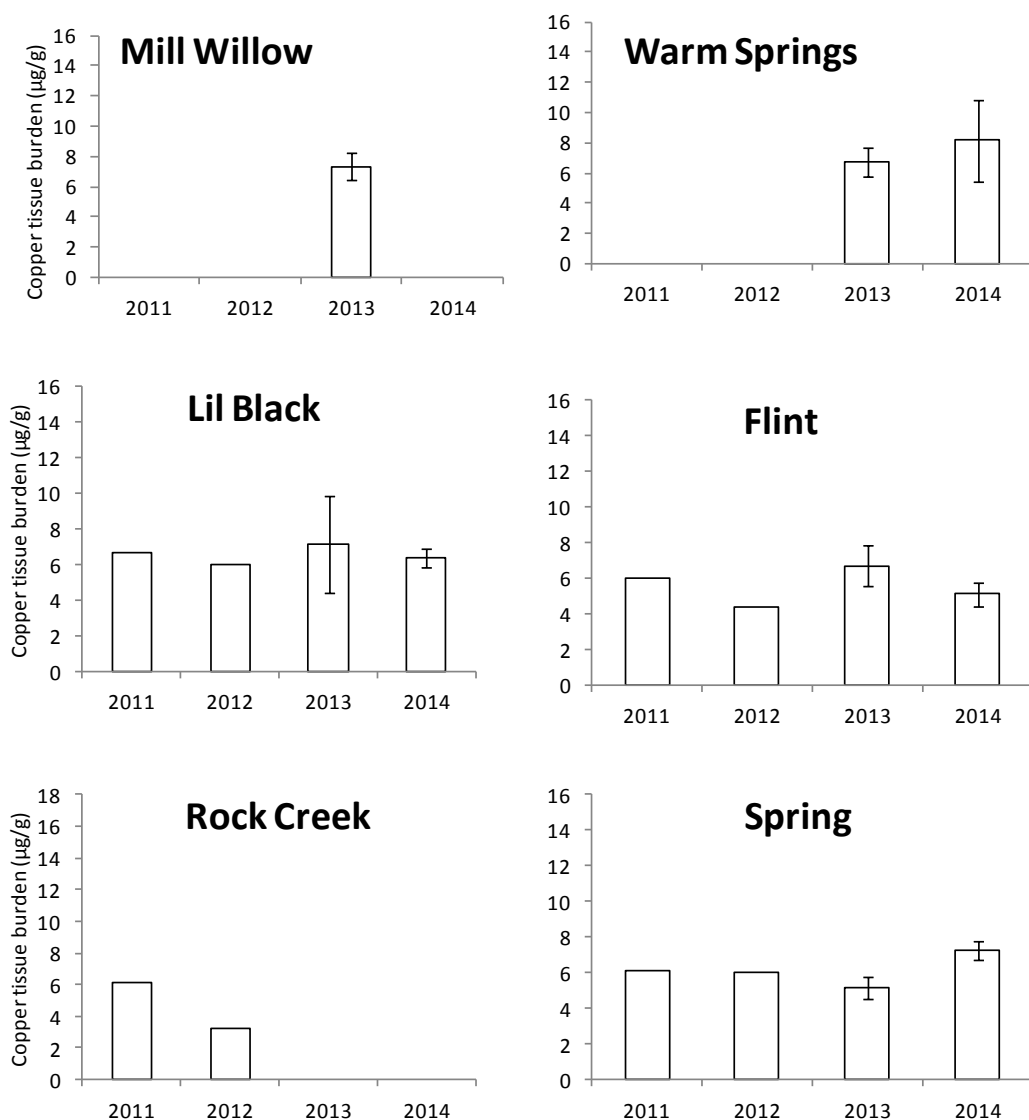
**Figure 8-28. Comparisons between tissue metals burdens of fish from tributary (white bars) and mainstem (grey bars) sites. Error bars are 95 % confidence intervals**



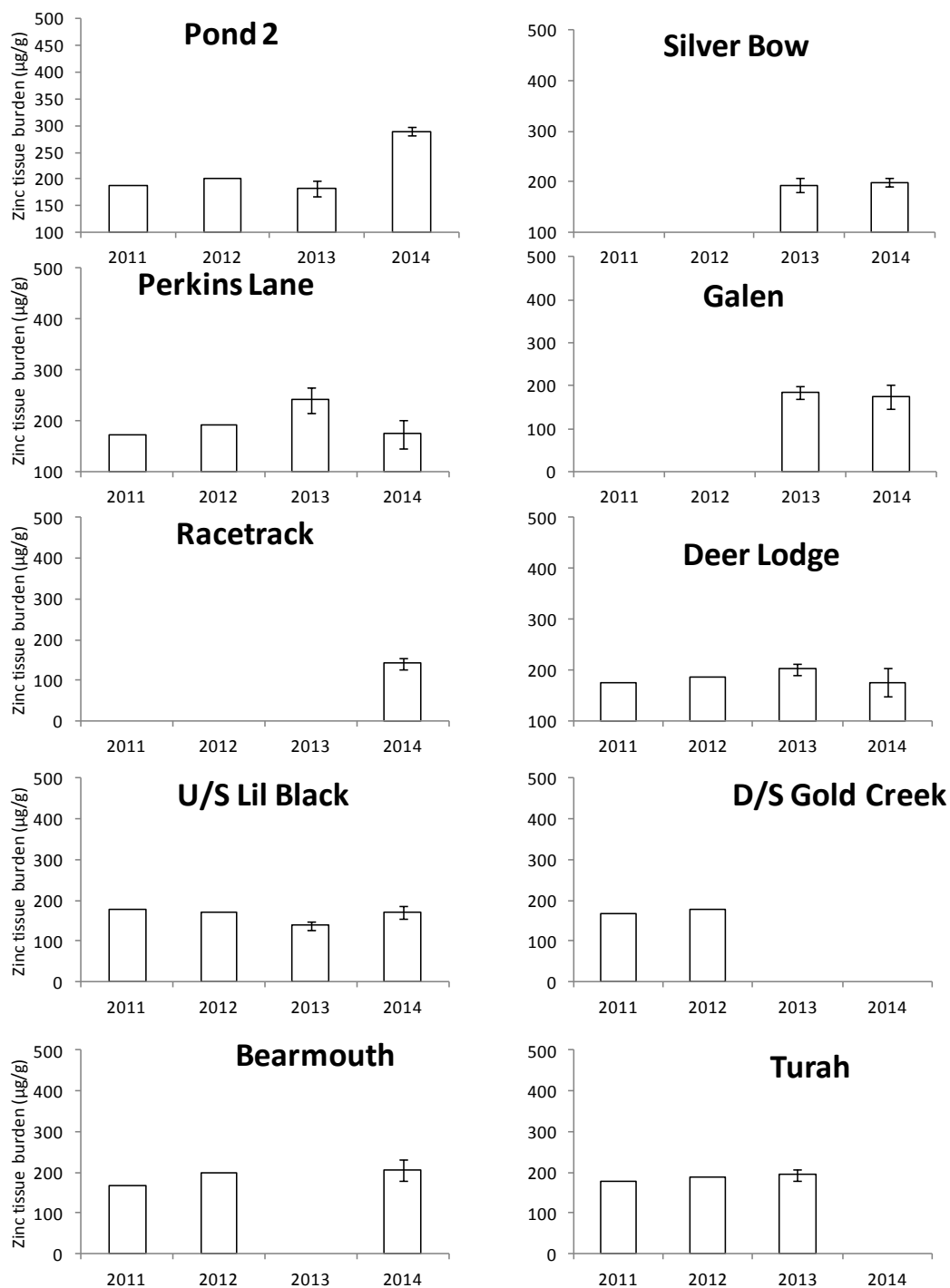
**Figure 8-29. Comparisons between tissue metals burdens of fish from sites upstream of construction and downstream of construction. Error bars are 95 % confidence intervals.**



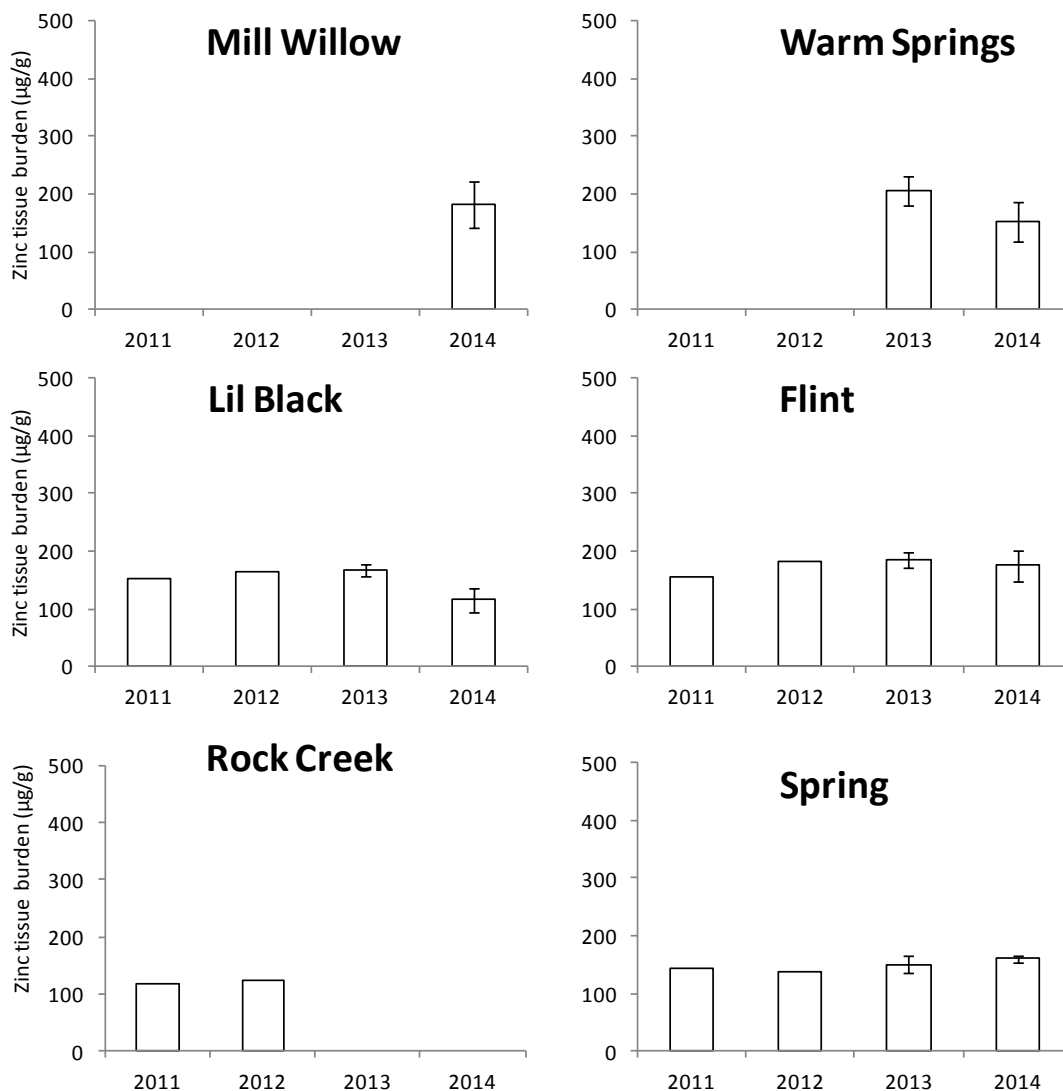
**Figure 8-30. Annual mean whole body Brown Trout copper tissue burdens for fish collected at the end of the season from fish cages at mainstem sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis.**



**Figure 8-31. Annual mean whole body Brown Trout copper tissue burdens for fish collected at the end of the season from fish cages in tributary sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis.**



**Figure 8-32. Annual mean whole body Brown Trout zinc tissue burdens for fish collected at the end of the season from fish cages at mainstem sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis.**



**Figure 8-33. Annual mean whole body Brown Trout zinc tissue burdens for fish collected at the end of the season from fish cages at tributary sites in the Upper Clark Fork River Basin, 2011-2014. Location of fish cage sites was dependent on the year; not all sites were sampled each year. Error bars are 95% confidence intervals. Fish samples were combined into composites for tissue burden analysis in 2011 and 2012, so error bars are not available for those years. In 2013 and 2014, individual fish were submitted for tissue burden analysis.**



**Table 8-12. Mean annual survival at in caged fish studies conducted in the Upper Clark Fork Drainage, 2011-2014.**

Site	Year				Mean	Standard deviation
	2011	2012	2013	2014		
Turah	69	89	94		84	13.2
Spring	100	100	88	95	95.8	5.7
Bearmouth	100	88		70	86	15.1
Rock Creek	86	89			87.5	2.1
Flint	93	88	68	72	80.3	12.1
Gold Creek	100	89			94.5	7.8
Lil Black	88	91	75	89	85.8	7.3
U/S Lil Black	89	83	93	44	77.3	22.5
Deer Lodge	89	91	89	90	89.8	1
Racetrack				88	88	
Galen				86	86	
Perkins Lane	73	83	82	85	80.8	
Mill Willow			89		89	
Warm Springs			83	60	71.5	16.3
Silver Bow			83	50	66.5	23.3
Pond 2*	96	78	58	51	70.8	20.4
Mean	89.4	88.1	82	73.3		
Standard deviation	10.5	5.6	11.1	18.1		

\* The Pond 2 site was referred to as “Warm Springs” in previous years [Richards et al, 2013]. The Warm Springs site in this study refers to a site in Warm Springs Creek near the confluence with Silver Bow Creek.

### 8.3.6 Water Contaminants

Chronic freshwater ALS values for metals in surface water are evaluated based upon the analysis of samples following a total recoverable method [MDEQ, 2012b]; therefore discussion of water sampling results will focus on total recoverable levels. Ammonia nitrogen (NH<sub>3</sub>-N) was only detected at four sites during two days in March. On March 18, 2014 (prior to fish cage deployment) concentrations of NH<sub>3</sub>-N were 1.08 and 0.11 mg/L at Silver Bow and Perkins Lane, respectively. On March 19, 2014 concentrations of NH<sub>3</sub>-N were 0.06 mg/L at both Racetrack and Deer Lodge.

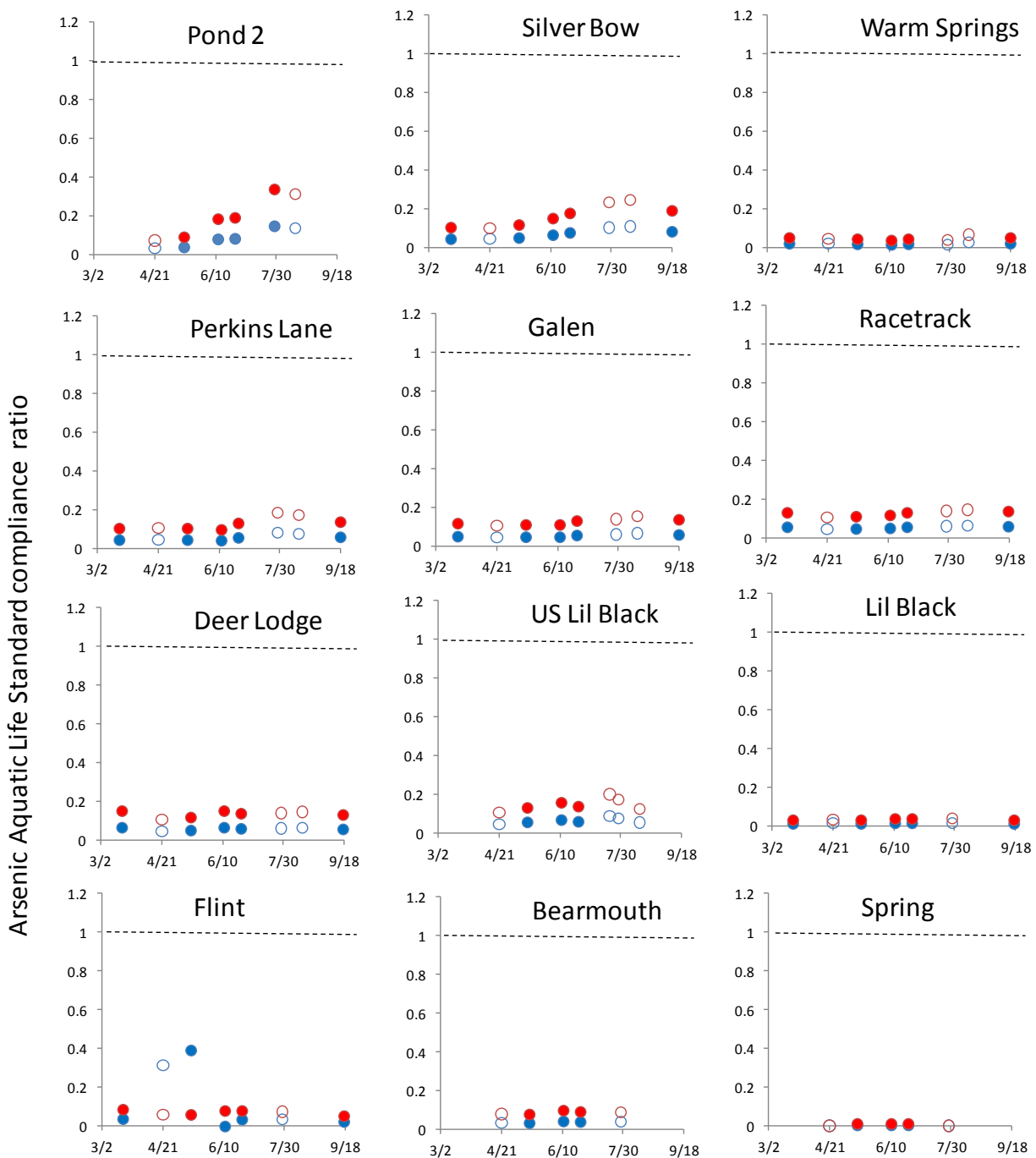
Total recoverable concentrations of arsenic did not exceed the chronic ALS in any water sample collected at caged fish sites in 2014 [Figure 8-34]. Across all sites, the highest concentrations of arsenic occurred at Pond 2 (mean = 0.030 mg/L; SD = 0.016) followed by the Silver Bow site (mean = 0.025 mg/L; SD = 0.008). Arsenic concentrations were lowest at Spring (mean = 0.001 mg/L; SD = 0.001), followed by the tributary sites at Lil Black (mean = 0.005 mg/L; SD = 0.001), Warm Springs (mean = 0.007 mg/L; SD = 0.001), and Flint (mean = 0.011 mg/L; SD = 0.002).

The cadmium chronic ALS was exceeded at the Pond 2 site on April 21, 2014 [Figure 8-35], and nearly exceeded at Silver Bow, Perkins Lane, and Galen on the same date. The site at U/S Lil Black had a near exceedance event on July 21, 2014. U/S Lil Black had the highest average cadmium concentration (mean = 0.0006 mg/L; SD = 0.0010) while the non-mainstem sites (Lil Black, Spring, Flint, and Warm Springs) had the lowest concentrations (means <0.0002 mg/L; SD <0.0002).

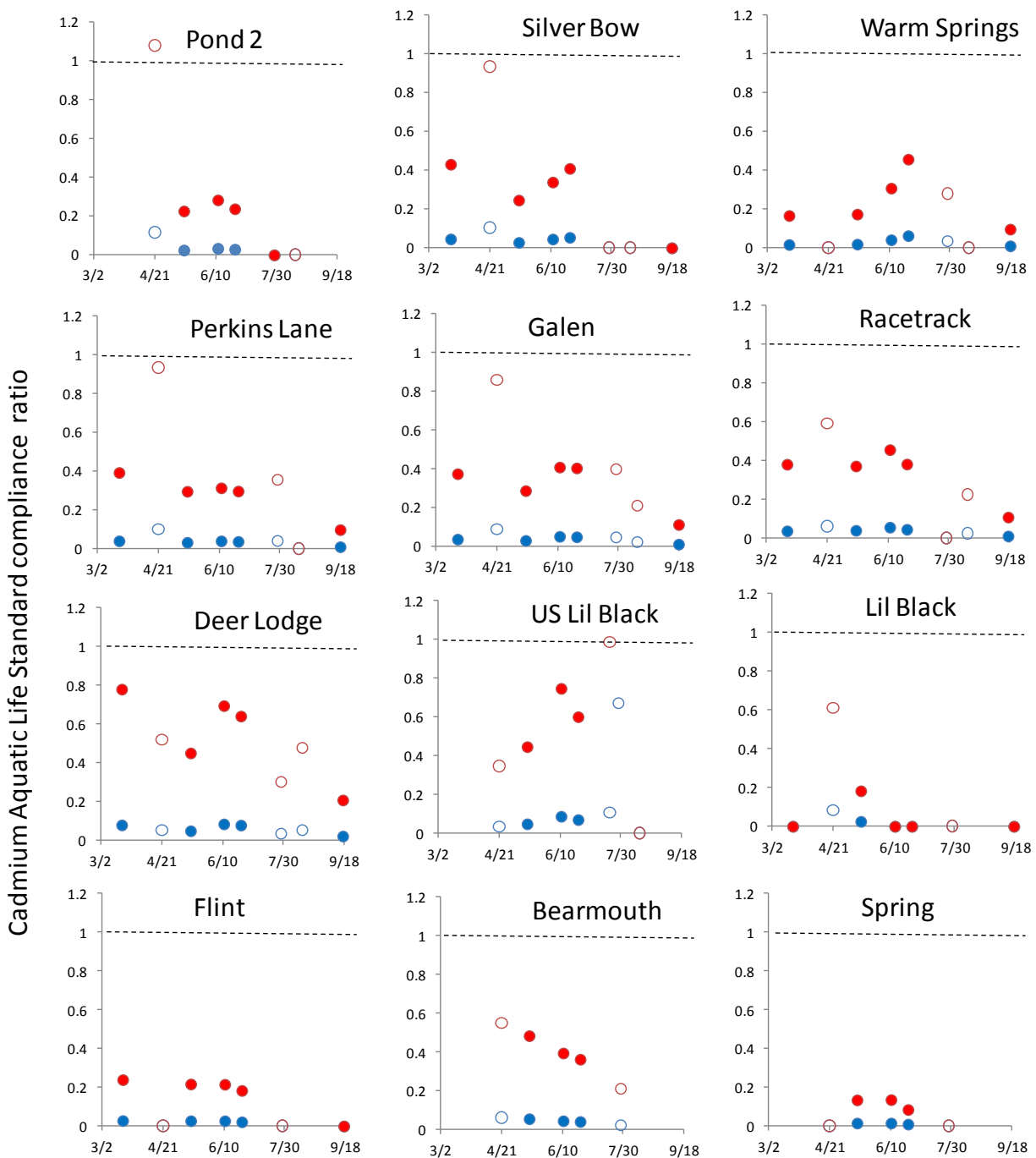
The chronic ALS for copper was exceeded at least once during the 2014 caged fish study at all sites except Lil Black and Spring [Figure 8-36]. The chronic copper ALS was exceeded in all eight samples taken at Deer Lodge and all seven samples taken at U/S Lil Black. Mean copper concentrations were highest at U/S Lil Black (mean = 0.047; SD = 0.031) followed by Deer Lodge (mean = 0.043 mg/L; SD = 0.022). Copper concentrations were lowest at the non-mainstem sites (means 0.001-0.009 mg/L; SD = 0.001-0.004).

Chronic lead ALS values were exceeded at least once at the Deer Lodge, U/S Lil Black, and Bearmouth mainstem sites as well as the Flint tributary site [Figure 8-37]. Lead concentrations were highest on average at U/S Lil Black (mean = 0.006 mg/L; SD = 0.005) followed by Deer Lodge (mean = 0.005 mg/L; SD = 0.003). With the exception of the Flint site, the non-mainstem sites tended to have relatively low lead concentrations (means <0.001).

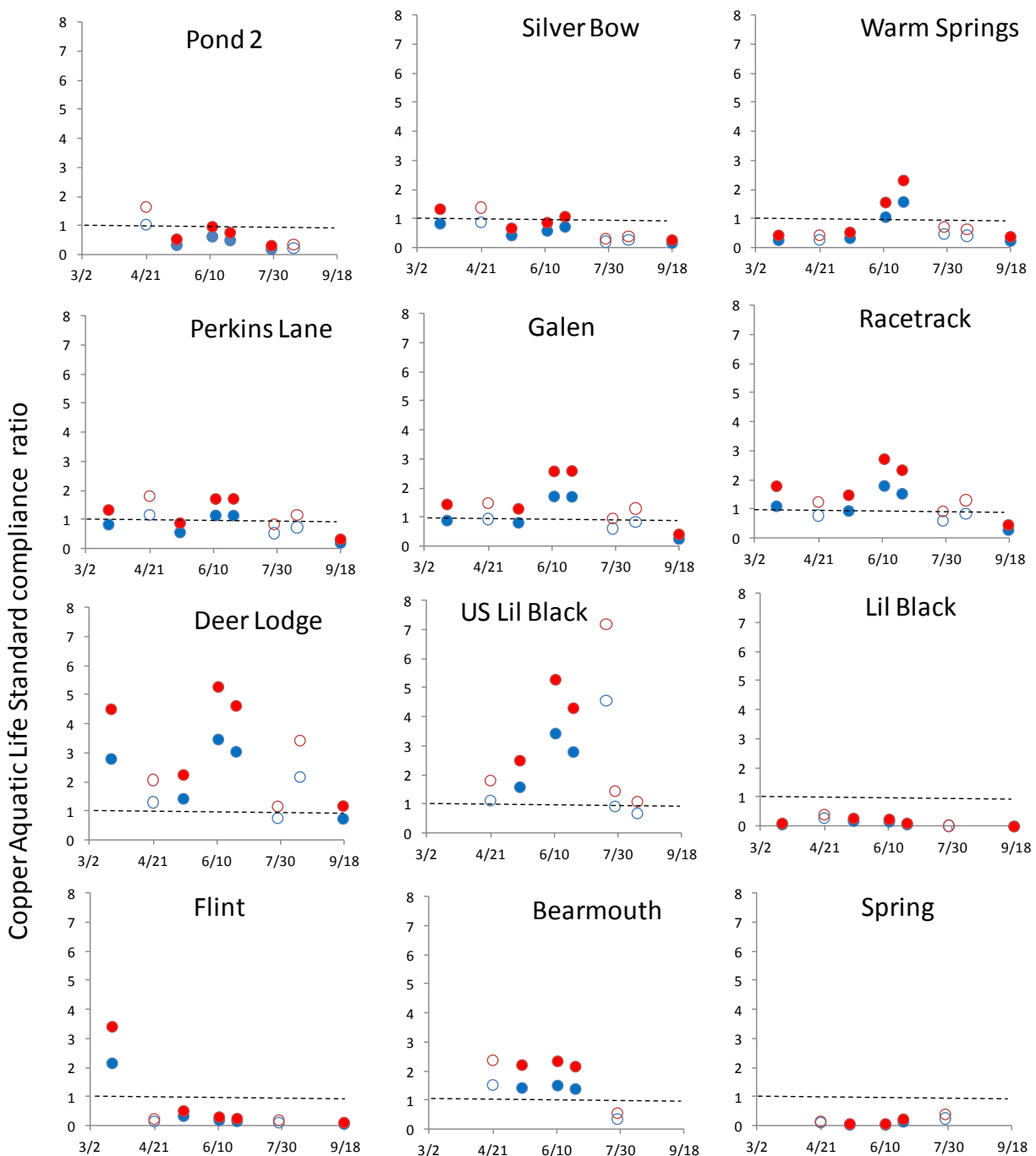
Total recoverable zinc concentrations in 2014 did not exceed the chronic ALS value at any site at any time [Figure 8-38]. Zinc concentrations tended to be relatively high at U/S Lil Black site (mean = 0.042 mg/L; SD = 0.033) and Deer Lodge (mean = 0.036 mg/L; SD = 0.020). Lil Black, Warm Springs, and Spring had the lowest zinc concentrations (means = 0.001-0.012 mg/L; SD = 0.004-0.004).



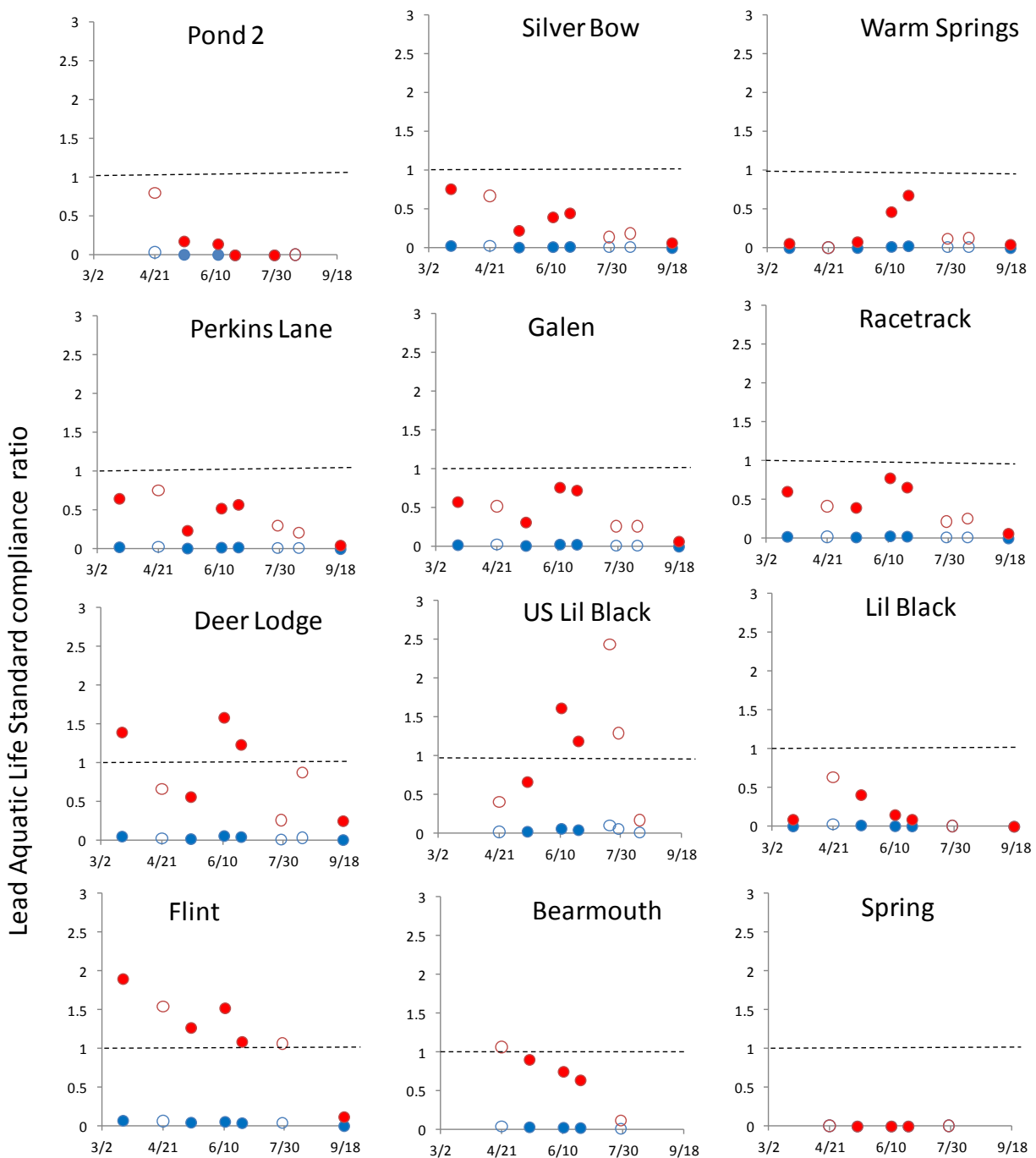
**Figure 8-34. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable arsenic at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured arsenic concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate arsenic levels below the aquatic life standard while values >1 indicate levels above the standard.**



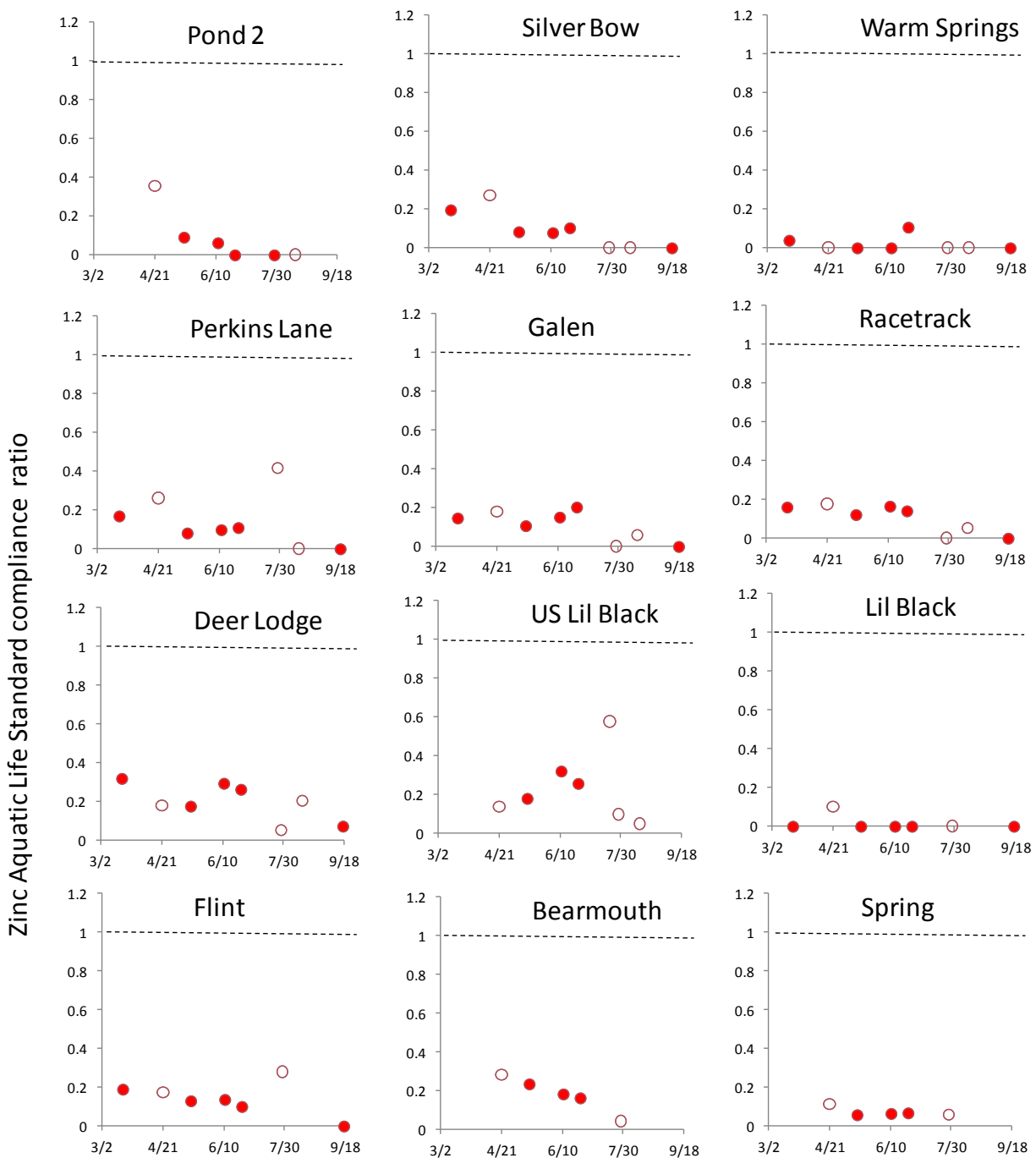
**Figure 8-35. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable cadmium at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured cadmium concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate cadmium levels below the aquatic life standard while values >1 indicate levels above the standard.**



**Figure 8-36. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable copper at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured copper concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate copper levels below the aquatic life standard while values >1 indicate levels above the standard.**



**Figure 8-37. Acute (blue dots) and chronic (red dots) compliance ratios for total recoverable lead at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured lead concentration by the Aquatic Life Standard value [MDEQ, 2012b]. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate lead levels below the aquatic life standard while values >1 indicate levels above the standard.**



**Figure 8-38. Compliance ratios for total recoverable zinc at the 2014 caged fish sites. Compliance ratios were calculated by dividing the measured zinc concentration by the Aquatic Life Standard value [MDEQ, 2012b]. The acute and chronic standards for zinc are identical. Water samples collected by MFWP are depicted by the open dots and samples collected by RESPEC are depicted with solid dots. Compliance ratio values <1 indicate zinc levels below the aquatic life standard while values >1 indicate levels above the standard.**

### 8.3.7 Water Quality

---

Water quality parameters were recorded on continuously recording Hydrolab ® MS5 water quality probes at Pond 2, Silver Bow, Galen, Racetrack, and U/S Lil Black in 2014. Due to spurious readings in past years, particularly ammonia readings, the Hydrolab was calibrated several times over the course of the field season. Despite recalibration, abnormal data revealed that the specific conductivity probe and dissolved oxygen sensor at Racetrack, dissolved oxygen sensor at Galen, specific conductivity probe at U/S Lil Black, and ammonia sensor at Pond 2 failed for various length of time in 2014. As a result, spurious data were removed from Figure 8-39 through Figure 8-41.

#### 8.3.7.1 pH

Elevated pH was observed at the Pond 2 and at Silver Bow sites [Figure 8-39]. Extended exposure to pH >9 may be harmful to trout [Colt et al., 1979] and results in higher ammonia toxicity (DEQ-7). Mean daily values for pH exceeded 9 in early April, late May, June, July, and August at Pond 2, and at Silver Bow in late June, early July, and much of August. In contrast, mean daily pH at the remaining mainstem sites with probes deployed did not exceed 9 and generally varied from 7.0 to 8.8 [Figure 8-39], which is considered within the ranges suitable for trout [Colt et al., 1979]. For comparison, pH periodically measured with a handheld probe at the tributary sites ranged from 6.6 to 7.9.

#### 8.3.7.2 Specific Conductivity

Specific conductivity is a measure of the ability of water to conduct electricity and can be used as a relative measure of water quality. Specific conductivity typically varies from 10 to 1000  $\mu\text{S}/\text{cm}$ , but may exceed 1000  $\mu\text{S}/\text{cm}$  in polluted waters or waters receiving large quantities of land runoff [Chapman, 1996]. Mean daily specific conductivities at all sites were within normal ranges in 2014 [Figure 8-40]. Specific conductivities ranged from 95 to 711  $\mu\text{S}/\text{cm}$ .

#### 8.3.7.3 Luminescent Dissolved Oxygen

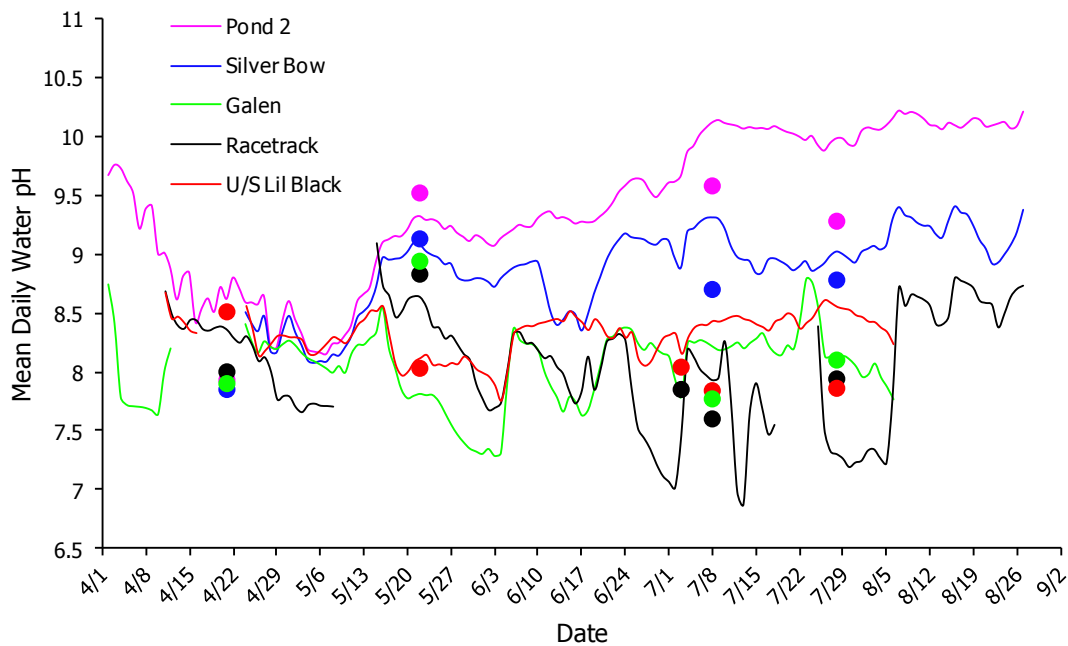
The freshwater ALS one day minimum for dissolved oxygen for fish >30 days post-hatch in the Clark Fork River is 4.0 mg/L [MDEQ, 2012b]. Mean daily dissolved oxygen levels never went below this threshold at any site in 2014 [Figure 8-41]. The overall trend in mean daily dissolved oxygen levels was values >11.0 mg/L at all sites up to mid-April then a decrease to between 8-11 mg/L for the remainder of the study. One exception was the U/S Lil Black site that had mean DO values in late August between 7-8 mg/L.

#### 8.3.7.4 Total Ammonia

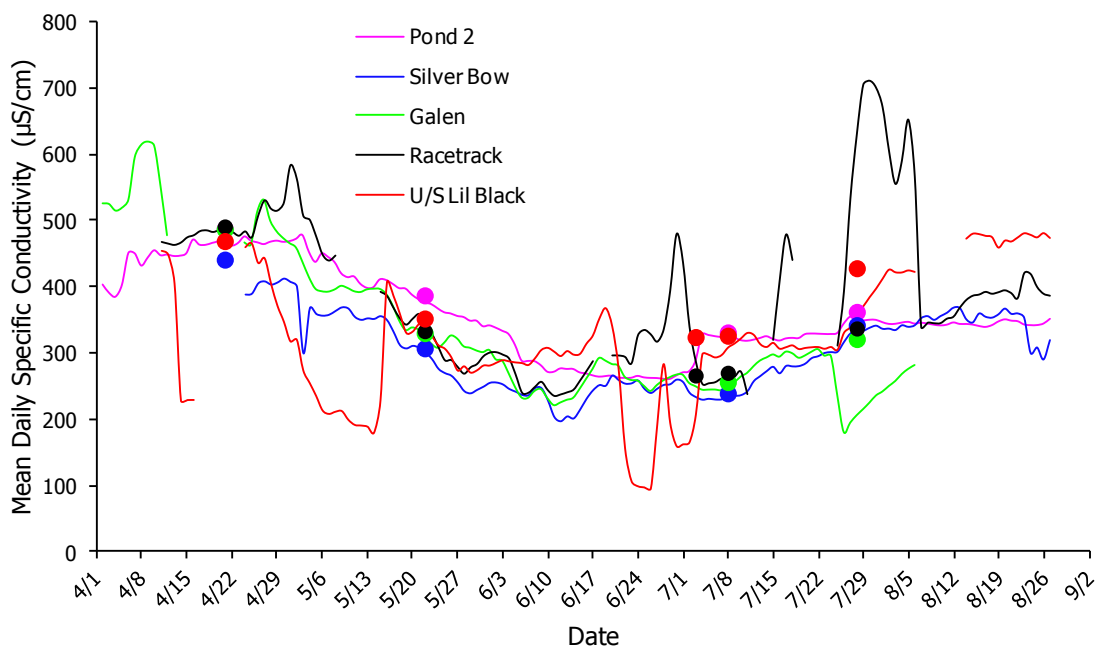
Water ammonia levels were below the detection limit (0.05 mg/L N) in water samples collected by MFWP and RESPEC during the time period that the Hydrolabs were installed at



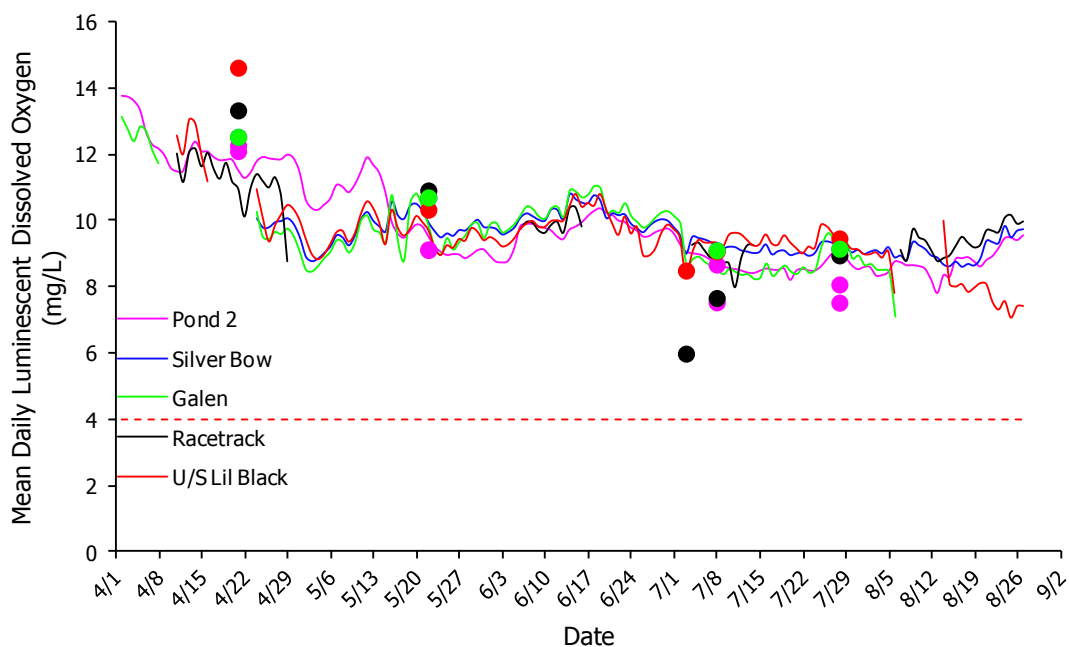
Pond 2 and Silver Bow. The Hydrolab recorded mean daily ammonia concentrations of 0.17 mg/L at Silver Bow and 1.45 mg/L at Pond 2 on July 28, and 0.17 mg/L at Silver Bow and 2.84 mg/L at Pond 2 on August 14. The reason for the discrepancy between the Hydrolab and water sample data is likely the result of the ammonia probe not being as reliable as the more common water quality parameters noted above. The precision with which the Hydrolab ® MS5 records total ammonia levels has been questionable in the past (T. Selch, MFWP, personal communication, 2014). As a result of the questionable reliability of the ammonia sensors, ammonia data as recorded by the Hydrolabs are not presented in this report.



**Figure 8-39. Mean daily water pH at sites with probes deployed in 2014. Lines represent Hydrolab data and circles represent handheld multiprobe data.**



**Figure 8-40. Mean daily specific conductivity at sites with probes deployed in 2014. Lines represent Hydrolab data and circles represent handheld multiprobe data.**



**Figure 8-41. Mean daily luminescent dissolved oxygen at sites with probes deployed in 2014. Lines represent Hydrolab data and circles represent handheld multiprobe data. The red dashed horizontal line denotes the freshwater ALS one day minimum.**

## 8.4 DISCUSSION

---

### 8.4.1 Trout Population Monitoring

---

Brown trout population estimates have been generally increasing since 2011 at monitoring sites in the mid- and upper- reaches of the Clark Fork River. Estimates for 2013 and 2014 at the Flint Creek mouth were also slightly higher than previous estimates from this site. The Bearmouth reach consistently supports low numbers of Brown Trout. It is possible that above average discharge in 2011 increased the quality and quantity of Brown Trout spawning and/or rearing habitat in the upper Clark Fork River and tributaries. Based on a telemetry study, most spawning activity in the Upper Clark Fork River drainage takes place in and upstream of the Little Blackfoot River, although a few radio tagged Brown Trout did make spawning related movements into Rock and Flint creeks [Mayfield, 2013]. There are many potential reasons for low densities of brown trout in the reach between Flint and Rock Creeks (see Naughton, 2015), but the lack of spawning observed in this reach by Mayfield [2013] may indicate that low recruitment into this reach is an issue.

Fish species composition is dependent on the environmental conditions in the water in which fish live. Heavy metal contamination will tend to favor more tolerant fish species and have more negative effects (reduced survival, growth, or reproduction) for sensitive species [Klerks and Levinton, 1989]. Conversely, as heavy metal contamination in the Upper Clark Fork River is reduced through ongoing remediation efforts, the abundance of sensitive species may increase. There have been numerous studies on the effects of heavy metals on the trout species present in the Upper Clark Fork River, but relatively little is known about how the impacts of heavy metals (or the subsequent cleanup efforts) will affect non-trout species. Therefore, the data collected in 2014 at the two CPUE sections will provide valuable baseline information about the relative abundance of all fish species present in the Clark Fork River.

### 8.4.2 Survival

---

Results of this study, as in previous studies in the UCFR [Phillips and Spoon, 1990; Richards et al., 2013; Leon et al., 2014], revealed variation in fish mortality across space and time. Most of the mortality in 2014 in caged fish occurred in April, July, and August. This bimodal pattern is consistent with previous caged fish studies [Richards et al., 2013; Leon et al., 2014] where mortality tended to be highest during spring runoff and on the descending limb of the hydrograph as water temperatures increase. Heavy metal exposure increases in the spring as the concentrations of these metals increase due to the flushing of contaminated soils in the flood plain and river banks [Sando et al., 2014]. Also, hatchery fish used in this study may not have enough time to acclimate to high concentrations of metals in the water. This lack of acclimation could significantly increase their susceptibility to the negative effects of substances such as copper (e.g., Dixon and Sprague [1981]).

The highest mortality rates did not consistently occur at sites with the highest water temperatures or tissue metals burdens. For example Deer Lodge had relatively high survival,

but the site also had high copper tissue burdens and 50 days of maximum water temperatures above 19 °C. The U/S Lil Black site also had high copper tissue burdens, 52 days above 19 °C, and the lowest survival of any site in 2014. The site in Warm Springs Creek had relatively low copper tissue burdens, cooler water temperatures, but low survival in 2014. It is clear that environmental factors in the UCFR interact in complex ways to affect fish survival. As such, site-specific survival has not been a clear-cut measure of water quality in caged fish studies in the UCFR [Leon et al., 2013].

Overall, survival was lower (mortality was higher) in 2014 than in previous years. Across all sites, average survival was 89% in 2011, 88% in 2012, 82% in 2013, and 73% in 2014. The reason for the decreased survival is not entirely clear, but could be related to infections of *Saprolegnia* fungus (*Saprolegnia* sp.). *Saprolegnia* is an opportunistic fish parasite that feeds on diseased flesh of injured, diseased, or stressed fish. *Saprolegnia* is present in most freshwaters and infections are more common during spawning, high water temperatures, or other stressful events. A review of notes from caged fish studies 2011-2014 suggests a possible outbreak of the fungus in 2014. Fungal infections were noted on three Brown Trout mortalities in 2011. There were no noted cases *saprolegnia* in 2012 or 2013. Fourteen cases were noted in 2014. Cases occurred in every month of the 2014 study from April until July, although July alone had 11 cases. The site at the Pond 2 outflow accounted for 5 of the cases, with other sites having one or two. Fungus was noted at sites from Pond 2 downstream to U/S Little Blackfoot, and was not noted at Bearmouth or in any of the tributaries.

High water temperatures and exposure to copper have been shown to reduce trout growth [Woodward et al., 1995a; Marr et al., 1996; Elliot and Hurley, 2001]. Of all the sites in the 2014 study, the Pond 2 site had the most days with water temperatures above the upper critical threshold of 19 ° C. Based only on water temperature, the fish at the Pond 2 site were predicted to have the lowest growth of any site in this study. Surprisingly, fish at this site displayed the largest increase in weight of any site. The high rate of growth below Pond 2 can be attributed to the “tail water” effect, which results in increased primary and secondary productivity below the ponds. Apparently, food availability has a more significant effect on weight gain than temperature at this site.

#### **8.4.3 Tissue Burdens**

---

Brown Trout used in this study accumulated both copper and zinc in their tissues after they were stocked in cages in both the mainstem Clark Fork River and its tributaries. Tissue burdens of fish straight from the hatchery were low compared to fish sampled from cages in the UCFR drainage. Fish from cages in the mainstem had significantly higher metals burdens compared to fish from tributaries, but the difference was much less for zinc than it was for copper. Higher ratios of copper:zinc in fish tissue in the mainstem versus tributaries is a result consistent with copper:zinc ratios in water sampling conducted in these waters [Leon et al., 2014, Sando et al., 2014].

Copper and zinc tissue burdens of fish collected in tributaries remained relatively stable from month to month over the course of the 2014 study. On the other hand, copper tissue

burdens of fish from most mainstem sites appeared to increase over the 2014 field season. Tissue burdens of zinc from Pond 2 and Silver Bow displayed an increasing similar pattern.

From a spatial perspective, copper tissue burdens generally increased upstream to downstream from the Pond 2 site to US Lil Black, an observation consistent with tissue burdens in previous caged fish studies [Leon et al., 2014] and copper concentrations in UCFR water [Sando et al., 2014]. Sando et al. [2014] concluded that suspended sediment and copper concentrations are reduced below Warm Springs Ponds by settling and liming operations within the ponds. Our study supports this conclusion and indicates that less copper is being taken up by fish at sites directly below the ponds. While the Warm Springs Ponds do reduce copper concentrations in the section of the Clark Fork River directly downstream, our results suggest that other water quality factors such as temperature, pH, and ammonia have the potential to negatively affect fisheries downstream. Sando et al. [2014] identified the reach from Galen to Deer Lodge as a major source of additional copper and suspended sediment to the Clark Fork River, a conclusion supported by the increase in copper tissue burdens from the Galen to Deer Lodge sites in this study. The decrease in copper tissue burdens in the Clark Fork River downstream of the Little Blackfoot River indicate that flow from the Little Blackfoot River is important for diluting contaminants and improving water quality.

Comparisons of tissue burdens at sites that were sampled in multiple years indicated relatively consistent values between years. For instance Deer Lodge and U/S Lil Black tended to have high copper tissue burdens from year to year compared to other sites. Pond 2 had copper tissue burdens from year to year that were relatively low compared to other mainstem sites. The Lil Blackfoot site had consistently low copper burdens, whereas the other tributary site in Flint Creek, was more variable from year to year. The Spring control had consistently the lowest copper tissue burdens of all the sites. For zinc, the Spring and Lil Blackfoot sites had consistently low tissue burdens from year to year. Based on the two years that it was sampled, Rock Creek also displayed low tissue burdens. Other sites tended to be more variable in zinc tissue burdens from year to year. Differences in zinc tissue burdens between fish from mainstem and tributary sites were not as apparent as the difference of copper tissue burdens between tributaries and the mainstem.

The consistency in copper tissue burdens from year to year is informative in several ways. First, the technique used to determine tissue metals burdens in this study is repeatable from year to year. Second, sites such as Deer Lodge and U/S Lil Black suggest that the fish in the reach of the Clark Fork River immediately upstream of the Little Blackfoot have the highest potential to be impacted by copper contamination. This conclusion is consistent with concentrations of metals in water samples [Leon et al., 2014; Sando et al., 2014]. Thirdly, reductions in copper tissue burdens following remediation efforts initiated in 2013 are not yet apparent. As remediation efforts continue and remediated sites become revegetated, significant declines in tissue burdens will hopefully become apparent.

#### **8.4.4 Water Contaminants**

---

High pH was observed for much of the study period at the Pond 2 and Silver Bow sites. Liming operations in the Warm Springs Ponds are designed to reduce toxicity of copper, zinc,

lead and other cationic metals. However, waters with pH above 9 are considered harmful to trout [Colt et al., 1979]. High pH also causes relatively harmless ammonium ( $\text{NH}_4$ ) to convert to highly toxic ammonia ( $\text{NH}_3$ ) at very low concentrations ( $<0.885$  mg/L). As measured by a continuously logging Hydrolab, ammonia reached highly toxic levels in July and August at Pond 2. However, these values were not supported by periodic water sampling conducted at the site. This discrepancy, coupled with the fact that most caged fish survived through July and August suggest an error in instrumentation occurred. Pond 2 is thought to discharge ammonia when the pond mixes after ice out in March. Water sampling indicates that a pulse of ammonia occurred at the Pond 2 outflow in mid-March of 2014, but this pulse occurred before the caged fish study was initiated for the season.

Periodic water sampling of heavy metal concentrations demonstrated exceedances of the copper ALS at all mainstem sites. Overall, there were more exceedances of copper ALSs than any other contaminant measured in this study. Lack of exceedances of arsenic and zinc are consistent with sampling done in previous years [Leon et al., 2014]. Of all metals measured in this study, copper is present in the Clark Fork River at the highest concentrations relative to its toxicity. The fact that no zinc exceedances were documented in water sampling is interesting considering the elevated levels of zinc in fish tissues. Because zinc is an essential nutrient, it is commonly added to commercial hatchery fish pellets. It is possible that fish in this study obtained at least some of their whole body zinc concentrations from the hatchery food that we used.

#### **8.4.5 Conclusion**

---

Caged fish studies have provided valuable data on fish survival and tissue burdens. These data can be used as baselines to evaluate the efficacy of remediation efforts in the future. For example, post-remediation monitoring may reveal reduced tissue metals burdens and fish mortality as well as changes in the spatial pattern of tissue burdens and water contaminants. Caged fish studies have also highlighted the complex interactions of multiple factors that affect survival of young Brown Trout in the UCFR.

Because sufficient baseline data has been collected, caged fish studies in the next few years will shift to focusing specifically on monitoring potential impacts that remediation activities may have on the UCFR. Better understanding of the processes occurring at the Warm Springs Ponds and the impact that discharge from these ponds have on fish in the UCFR is also needed. We will deploy fish cages earlier in the spring and monitor ammonia concentrations during the period of time that Pond 2 experiences turnover. More information on the influences of mortality, recruitment, and role of water contaminants on wild fish in the UCFR is also needed. Age and growth, mortality, and recruitment studies of wild fish in the UCFR will be completed in coming years. This data will serve as a baseline to assess changes in fish population metrics as remediation and restoration activities continue in both the mainstem and tributaries of the UCFR.

## 8.5 Acknowledgements

---

This study would not have been possible without the help of a host of people. MFWP technician Ben Whiteford conducted the majority of the fish cage monitoring. John Day also monitored fish cages and was a great help with data entry. Lindsey Gilstrap diligently maintained water quality monitoring equipment and helped with lab work. Rob Clark provided advice for cage construction, site selection, and maintenance schedules and David Schmetterling provided invaluable advice on study design and assisted with analyses. Jim Drissell provided Brown Trout for the cages from the Big Springs Trout Hatchery. Thanks to Joe Naughton for delivering water sampling equipment, often on short notice.

## 9.0 REFERENCES

---

- AR (Atlantic Richfield Company), 1992.** *Clark Fork River Superfund site investigations: Standard operating procedures*, prepared by AR, Anaconda, MT.
- Anderson, N. H., 1976.** *The distribution and biology of the Oregon Trichoptera*. Oregon Agricultural Experimentation Station Technical Bulletin No. 134:1-152.
- Andrews, E. D., 1987.** *Longitudinal dispersion of trace metals in the Clark Fork River, Montana*. Pages 179-191 in K. C. Averett and D. M. McKnight, editors. *Chemical quality of water and the hydrologic cycle*. Lewis Publishers, Chelsea, MI.
- Bahls, L. L., 1993.** *Periphyton bioassessment protocols for Montana streams*, prepared by Montana Department of Health and Environmental Sciences, Water Quality Bureau, Helena, MT.
- Bahls, L. L. 2006.** *Support of aquatic life uses at stations in the Montana statewide monitoring network based on features of benthic algae associations, 2001-2005*, prepared by Hanna, Helena, MT, for Montana Department of Environmental Quality, Helena, MT.
- Bahls, L. L., R. Bukantis, and S. Tralles, 1992.** *Benchmark biology of Montana reference streams*, prepared by Montana Department of Health and Environmental Sciences, Water Quality Bureau, Helena, MT.
- Barbour, M. T., J. Gerritsen, B. D. Snyder, and J. B. Stribling, 1999.** *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition, EPA 841-B-99-002*, prepared by U. S. Environmental Protection Agency, Washington, D. C.
- Bartkowiak, B., M. A. Dunwell, T. Mostad, R. Hoogerheide, and D. Barton, 2011.** *Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site, River Review, cleanup update, October 2011*, prepared by Montana Department of Environmental Quality, Helena, MT. Available: <http://deq.mt.gov/fedsuperfund/riverreview.mcp>. (October 27, 2014).
- Bartkowiak, B., K. Garcin, J. Garcin, T. Mostad, and D. Barton, 2012.** *Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site, River Review, cleanup update, December 2012*, prepared by Montana Department of Environmental Quality, Helena, MT. Available: <http://deq.mt.gov/fedsuperfund/riverreview.mcp>. (October 27, 2014).
- Bartkowiak, B., K. Garcin, J. Garcin-Flatow, T. Mostad, and D. Barton, 2013.** *Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site, River Review, cleanup update, December 2013*, prepared by Montana Department of Environmental Quality, Helena, MT. Available: <http://deq.mt.gov/fedsuperfund/riverreview.mcp>. (October 27, 2014).
- Bartkowiak, B., K. Garcin, J. Garcin-Flatow, T. Mostad, and D. Barton, 2014.** *Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site, River Review, cleanup update, August 2014*, prepared by Montana Department of Environmental Quality, Helena, MT. Available: <http://deq.mt.gov/fedsuperfund/riverreview.mcp>. (October 27, 2014).



- Barton, B. A., 1996.** *General biology of salmonids*. Pages 29-96 in W. Pennel and B. A. Barton, editors. *Principles of salmonid culture*. Elsevier, Amsterdam.
- Bollman, W., 1998.** *Improving Stream Bioassessment Methods for the Montana Valleys and Foothill Prairies Ecoregion*. Master's Thesis, University of Montana. Missoula, MT.
- Bollman, W., 2010.** *Biological assessment of sites on the Clark Fork River: Macroinvertebrate assemblages*, prepared by Rhithron Associates, Missoula, MT, for PBS&J, Missoula, MT.
- Bollman, W., and S. Sullivan, 2013.** *Biological assessment of sites in the Clark Fork River basin: Based on aquatic invertebrate assemblages, September 11-13, 2012*, prepared by Rhithron Associates, Missoula, MT, for Atkins, Missoula, MT.
- Bollman, W., S. Sullivan, and J. Bowman, 2014.** *Biological assessment of sites in the Clark Fork River basin: Based on aquatic invertebrate assemblages*, prepared by Rhithron Associates, Missoula, MT, for RESPEC, Missoula, MT.
- Brandt, D., 2001.** *Temperature preferences and tolerances for 137 common Idaho macroinvertebrate taxa*, prepared by Idaho Department of Environmental Quality, Coeur d'Alene, ID.
- Bray, J. R., and J. T. Curtis, 1957.** *An ordination of upland forest communities of southern Wisconsin*. Ecological Monographs 27:325-349.
- Bronstein, M. N., R. J. Price, E. M. Strange, E. F. Melvin, C. M. Dewees, and B. B. Wyatt, 1985.** *Storage of dressed Chinook salmon, *Oncorhynchus tshawytscha*, in refrigerated freshwater, diluted seawater, seawater, and in ice*. Marine Fisheries Review 47:68-72.
- Bukantis, R., 1998.** *Rapid bioassessment macroinvertebrate protocols: Standard operating procedures*, prepared by Montana Department of Environmental Quality, Helena, Montana.
- Cairns, J., Jr., and J. R. Pratt, 1993.** *A history of biological monitoring using benthic macroinvertebrates*. Chapter 2 in Rosenberg, D. M. and V. H. Resh, editors. *Freshwater biomonitoring and benthic macroinvertebrates*. Chapman and Hall, NY.
- Caton, L. W., 1991.** *Improving subsampling methods for the EPA's "Rapid Bioassessment" benthic protocols*. Bulletin of the North American Benthological Society. 8:317-319.
- Chapman, D. G., 1951.** *Some properties of the hypergeometric distribution with applications to zoological censuses*. University of California Publications on Statistics 1:131-160.
- Chapman, D. (editor), 1996.** *Water quality assessments: A guide to the use of biota, sediments and water in environmental modeling*. Chapman & Hall, London.
- Chatham, J. R., 2012.** *Chemical cycling and nutrient loading at Warm Springs Ponds, Montana*, prepared by Atlantic Richfield Company, La Palma, CA.
- Clark, W. H., 1997.** *Macroinvertebrate temperature indicators for Idaho*, prepared by Idaho Department of Environmental Quality, Boise, ID.
- Clements, W. H., 1999.** *Metal tolerance and predator-prey interactions in benthic stream communities*. Ecological Applications 9:1073-1084.

**Clements, W. H., 2004.** *Small-scale experiments support casual relationships between metal contamination and macroinvertebrate community response.* Ecological Applications 14:954-967.

**Colt, J., S. Mitchell, G. Tchobanoglous, and A. Knight, 1979.** *The use and potential for aquatic species for wastewater treatment: Appendix B, the environmental requirements of fish.* Publication No. 65, prepared by California State Water Resources Control Board, Sacramento, CA.

**DeArment, J., G. Ingman, and E. Weber, 2009.** *Interim comprehensive long-term monitoring plan for the Clark Fork River Operable Unit - 2010*, prepared by PBSJ, Missoula, MT, for Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, and Montana Department of Justice, Natural Resource Damage Program, Helena, MT.

**DeArment, J., G. Ingman, and E. Weber, 2013.** *Interim comprehensive long-term monitoring plan for the Clark Fork River Operable Unit - 2013, with sampling and analysis plan/quality assurance project plan*, prepared by Atkins, Missoula, MT, for Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, and Montana Department of Justice, Natural Resource Damage Program, Helena, MT.

**Dixon, D. G., and J. B. Sprague, 1981.** *Acclimation to copper by Rainbow trout (*Salmo gairdneri*) – a modifying factor in toxicity.* Canadian Journal of Fisheries and Aquatic Sciences 38:880-888.

**Dodge, K. A., M. I. Hornberger, and J. L. Dyke, 2014.** *Water-quality, bed-sediment, and biological Data (October 2011 through September 2012) and statistical summaries of data for streams in the Clark Fork Basin, Montana, Open-File Report 2014-1034*, prepared by U. S., Geological Survey, Helena, MT. Available: <http://pubs.usgs.gov/of/2014/1034/>. (July 29, 2015).

**Eisler, R., and G. R. Gardener, 1973.** *Acute toxicology to an estuarine teleost of mixtures of cadmium, copper and zinc salts.* Journal of Fish Biology 5:131-142.

**Elliot, J. M., 1994.** *Growth and energetics of Brown Trout.* Pages 69-102 in R. M. May and P. H. Harvey, editors. *Quantitative ecology and the brown trout.* Oxford University Press, NY.

**Elliot, J. M., M. A. Hurley, and R. J. Fryer, 1995.** *A new, improved model for brown trout, *Salmo trutta*.* Functional Ecology 9:290-298.

**Elliot, J. M., and M. A. Hurley, 2001.** *Modeling growth of brown trout, *Salmo trutta*, in terms of weight and energy units.* Freshwater Biology 46:679–92.

**Emerson, K., R. C. Russo, R. E. Lund, and R. V. Thurston, 1975.** *Aqueous ammonia equilibration calculations: Effect of pH and temperature.* Journal of the Fisheries Research Board of Canada 32:2379-2383.

**Falasco, E., F. Bona, G. Badino, L. Hoffmann, and L. Ector, 2009.** *Diatom teratological forms and environmental alterations: a review.* Hydrobiologia 623: 1-35.

**Farag, A. M., C. J. Boese, D. F. Woodward, and H. L. Bergman, 1994.** *Physiological changes and tissue accumulation on rainbow trout exposed to food-borne and water-borne metals.* Environmental Toxicology and Chemistry 13:2021-2029.

- Farag, A. M., D. Skaar, D. A. Nimmick, E. MacConnell, and C. Hogstrand, 2003.** *Characterizing aquatic health using salmonids mortality, physiology, and biomass estimates in streams with elevated concentrations of arsenic, cadmium, copper, lead, and zinc in the Boulder River watershed, Montana, and the role of colloids in metal uptake.* Transactions of the American Fisheries Society 128:578-592.
- Fore, L. S., J. R. Karr, and R. W. Wisseman, 1996.** *Assessing invertebrate responses to human activities: evaluating alternative approaches.* Journal of the North American Benthological Society 15:212-231.
- Friedrich, G., 1990.** *Eine Revision des Saprobiensystems.* Zeitschrift für Wasser und Abwasser Forschung 23:141-52.
- Gundogdu, A. and M. Erdem, 2008.** *The accumulation of the heavy metals (copper and zinc) in the tissues of rainbow trout (Oncorhynchus mykiss, Walbaum, 1792).* Journal of Fisheries Sciences 2:41-50.
- Hansen, J. A., Marr, J. C. A., Lipton, J., Cacela, D., and Bergman, H. L., 1999.** *Differences in neurobehavioral responses of Chinook salmon (Oncorhynchus tshawytscha) and rainbow trout (Oncorhynchus mykiss) exposed to copper and cobalt: behavioral responses.* Environmental Toxicology and Chemistry 18:1972-1978.
- Hansen, J. A., J. Lipton, P. G. Welsh, J. Morris, D. Cacela, and M. J. Suedkamp, 2002.** *Relationship between exposure duration, tissue residues, growth, and mortality in rainbow trout (Oncorhynchus mykiss) juveniles sub chronically exposed to copper.* Aquatic Toxicology 58:175-188.
- Hari, R. E., D. M. Livingstone, R. Siber, P. Burkhardt-Holm, and H. Guttinger, 2006.** *Consequences of climatic change for water temperature and brown trout populations in alpine rivers and streams.* Global Change Biology 12:10-26.
- Harrelson, C. C., C. L. Rawlins, J. P. Potyondy, 1994.** *Stream channel reference sites: an illustrated guide to field technique, General Technical Report RM-245,* prepared by U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. Available: <http://www.stream.fs.fed.us/publications/PDFs/RM245E.PDF>. (October 29, 2015).
- Hellawell, J. M., 1986.** *Biological indicators of freshwater pollution and environmental management.* Elsevier, London.
- Hilsenhoff, W. L., 1987.** *An improved biotic index of organic stream pollution.* Great Lakes Entomologist 20:31-39.
- Ingman, G., 2002.** *Little Blackfoot River physical features inventory and riparian assessment,* prepared by Land & Water Consulting, Helena, MT, for Little Blackfoot Watershed Group and Deer Lodge Valley Conservation District, Deer Lodge, MT.
- Ingman, G., J. DeArment, J. Naughton, and E. Weber, 2013.** *Surface water.* Chapter 1 in *Monitoring report for 2012: Clark Fork River Operable Unit,* prepared by Atkins, Missoula, MT, for Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena, MT.

**Ingman, G., J. Naughton, and E. Weber, 2014.** *Surface water*. Chapter 1 in *Monitoring report for 2013: Clark Fork River Operable Unit*, prepared by RESPEC, Missoula, MT, for Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena, MT.

**Ingman, G., J. Naughton, and E. Weber, 2015a.** *Sediment*. Chapter 2 in *Monitoring report for 2014: Streamside Tailings Operable Unit*, prepared by RESPEC, Missoula, MT, for Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena, MT.

**Ingman, G., J. Naughton, and E. Weber, 2015b.** *Sediment*. Chapter 2 in *Monitoring report for 2013: Clark Fork River Operable Unit*, prepared by RESPEC, Missoula, MT, for Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena, MT.

**Iwasaki, Y., P. Cadmus, and W. H. Clements, 2013.** *Comparison of different predictors of exposure for modeling impacts of metal mixtures on macroinvertebrates in stream microcosms*. *Aquatic Toxicology* 132:151–156.

**Johnson, S. L., and N. H. Ringler, 2014.** *The response of fish and macroinvertebrate assemblages to multiple stressors: A comparative analysis of aquatic communities in a perturbed watershed (Onondaga Lake, NY)*. *Ecological Indicators* 41:198-208.

**Jonsson, B., and N. Jonsson, 2009.** *A review of the likely effects of climate change on anadromous Atlantic salmon *Salmo salar* and brown trout *Salmo trutta*, with particular reference to water temperature and flow*. *Journal of Fish Biology* 75:2381-2447.

**Karr, J. R., and E. W. Chu, 1999.** *Restoring life in running waters: better biological monitoring*. Island Press, Washington D. C.

**Karr, J. R., and D. R. Dudley, 1981.** *Ecological perspectives on water quality goals*. *Environmental Management* 5:55-68.

**Kiffney, P. M., and W. H. Clements, 1994.** *Effects of heavy metals on a macroinvertebrate assemblage from a Rocky Mountain stream in experimental microcosms*. *Journal of the North American Benthological Society* 13:511-523.

**Kleindl, W. J., 1995.** *A benthic index of biotic integrity for Puget Sound lowland streams, Washington, USA*. M. S. Thesis, University of Washington, Seattle, WA.

**Klerks, P. L. and J. S. Levinton, 1989.** *Effects of heavy metals in a polluted aquatic ecosystem*. Pages 41-67 in S. A. Levin, J. R. Kelly, M. A. Harwell, and K. D. Kimball, editors. *Ecotoxicology: Problems and approaches*. Springer, NY.

**Lange-Bertalot, H., 1979.** *Pollution tolerance of diatoms as a criterion for water quality estimation*. *Nova Hedwigia* 64:285-304.

**Langner, H. W., E. Greene, R. Domenech, and M. F. Staats, 2012.** *Mercury and other mining-related contaminants in ospreys along the upper Clark Fork River, Montana, USA*. *Archives of Environmental Contamination and Toxicology* 62:681-695.

**Leitner, P., C. Hauer, T. Ofenböck, F. Pletterbauer, A. Schmidt-Kloiber, and W. Graf, 2015.** *Fine sediment deposition affects biodiversity and density of benthic macroinvertebrates: A case study in the freshwater pearl mussel river Waldaist (Upper Austria)*. *Limnologica* 50:54-57.

**Leon J, P. Saffel, B. Liermann, J. Lindstrom, and T. Selch, 2014.** *Upper Clark Fork River fisheries monitoring study: 2013 annual report*, prepared by Montana Fish, Wildlife and Parks, Missoula, MT, for Montana Department of Environmental Quality, Helena, MT.

**LeSage, L., and A. D. Harrison, 1980.** *The biology of Cricotopus (Chironomidae: Orthocladiinae) in an algal-enriched stream.* Archiv fur Hydrobiologie Supplement 57:375-418.

**Lindstrom, J., 2011.** *Upper Clark Fork River fish sampling: 2008-2010*, prepared by Montana Fish, Wildlife and Parks, Helena, MT.

**Lisle, T. E., 1987.** *Using “residual depths” to monitor pool depths independently of discharge*, Research Note PSW/394, U.S. Forest Service, Pacific Southwest Forest and Range Experiment Station, Berkeley, CA. Available: <http://www.fs.fed.us/psw/publications/lisle/Lisle87.pdf>. (October 29, 2015).

**Lowe, R. L., 1974.** *Environmental requirements and pollution tolerance of freshwater diatoms, EPA-670/4-74-005*, prepared by U.S. Environmental Protection Agency, National Environmental Research Center, Office of Research and Development, Cincinnati, OH

**Luoma S. L., J. N. Moore, A. Farag, T. H. Hillman, D. J. Cain and M. Hornberger, 2008.** *Mining impacts on fish in the Clark Fork River, Montana: A field ecotoxicology case study.* Pages 779-804 in R. T. Giulio and D. E. Hinton, editors. *The toxicology of fishes*. CRC Press, Boca Raton, FL.

**Lyden, C. J., 1987.** *Gold placers of Montana*, prepared by the Montana Bureau of Mines and Geology, Butte, MT.

**MDA (Montana Department of Agriculture), 2015.** *Montana noxious weed list, effective: July 2015*, prepared by MDA, Helena, MT. Available: <http://agr.mt.gov/agr/Programs/Weeds/PDF/2015WeedList.pdf>. (October 29, 2015).

**MDEQ (Montana Department of Environmental Quality), 2011.** *Periphyton standard operating procedure, WQPBWQM-010*, prepared by MDEQ, Helena, MT.

**MDEQ (Montana Department of Environmental Quality), 2012a.** *Water Quality Planning Bureau field procedures manual for water quality assessment monitoring, Version 3.2*, prepared by MDEQ, Helena, MT. Available: <http://www.deq.mt.gov/wqinfo/qaprogram/sops.mcpx>. (February 18, 2014).

**MDEQ (Montana Department of Environmental Quality), 2012b.** *Circular DEQ-7, Montana numeric water standards, Version 6. 8*, prepared by MDEQ, Helena, Montana. Available: <http://www.deq.mt.gov/wqinfo/Standards/default.mcpx>. (February 11, 2014).

**MDEQ (Montana Department of Environmental Quality), 2014a.** *Clark Fork River Operable Unit, current activities*, MDEQ webpage. Available: <http://deq.mt.gov/fedsuperfund/cfr.mcpx>. (October 27, 2014).

**MDEQ (Montana Department of Environmental Quality), 2014b.** *Department Circular DEQ-12A, Montana base numeric nutrient standards, version 6.8*, prepared by MDEQ, Helena, MT. Available: <http://www.deq.mt.gov/wqinfo/Standards/default.mcpx>. (February 11, 2014).

**MDEQ (Montana Department of Environmental Quality) and USEPA (U. S. Environmental Protection Agency), 2011.** *Little Blackfoot watershed TMDLs and framework water quality improvement plan, C01-TMDL-03A-F*, prepared by USEPA, Region 8, Montana Operations Office, for MDEQ Water Quality Planning Bureau, Helena, MT. Available: [http://www.epa.gov/waters/tmdl/docs/41463\\_Master.pdf](http://www.epa.gov/waters/tmdl/docs/41463_Master.pdf). (March 17, 2015).

**MDEQ (Montana Department of Environmental Quality) and USEPA (U. S. Environmental Protection Agency), 2014.** EPA submittal – Draft *Little Blackfoot River Watershed TMDLs and framework water quality improvement plan – metals addendum* prepared by USEPA, Region 8, Montana Operations Office, for MDEQ Water Quality Planning Bureau, Watershed Management Section, Helena, MT. Available: [http://ofmpub.epa.gov/waters10/attains\\_impaired\\_waters.show\\_tmdl\\_document?p\\_tmdl\\_doc\\_blobs\\_id=64820](http://ofmpub.epa.gov/waters10/attains_impaired_waters.show_tmdl_document?p_tmdl_doc_blobs_id=64820). (March 17, 2015).

**MacDonald, D. D., C. G. Ingersoll, and T. A. Berger, 2000.** *Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems*. Archives of Environmental Contamination and Toxicology 39:20-31.

**Marr, J. C., H. L. Bergman, J. Lipton, and C. Hogstrand, 1995a.** *Differences in relative sensitivity of naïve and metals acclimated brown and Rainbow trout exposed to metals representative of the Clark Fork River, Montana*. Canadian Journal of Fisheries and Aquatic Sciences 52:2016-2030.

**Marr, J. C., H. L. Bergman, M. Parker, W. Erickson, D. Cacela, J. Lipton, and G. R. Phillips, 1995b.** *Relative sensitivity of brown and rainbow trout to pulsed exposures of an acutely lethal mixture of metals typical of the Clark Fork River, Montana*. Canadian Journal of Fisheries and Aquatic Sciences 52:2005-2015.

**Marr, J. C. A., J. Lipton, D. Cacela, J. A. Hansen, H. L. Bergman, J. S. Meyer, and C. Hogstrand, 1996.** *Relationship between copper exposure duration, tissue copper concentration, and Rainbow trout growth*. Aquatic Toxicology 36:17-30.

**Mayfield, M. P., 2013.** *Limiting factors for trout populations in the upper Clark Fork River Superfund site, Montana*. M. S. Thesis, Montana State University, Bozeman, Montana. Available: <http://etd.lib.montana.edu/etd/view/item/1883>. (April 23, 2013).

**Mazeaud, M. M., F. Mazeaud, and E. M. Donaldson, 1977.** *Primary and secondary effects of stress in fish: Some new data with a general review*. Transactions of the American Fisheries Society 106:201-212.

**McGuire, D. L., 2010.** *Clark Fork River biomonitoring: Macroinvertebrate community assessments in 2009*, prepared by McGuire Consulting, Esponola, NM, for CH2MHill, Boise, ID.

**Milewski, C. L., and M. L. Brown, 1994.** *Proposed standard weight equation and length-categorization for stream-dwelling brown trout (Salmo trutta)*. Journal of Freshwater Ecology 9:111-117.

**Montana Engineer's Office, 1959.** *Water resources survey – Powell County, Montana*, prepared by the Montana Engineer's Office, Helena, MT.

**Montana v. AR (Atlantic Richfield Company), 2008.** CV83-317-HLN-SEH.



**Montz, G. R., J. Hirsch, R. Rezanka, and D. F. Staples, 2010.** *Impacts of copper on a lotic benthic invertebrate community: Response and recovery.* Journal of Freshwater Ecology 25:575-587.

**Naughton, J., G. Ingman, and E. Weber, 2014.** *Sampling and analysis plan for effectiveness monitoring of the Clark Fork River Operable Unit*, prepared by RESPEC, Missoula, MT, for Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena, MT.

**Naughton, J., 2015.** *Clark Fork River fishery assessment: Flint Creek to Rock Creek reach*, prepared by RESPEC, Missoula, MT, report for Montana Department of Justice, Natural Resource Damage Program, Helena, MT.

**Nimmick, D. A., C. H. Gammons, and S. R. Parker, 2011.** *Diel biogeochemical processes and their effect on the aqueous chemistry of streams: a review.* Chemical Geology 283:3-17.

**Ogle, D. H., 2013.** *fishR vignette – closed mark-recapture abundance estimates.* Available: <https://fishr.wordpress.com/books/vignettes/>. (July 30, 2015).

**Ojanguren, A. F., F. G. Reyes-Gavilan, and F. Brana, 2001.** *Thermal sensitivity of growth, food intake, and activity of juvenile brown trout.* Journal of Thermal Biology 26:165-170.

**Phillips, G., and R. Spoon, 1990.** *Ambient toxicity assessments of Clark Fork River water-toxicity tests and metals residues in brown trout organs*, in V. Watson, editor. *Proceedings of the Clark Fork River Symposium*, University of Montana, Missoula, MT. Available: [http://cas.umont.edu/clarkfork/Past\\_Proceedings/1990\\_proceedings/phillips/Phillips.htm](http://cas.umont.edu/clarkfork/Past_Proceedings/1990_proceedings/phillips/Phillips.htm). (July 30, 2015).

**Plafkin, J. L., M. T. Barbour, K. D. Porter, S. K. Gross, and R. M. Hughes, 1989.** *Rapid bioassessment protocols for use in streams and rivers: Benthic macroinvertebrates and fish*, EPA 440-4-89-001, prepared by U.S. Environmental Protection Agency, Office of Water Regulations and Standards, Washington, D. C.

**Prescott, G. W., 1962.** *Algae of the western Great Lakes area.* William C. Brown Company Publishers, Dubuque, IA.

**Relyea, C. D., G. W. Minshall, and R. J. Danehy, 2012.** *Development and validation of an aquatic fine sediment biotic index.* Environmental Management 49:242-252.

**Richards, R., W. Schreck, P. Saffel, B. Liermann, J. Lindstrom, and T. Selch, 2013.** *Upper Clark Fork River caged fish study: The distribution and timing of trout mortality final report 2011-2012*, prepared by Montana Fish Wildlife and Parks, Missoula, MT, for Montana Department of Environmental Quality, Helena, MT.

**Sacry, A., K. Boyd, and T. Parker, 2012.** *Final CFR Reach A, Phase 1 geomorphology and vegetation monitoring plan*, prepared by Gem Environmental Consulting, Hamilton, MT and Applied Geomorphology, Bozeman, MT, for Montana Department of Environmental Quality, Remediation Division, Helena, MT.

**Sacry, A., K. Boyd, and T. Parker, 2014.** *Clark Fork River Phase 1 monitoring plan updates*, prepared by Gem Environmental Consulting, Hamilton, MT, for Montana Department of Environmental Quality, Helena, MT.

- Sando, S., A. Vecchia, D. Lorenz, and E. Barnhart, 2014.** *Water-quality trends for selected sampling sites in the upper Clark Fork Basin, Montana, water years 1996-2010*, Scientific Investigations Report 2013-5217, prepared by U. S. Geological Survey, Helena, MT.
- Shaw, A. J., 1990.** *Heavy metal tolerance in plants: evolutionary aspects*. CRC Press, Boca Raton, FL.
- Schreck, W., P. Saffel, B. Liermann, J. Lindstrom, and T. Selch, 2012.** *Upper Clark Fork River caged fish study: The distribution and timing of trout mortality final report 2011*, prepared by Montana Fish Wildlife and Parks, Missoula, MT, for Montana Department of Environmental Quality, Helena, MT.
- Sorensen, E., 1991.** *Metal poisoning in fish*. CRC Press, Boca Raton, FL.
- Smith, A. J., and C. P. Tran, 2010.** *A weight-of-evidence approach to define nutrient criteria protective of aquatic life in large rivers*. Journal of the North American Benthological Society 29:875-891.
- Stoermer, E. F., and J. P. Smol, 1999.** *The diatoms: applications for the environmental and earth sciences*. Cambridge University Press, Cambridge, U.K.
- Stribling, J. B., S. R. Moulton II, and T. Lester, 2003.** *Determining the quality of taxonomic data*. Journal of the North American Benthological Society 22:621-631.
- Teply, M., 2010a.** *Diatom biocriteria for Montana streams*, prepared by Cramer Fish Sciences, Lacy, WA, for Montana Department of Environmental Quality, Water Quality Planning Bureau, Helena, MT.
- Teply, M., 2010b.** *Interpretation of periphyton samples from Montana streams*, prepared by Cramer Fish Sciences, Lacy, WA, for Montana Department of Environmental Quality, Water Quality Planning Bureau, Helena, MT.
- Teply, M., and L. Bahls, 2005.** *Diatom biocriteria for Montana streams*, prepared by Larix Systems, Helena, MT, for Montana Department of Environmental Quality, Helena, MT.
- USA (United States of America) v. AR (Atlantic Richfield Company), 2008.** CV-039-BU-SEH.
- USEPA (U. S. Environmental Protection Agency), 1986.** *Quality criteria for water 1986, EPA 440/5-86-001*, prepared by USEPA Office of Water Regulations and Standards, Washington, DC. Available: [http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009\\_01\\_13\\_criteria\\_golddbook.pdf](http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/2009_01_13_criteria_golddbook.pdf). (October 30, 2015).
- USEPA (U. S. Environmental Protection Agency), 2001.** *EPA Method 200.7, Revision 5.0: Determination of trace elements in water, solids, and biosolids by inductively coupled plasma atomic emission spectrometry, EPA-821-R-01-010*, prepared by USEPA, Washington, DC.
- USEPA (U. S. Environmental Protection Agency), 2004.** *Record of decision, Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site*, prepared by



- USEPA, Region 8, Helena, MT. Available: <http://www2.epa.gov/sites/production/files/documents/Pt2DecisionSummary.pdf>. (May 19, 2015).
- USGS (U. S. Geological Survey), 2006. *Chapter A4. Collection of water samples, Revised 2006*, prepared by USGS. Available: [http://water.usgs.gov/owq/FieldManual/chapter4/pdf/Chap4\\_v2.pdf](http://water.usgs.gov/owq/FieldManual/chapter4/pdf/Chap4_v2.pdf). (February 20, 2014).
- USEPA (U. S. Environmental Protection Agency), 2015. *USEPA webpage*. Available: <http://water.epa.gov/type/rsl/monitoring/vms59.cfm>. (October 30, 2015),
- USGS (U.S. Geological Survey), 2015. *Water hardness and alkalinity*, USGS website. Available: <http://water.usgs.gov/owq/hardness-alkalinity.html>. (October 30, 2015).
- USGS (U. S. Geological Survey), 2015b. *USGS water data for the nation*, USGS website. Available: <http://waterdata.usgs.gov/nwis>. (March 30, 2015).
- Van Dam, H., A. Mertens, and J. Sinkeldam, 1994. *A coded checklist and ecological indicator values of freshwater diatoms from The Netherlands*. Netherlands Journal of Aquatic Ecology 28:117-133.
- Vannote, R. L., G. W. Minshall, K. W. Cummins, J. R. Sedell, and C. E. Cushing, 1980. *The river continuum concept*. Canadian Journal of Fisheries and Aquatic Sciences 37:130-137.
- Wagenhoff, A., C. R. Townsend, and C. D. Matthaei, 2012. *Macroinvertebrate responses along broad stressor gradients of deposited fine sediment and dissolved nutrients: A stream mesocosm experiment*. Journal of Applied Ecology 49:892-902.
- Wahli, T., R. Knuesel, D. Bernet, H. Senger, D. Pugovkin, P. Burkhardt-Holm, M. Escher, and H. Schmidt-Posthaus, 2002. *Proliferative kidney disease in Switzerland: Current state of knowledge*. Journal of Fish Diseases 25:491–500.
- Watson, V. J., 1988. *Control of nuisance algae in the Clark Fork River*, for Montana Department of Health and Environmental Sciences, Helena, MT.
- Walshe, J. F., 1947. *On the function of haemoglobin in Chironomus after oxygen lack*. Journal of Experimental Biology 24:329-342.
- Wehr, J. D., and R. G. Sheath, 2003. *Freshwater algae of North America: ecology and classification*. Academic Press, NY.
- Wisseman, R. W., 1996. *Common Pacific Northwest benthic invertebrate taxa: Suggested levels for standard taxonomic effort: Attribute coding and annotated comments*, prepared by Aquatic Biology Associates, Corvallis, OR.
- Wood, C. M., 2012. *An introduction to metals in fish physiology and toxicology; basic principles*, pages 2-40 in Farrell, A. P., and C. J. Brauner, editors. *Fish physiology "Homeostasis and Toxicology of Essential Metals," Vol. 31A*. Academic Press, NY.
- Woodward, D. F., A. M. Farag, W. G. Brumbaugh, C. E. Smith, and H. L. Bergman, 1995a. *Metals-contaminated benthic invertebrates in the Clark Fork River, Montana: Effects on age-0 brown trout and rainbow trout*. Canadian Journal of Fisheries and Aquatic Sciences 52:1994-2004.

**Woodward, D. F., J. A. Hansen, H. L. Bergman, E. E. Little, and A. J. DeLonay, 1995b.**  
*Brown trout avoidance of metals in water characteristic of the Clark Fork River, Montana.*  
Canadian Journal of Fisheries and Aquatic Sciences 52:2031-2037.

**Yates, F., 1934.** *Contingency table involving small numbers and the  $\chi^2$  test.* Supplement to the  
Journal of the Royal Statistical Society 1:217-235.

## **APPENDIX A**

### **QUALITY ASSURANCE AND QUALITY CONTROL REVIEW AND SUMMARY FOR SURFACE WATER AND INSTREAM SEDIMENT**

---

## APPENDIX A

### QUALITY ASSURANCE AND QUALITY CONTROL REVIEW AND SUMMARY FOR SURFACE WATER AND INSTREAM SEDIMENT

---

#### A.1 REVIEW

---

Specific quality assurance and quality control (QA/QC) requirements for field measurements, sample collection, laboratory analysis, and the reporting of resulting data are described by protocols contained in a quality assurance project plan (QAPP) which is accompanied by a project sampling and analysis plan (SAP). The quality control checklist (see Section A.2) is a component of the Montana Department of Environmental Quality standard QA/QC protocols and an initial step in the review and validation of water chemistry and related data generated under this monitoring program. The checklist provides an outline for reviewing and assessing those factors which may infringe upon data quality and assists in identifying data that may be inaccurate.

#### A.2 CHECKLIST

---

- + Condition of samples upon receipt.
- + Cooler and sample temperature.
  - All water and instream sediment samples collected in 2014 were within the required range ( $4.0 \pm 2.0$  °C) when received by the laboratory.
- + Proper collection containers.
- + All containers intact.
- pH of acidified samples <2.
  - The common ion field sample (0.5 mL) from SS-25 on May 15, 2014 was mistakenly preserved with acid
- + All field documentation complete.
  - Minor discrepancies in the sample identification codes or sample times were noted between the labels on the sample bottles and the chain-of-custody forms at the time samples were delivered to the laboratory. All discrepancies were resolved and documented in Energy Labs work order receipt checklists for each quarterly data report.

- + Holding times met.
- + Field duplicates collected at the proper frequency as specified in the project sampling and analysis plan.
- + Field blanks collected at the proper frequency as specified in the project sampling and analysis plan.
- + All sample identifications matched those identified the project sampling and analysis plan. Field duplicates were clearly marked on samples and noted as duplicates in lab results.
- + Analyses carried out as described within the SAP (e.g. analytical methods, photo documentation, field protocols)
- + Reporting limits met the project required reporting limit.
- All blanks were less than the analytical reporting limit. The following field blanks had analyte concentrations at or above the reporting limit:
  - In the first quarter (Q1):
    - One field blank had a dissolved zinc concentration of 0.017 mg/L (reporting limit [RL] = 0.008 mg/L).
    - One field blank had a chloride concentration of 7 mg/L (RL = 1 mg/L).
  - In the second quarter during the rising limb of the spring snowmelt hydrograph (Q2-Rising):
    - One field blank had a dissolved organic carbon (DOC) concentration of 0.4 mg/L (RL = 0.1 mg/L) and the other field blank had a concentration of 0.5 mg/L.
    - One field blank had a total nitrogen concentration of 0.07 mg/L (RL = 0.05 mg/L).
    - One field blank had a dissolved zinc concentration of 0.019 mg/L (RL = 0.008 mg/L) and the other field blank had a concentration of 0.011 mg/L.
    - One field blank had a total suspended sediment (TSS) concentration of 3 mg/L (RL = 1 mg/L).
  - In the second quarter during the peak of the spring snowmelt hydrograph (Q2-Peak):
    - One field blank had a total suspended sediment concentration of 3 mg/L (RL = 1 mg/L).
    - One field blank had a dissolved organic carbon concentration of 0.4 mg/L (RL = 0.1 mg/L) and the other field blank had a concentration of 0.3 mg/L.
    - One field blank had a dissolved zinc concentration of 0.014 mg/L (RL = 0.008 mg/L).
  - In the second quarter during the falling limb of the spring snowmelt hydrograph (Q2-Falling):

- One field blank had a dissolved organic carbon concentration of 0.5 mg/L (RL = 0.5 mg/L).
- One field blank had a dissolved zinc concentration of 0.009 mg/L (RL = 0.008 mg/L) and the other field blank had a concentration of 0.012 mg/L.
- In the third quarter (Q3):
  - One field blank had a dissolved zinc concentration of 0.014 mg/L (RL = 0.08 mg/L) and the other had a concentration of 0.012 mg/L.
- In the fourth quarter (Q4):
  - One field blank had a dissolved organic carbon concentration of 0.5 mg/L (RL = 0.5 mg/L).
  - One field blank had a dissolved zinc concentration of 0.009 mg/L (RL = 0.008 mg/L).
  - One field blank had a total nitrogen concentration of 0.11 mg/L (RL = 0.05 mg/L).
  - One field blank had a total phosphorus concentration of 0.05 mg/L (RL = 0.05 mg/L).

+ If any blanks exceeded the project-required detection limit, associated data is “B-flagged” in the database. The Montana Department of Environmental Quality (MDEQ) project manager will set the criteria for determining associated data. Based on project precedents, we recommend B-flagging the following samples:

- In Q1, all samples with chloride concentrations <70 mg/L and all dissolved zinc concentrations <0.17 mg/L.
- In Q2-Rising, all total suspended sediment concentrations <30 mg/L, all dissolved organic carbon concentrations <5 mg/L, all total nitrogen values <0.7 mg/L, and all dissolved zinc concentrations <0.19 mg/L.
- In Q2-Peak, all total suspended sediment concentration <30 mg/L, all dissolved organic carbon concentrations <4 mg/L, and all dissolved zinc concentrations <0.14 mg/L.
- In Q2-Falling, all dissolved organic carbon concentrations <5 mg/L and all dissolved zinc concentrations <0.12 mg/L.
- In Q3, all dissolved zinc concentrations <0.14 mg/L.
- In Q4, all dissolved organic carbon concentrations <5 mg/L, all total nitrogen concentrations <1.1 mg/L, all total phosphorus concentrations <0.5 mg/L, and all dissolved zinc concentrations <0.09 mg/L.

+ Laboratory blanks, duplicates, matrix spikes, and laboratory control samples were analyzed at a 10% frequency.

+ Laboratory blanks, duplicates, matrix spikes, and laboratory control samples were all within the required control limits defined within the SAP.

+ Project data quality objectives (DQOs) and data quality indicators (DQIs) were met as described in SAP.

- + Completed summary of quality control and quality analysis results, summary of issues encountered, and description of how issues were addressed was conducted.

### **A.3 SUMMARY**

---

Summarized in this appendix are quality control measures performed on field and laboratory data generated from surface water and instream sediment in 2014 from the CFROU. Assessed under the MDEQ standard quality assurance and quality control protocols are data quality objectives (DQOs) which include “representativeness”, “comparability and completeness”. In addition, data quality indicators (DQI) were assessed including DQIs for “sensitivity”, “lab precision”, “overall precision”, and “bias and accuracy”.

Overall, DQOs and DQIs were met at all surface water monitoring sites in the CFROU in 2014. Water samples were collected and analyzed for total suspended sediment, nutrients, dissolved and total recoverable metals, total mercury and methylmercury, dissolved organic concentration, and common ion concentrations. Samples were collected during six sample periods. Instream sediment samples were collected and analyzed for total metals on two occasions in 2014 and DQOs and DQIs were achieved.

#### **A.3.1 Representativeness**

---

All surface water sites sampled in the CFROU during 2014 met stated objectives for spatial representativeness. Samples were collected at bridge crossings and road access points specified in the CFROU SAP. Instream sediments and biological samples were collected as close as possible to the surface water sampling locations, with suitable sites generally found within 100 yards of the water sampling locations.

To meet temporal objectives specified in the CFROU SAP, surface water monitoring was conducted once during Q1, Q3 and Q4, and three times during Q2 of 2014. Within the quarterly framework, water samples and field data were collected during specific hydrologic conditions: prior to the spring snowmelt runoff during approximately base streamflow conditions (Q1), during the rising limb (Q2-Rising), peak (Q2-Peak), and falling limb (Q2-Falling) of the spring snowmelt hydrograph, during late summer base streamflow conditions (Q3), and during late fall base streamflow conditions (Q4). Instream sediment samples were collected under base streamflow conditions in Q1 and Q3 of 2014.

#### **A.3.2 Comparability**

---

Comparability is the applicability of the project’s data to the project’s decision rule. The project decision rules are identified in the project SAP. Data collected in this 2014 monitoring program are highly applicable to the project’s decision rule. All methods conformed to the requirements of applicable criteria identified as decision rules in the project SAP.

### **A.3.3 Completeness**

---

Completeness is the amount of useable data actually collected compared to the amount prescribed in the SAP, as a percent. Data completeness for the 2014 CFROU monitoring during each of the quarterly monitoring events was very near 100% for all parameters sampled. This level of completeness exceeds the project goal for completeness (85%) and precludes the need to prepare a completeness evaluation table per MDEQ guidelines.

### **A.3.4 Sensitivity**

---

The method detection limit (MDL) established by Energy Laboratories through laboratory blank analyses is an expression of sensitivity. The MDL documented in the QA/QC summary reports that accompany each set of laboratory analytical reports was less than the project-required reporting limit (RL), and was often below detection, for all analytical methods pertaining to CFROU monitoring (Appendix B).

Sensitivity of field methods was determined through field blank analyses, at a frequency of at least 10% of field samples collected, as specified in the SAP. During Q1, two field blank samples were collected and analyzed for all surface water parameters (except total mercury, methylmercury, and dissolved organic carbon) for a frequency of >10% of the sites monitored. One field blank was collected for these parameters. Additional field blanks were prepared during Q1 for total mercury, methylmercury, and dissolved organic carbon for a frequency of 50% of the sites monitored for those parameters. During Q2, two field blank samples were prepared during each of the three monitoring events and analyzed for the complete list of parameters, for an actual frequency of 12.5%. During Q3 and Q4, two deionized water field blank samples were prepared and analyzed for the complete list of parameters, for an actual frequency of 16.7% of site monitored. Results of field blank analyses for all analytes are presented in Table A1 through Table A6. The field blanks with concentrations at or above the RL are displayed in the Checklist section of this Appendix (Section A.2).

### **A.3.5 Precision**

---

#### **A.3.5.1 Laboratory**

Laboratory precision was assessed by calculating the relative percent difference (RPD) between laboratory samples and laboratory duplicate samples for each parameter measured in the CFROU. Established MDEQ criteria allow a maximum RPD of 20% for water sample results (>5 times the RL) and 35% for sediment samples (>5 times the RL). No laboratory sample and duplicate pairs had RPDs exceeding these criteria. Therefore, no data was qualified (i.e., “flagged”) in the project database, and no corrective actions were required. Laboratory analysis results are presented in Appendix B.



### **A.3.5.2 Overall**

Overall precision was assessed by calculating the RPD of field sample and field duplicate pairs. Established MDEQ criteria allow a maximum RPD of 25% for water samples (>5 times the RL) and 40% for sediment samples (>5 times the RL). Co-located surface water field duplicate samples were collected during each monitoring event. RPD results are presented in Table A7 through Table A21. Duplicate surface water sample results with RPD values >25% and sample concentrations >5 times the RL included:

- In Q1, one field sample and field duplicate pair had an RPD for dissolved copper of 40%. Associated dissolved copper concentrations will be J-flagged.
- In Q2-Peak, one field sample and field duplicate pair had an RPD for total suspended sediment exceeding 25%. Associated total suspended sediment concentrations will be J-flagged.
- In Q2-Falling, one field sample and field duplicate pair had an RPD for total suspended sediment >25 %. Associated total suspended sediment concentrations will be J-flagged.
- In Q3, one field sample and field duplicate pair had an RPD for total suspended sediment of 28.6%. Associated total suspended sediment concentrations will be J-flagged.
- In Q4, one field sample and field duplicate pair had RPDs for total suspended sediment and total nitrogen >25 %. Associated total suspended sediment and total nitrogen concentrations will be J-flagged.

All field sample and field duplicate sample pairs for instream sediment in 2014 had RPD >40%. Therefore, no sediment concentrations will be J-flagged in the project database.

### **A.3.1 Bias and Accuracy**

---

Bias is defined as directional error from the true value of a measurement. For field measurements (water temperature, pH, specific conductance, dissolved oxygen [DO] concentration, DO percent saturation, and turbidity), bias was minimized by frequent calibration of field instruments. Each instrument calibration was documented in calibration logs. For water chemistry and sediment results, bias was minimized through adherence to approved field procedures for sample collection and handling, and cleaning and use of sampling equipment.

Accuracy is the combination of high precision and low bias. Accuracy of laboratory results was assessed by reviewing the analytical method controls (i.e., lab control sample, continuing calibration verification, lab fortified blank, standard reference material) and analytical batch controls (i.e., matrix spike and matrix spike duplicate). Limits established by the laboratory through control charting of each method's performance served as assessment criteria. None of the analytical method controls or analytical batch controls had values outside of the acceptable recovery range, as detailed in the summary reports (Appendix B).

**Table A1. Analyte concentrations in the first quarter (March 18-19, 2014) surface water field blanks from the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Field blank (concentration; mg/L)	
		H14030285-002	H14030285-013
Total Suspended Sediment	1	ND	ND
Total Alkalinity	4	ND	ND
Bicarbonate Alkalinity	4	ND	ND
Sulfate	1	ND	ND
Chloride	1	ND	7
Hardness	1	ND	ND
Organic Carbon, Dissolved	0.5	ND	ND
Ammonia Nitrogen	0.05	ND	ND
Nitrate plus Nitrite Nitrogen	0.05	ND	ND
Total Nitrogen	0.05	ND	ND
Total Phosphorus	0.005	ND	ND
Arsenic, Dissolved	0.001	ND	ND
Cadmium, Dissolved	0.00003	ND	ND
Copper, Dissolved	0.001	ND	ND
Lead, Dissolved	0.0003	ND	ND
Zinc, Dissolved	0.008	0.017	ND
Arsenic, Total Recoverable	0.001	ND	ND
Cadmium, Total Recoverable	0.00003	ND	ND
Calcium, Total Recoverable	1	ND	ND
Copper, Total Recoverable	0.001	ND	ND
Lead, Total Recoverable	0.0003	ND	ND
Magnesium, Total Recoverable	1	ND	ND
Zinc, Total Recoverable	0.008	ND	ND
Mercury, Total	0.000005	ND	-
Mercury, Methyl	0.00000005	ND	-

ND

Not detected at analytical reporting limit.

Field blank concentration exceeds reporting limit. We recommend "B-flagging" all analyte concentrations (which are <10 times the blank value) from this sample period in the project database.

**Table A2. Analyte concentrations in the second quarter during the rising limb of the spring snowmelt (May 13-14, 2014) surface water field blanks from the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Field blank (concentration; mg/L)	
		H14050278-017	H14050278-013
Total Suspended Sediment	1	ND	3
Total Alkalinity	4	ND	ND
Bicarbonate Alkalinity	4	ND	ND
Sulfate	1	ND	ND
Chloride	1	ND	ND
Hardness	1	ND	ND
Organic Carbon, Dissolved	0.1	0.4	0.5
Ammonia Nitrogen	0.05	ND	ND
Nitrate plus Nitrite Nitrogen	0.05	ND	ND
Total Nitrogen	0.05	ND	0.08
Total Phosphorus	0.005	ND	ND
Arsenic, Dissolved	0.001	ND	ND
Cadmium, Dissolved	0.00003	ND	ND
Copper, Dissolved	0.001	ND	ND
Lead, Dissolved	0.0003	ND	ND
Zinc, Dissolved	0.008	0.019	0.011
Arsenic, Total Recoverable	0.001	ND	ND
Cadmium, Total Recoverable	0.00003	ND	ND
Calcium, Total Recoverable	1	ND	ND
Copper, Total Recoverable	0.001	ND	ND
Lead, Total Recoverable	0.0003	ND	ND
Magnesium, Total Recoverable	1	ND	ND
Zinc, Total Recoverable	0.008	ND	ND
Mercury, Total	0.000005	ND	-
Mercury, Methyl	0.00000005	ND	-

ND

Not detected at analytical reporting limit.

Field blank concentration exceeds reporting limit. We recommend "B-flagging" all analyte concentrations (which are <10 times the blank value) from this sample period in the project database.

**Table A3. Analyte concentrations in the second quarter during the peak of the spring snowmelt (June 10-11, 2014) surface water field blanks from the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Field blank (concentration; mg/L)	
		H14060255-017	H14060255-013
Total Suspended Sediment	1	3	ND
Total Alkalinity	4	ND	ND
Bicarbonate Alkalinity	4	ND	ND
Sulfate	1	ND	ND
Chloride	1	ND	ND
Hardness	1	ND	ND
Organic Carbon, Dissolved	0.1	0.4	0.3
Ammonia Nitrogen	0.05	ND	ND
Nitrate plus Nitrite Nitrogen	0.05	ND	ND
Total Nitrogen	0.05	ND	ND
Total Phosphorus	0.005	ND	ND
Arsenic, Dissolved	0.001	ND	ND
Cadmium, Dissolved	0.00003	ND	ND
Copper, Dissolved	0.001	ND	ND
Lead, Dissolved	0.0003	ND	ND
Zinc, Dissolved	0.008	0.014	ND
Arsenic, Total Recoverable	0.001	ND	ND
Cadmium, Total Recoverable	0.00003	ND	ND
Calcium, Total Recoverable	1	ND	ND
Copper, Total Recoverable	0.001	ND	ND
Lead, Total Recoverable	0.0003	ND	ND
Magnesium, Total Recoverable	1	ND	ND
Zinc, Total Recoverable	0.008	ND	ND
Mercury, Total	0.000005	ND	-
Mercury, Methyl	0.00000005	ND	-

ND

Not detected at analytical reporting limit.

Field blank concentration exceeds reporting limit. We recommend "B-flagging" all analyte concentrations (which are <10 times the blank value) from this sample period in the project database.

**Table A4. Analyte concentrations in the second quarter during the falling limb of the spring snowmelt (June 24-25, 2014) surface water field blanks from the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Field blank (concentration; mg/L)	
		H14060541-017	H14060541-013
Total Suspended Sediment	1	ND	ND
Total Alkalinity	4	ND	ND
Bicarbonate Alkalinity	4	ND	ND
Sulfate	1	ND	ND
Chloride	1	ND	ND
Hardness	1	ND	ND
Organic Carbon, Dissolved	0.1	0.5	ND
Ammonia Nitrogen	0.05	ND	ND
Nitrate plus Nitrite Nitrogen	0.05	ND	ND
Total Nitrogen	0.05	ND	ND
Total Phosphorus	0.005	ND	ND
Arsenic, Dissolved	0.001	ND	ND
Cadmium, Dissolved	0.00003	ND	ND
Copper, Dissolved	0.001	ND	ND
Lead, Dissolved	0.0003	ND	ND
Zinc, Dissolved	0.008	0.009	0.012
Arsenic, Total Recoverable	0.001	ND	ND
Cadmium, Total Recoverable	0.00003	ND	ND
Calcium, Total Recoverable	1	ND	ND
Copper, Total Recoverable	0.001	ND	ND
Lead, Total Recoverable	0.0003	ND	ND
Magnesium, Total Recoverable	1	ND	ND
Zinc, Total Recoverable	0.008	ND	ND
Mercury, Total	0.000005	ND	-
Mercury, Methyl	0.00000005	ND	-

ND

Not detected at analytical reporting limit.

Field blank concentration exceeds reporting limit. We recommend "B-flagging" all analyte concentrations (which are <10 times the blank value) from this sample period in the project database.

**Table A5. Analyte concentrations in the third quarter (September 16-17, 2014) surface water field blanks from the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Field blank (concentration; mg/L)	
		H14090349-002	H14090349-013
Total Suspended Sediment	1	ND	ND
Total Alkalinity	4	ND	ND
Bicarbonate Alkalinity	4	ND	ND
Sulfate	1	ND	ND
Chloride	1	ND	ND
Hardness	1	ND	ND
Organic Carbon, Dissolved	0.1	ND	ND
Ammonia Nitrogen	0.05	ND	ND
Nitrate plus Nitrite Nitrogen	0.05	ND	ND
Total Nitrogen	0.05	ND	ND
Total Phosphorus	0.005	ND	ND
Arsenic, Dissolved	0.001	ND	ND
Cadmium, Dissolved	0.00003	ND	ND
Copper, Dissolved	0.001	ND	ND
Lead, Dissolved	0.0003	ND	ND
Zinc, Dissolved	0.008	0.014	0.012
Arsenic, Total Recoverable	0.001	ND	ND
Cadmium, Total Recoverable	0.00003	ND	ND
Calcium, Total Recoverable	1	ND	ND
Copper, Total Recoverable	0.001	ND	ND
Lead, Total Recoverable	0.0003	ND	ND
Magnesium, Total Recoverable	1	ND	ND
Zinc, Total Recoverable	0.008	ND	ND
Mercury, Total	0.000005	ND	ND
Mercury, Methyl	0.00000005	ND	ND

ND

Not detected at analytical reporting limit.

Field blank concentration exceeds reporting limit. We recommend "B-flagging" all analyte concentrations (which are <10 times the blank value) from this sample period in the project database.

**Table A6. Analyte concentrations in the fourth quarter (December 1-2, 2014) surface water field blanks from the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Field blank (concentration; mg/L)	
		H14120106-002	H14120106-013
Total Suspended Sediment	1	ND	ND
Total Alkalinity	4	ND	ND
Bicarbonate Alkalinity	4	ND	ND
Sulfate	1	ND	ND
Chloride	1	ND	ND
Hardness	1	ND	ND
Organic Carbon, Dissolved	0.1	0.5	ND
Ammonia Nitrogen	0.05	ND	ND
Nitrate plus Nitrite Nitrogen	0.05	ND	ND
Total Nitrogen	0.05	ND	0.11
Total Phosphorus	0.005	ND	0.005
Arsenic, Dissolved	0.001	ND	ND
Cadmium, Dissolved	0.00003	ND	ND
Copper, Dissolved	0.001	ND	ND
Lead, Dissolved	0.0003	ND	ND
Zinc, Dissolved	0.008	0.009	ND
Arsenic, Total Recoverable	0.001	ND	ND
Cadmium, Total Recoverable	0.00003	ND	ND
Calcium, Total Recoverable	1	ND	ND
Copper, Total Recoverable	0.001	ND	ND
Lead, Total Recoverable	0.0003	ND	ND
Magnesium, Total Recoverable	1	ND	ND
Zinc, Total Recoverable	0.008	ND	ND
Mercury, Total	0.000005	ND	-
Mercury, Methyl	0.00000005	ND	-

ND

Not detected at analytical reporting limit.

Field blank concentration exceeds reporting limit. We recommend "B-flagging" all analyte concentrations (which are <10 times the blank value) from this sample period in the project database.

**Table A7. Analyte concentrations in the first quarter (March 18, 2014) surface water field sample (H14030285-003) and field duplicate (H14030285-004) from site FC-CFR in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14030285-003	H14030285-004	
Total Suspended Sediment	1	23	22	4.3
Total Alkalinity	4	140	140	0.0
Bicarbonate Alkalinity	4	170	170	0.0
Sulfate	1	17	17	0.0
Chloride	1	6	6	0.0
Hardness	1	133	128	3.8
Organic Carbon, Dissolved	0.5	5.3	5.2	1.9
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	0.19	0.19	0.0
Total Nitrogen	0.05	0.84	0.84	0.0
Total Phosphorus	0.005	0.144	0.146	1.4
Arsenic, Dissolved	0.001	0.008	0.008	0.0
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	0.001	0.002	100.0
Lead, Dissolved	0.0003	0.0005	0.0005	0.0
Zinc, Dissolved	0.008	0.013	0.011	15.4
Arsenic, Total Recoverable	0.001	0.013	0.013	0.0
Cadmium, Total Recoverable	0.00003	0.00008	0.00008	0.0
Calcium, Total Recoverable	1	35	34	2.9
Copper, Total Recoverable	0.001	0.004	0.004	0.0
Lead, Total Recoverable	0.0003	0.0087	0.0088	1.1
Magnesium, Total Recoverable	1	11	11	0.0
Zinc, Total Recoverable	0.008	0.029	0.032	10.3
Mercury, Total	0.000005	0.000400	0.000350	12.5
Mercury, Methyl	0.00000005	0.00000114	0.00000134	17.5

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.



**Table A8. Analyte concentrations in the first quarter (March 19, 2014) surface water field sample (H14030285-014) and field duplicate (H14030285-015) from site MCWC-MWB in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14030285-014	H14030285-015	
Total Suspended Sediment	1	6	8	28.6
Total Alkalinity	4	96	96	0.0
Bicarbonate Alkalinity	4	120	120	0.0
Sulfate	1	38	36	5.4
Chloride	1	2	2	0.0
Hardness	1	107	107	0.0
Organic Carbon, Dissolved	0.5	2	2	0.0
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	0.07	0.07	0.0
Total Nitrogen	0.05	0.16	0.18	11.8
Total Phosphorus	0.005	0.031	0.03	3.3
Arsenic, Dissolved	0.001	0.019	0.019	0.0
Cadmium, Dissolved	0.00003	0.00005	0.00005	0.0
Copper, Dissolved	0.001	0.003	0.003	0.0
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	0.014	0.016	13.3
Arsenic, Total Recoverable	0.001	0.022	0.022	0.0
Cadmium, Total Recoverable	0.00003	0.00013	0.00013	0.0
Calcium, Total Recoverable	1	30	30	0.0
Copper, Total Recoverable	0.001	0.008	0.009	11.8
Lead, Total Recoverable	0.0003	0.002	0.0022	9.5
Magnesium, Total Recoverable	1	8	8	0.0
Zinc, Total Recoverable	0.008	0.021	0.022	4.7

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A9. Analyte concentrations in the second quarter during the rising limb of the spring snowmelt (May 13, 2014) surface water field sample (H14050278-018) and field duplicate (H14050278-019) from site FC-CFR in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14050278-018	H14050278-019	
Total Suspended Sediment	1	16	16	0.0
Total Alkalinity	4	100	100	0.0
Bicarbonate Alkalinity	4	120	120	0.0
Sulfate	1	9	9	0.0
Chloride	1	3	3	0.0
Hardness	1	103	115	11.0
Organic Carbon, Dissolved	0.5	4.8	4.9	2.1
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	0.39	0.46	16.5
Total Phosphorus	0.005	0.045	0.044	2.2
Arsenic, Dissolved	0.001	0.006	0.006	0.0
Cadmium, Dissolved	0.00003	0.00004	ND	-
Copper, Dissolved	0.001	0.003	0.003	0.0
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	0.019	0.013	37.5
Arsenic, Total Recoverable	0.001	0.009	0.009	0.0
Cadmium, Total Recoverable	0.00003	0.00006	0.00006	0.0
Calcium, Total Recoverable	1	28	31	10.2
Copper, Total Recoverable	0.001	0.005	0.006	18.2
Lead, Total Recoverable	0.0003	0.0042	0.0042	0.0
Magnesium, Total Recoverable	1	8	9	11.8
Zinc, Total Recoverable	0.008	0.016	0.015	6.5
Mercury, Total	0.000005	0.000230	0.000400	54.0
Mercury, Methyl	0.00000005	0.00000081	0.00000084	3.9

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A10. Analyte concentrations in the second quarter during the rising limb of the spring snowmelt (May 14, 2014) surface water field sample (H14050278-014) and field duplicate (H14050278-015) from site MCWC-MWB in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14050278-014	H14050278-015	
Total Suspended Sediment	1	5	3	50.0
Total Alkalinity	4	56	55	1.8
Bicarbonate Alkalinity	4	67	67	0.0
Sulfate	1	12	12	0.0
Chloride	1	ND	ND	-
Hardness	1	59	58	1.7
Organic Carbon, Dissolved	0.5	3.9	4	2.5
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	0.24	0.26	8.0
Total Phosphorus	0.005	0.032	0.031	3.2
Arsenic, Dissolved	0.001	0.025	0.025	0.0
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	0.005	0.005	0.0
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	ND	0.012	-
Arsenic, Total Recoverable	0.001	0.027	0.027	0.0
Cadmium, Total Recoverable	0.00003	0.00009	0.00008	11.8
Calcium, Total Recoverable	1	17	17	0.0
Copper, Total Recoverable	0.001	0.008	0.008	0.0
Lead, Total Recoverable	0.0003	0.0012	0.0012	0.0
Magnesium, Total Recoverable	1	4	4	0.0
Zinc, Total Recoverable	0.008	ND	0.008	-

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A11. Analyte concentrations in the second quarter during the peak of the spring snowmelt (June 10, 2014) surface water field sample (H14060255-018) and field duplicate (H14060255-019) from site FC-CFR in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14060255-018	H14060255-019	
Total Suspended Sediment	1	18	15	18.2
Total Alkalinity	4	110	110	0.0
Bicarbonate Alkalinity	4	130	130	0.0
Sulfate	1	7	7	0.0
Chloride	1	2	2	0.0
Hardness	1	104	108	3.8
Organic Carbon, Dissolved	0.5	3.9	3.9	0.0
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	0.35	0.48	31.3
Total Phosphorus	0.005	0.046	0.045	2.2
Arsenic, Dissolved	0.001	0.008	0.008	0.0
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	0.001	0.001	0.0
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	0.011	0.01	9.5
Arsenic, Total Recoverable	0.001	0.012	0.011	8.7
Cadmium, Total Recoverable	0.00003	0.00006	0.00006	0.0
Calcium, Total Recoverable	1	29	31	6.7
Copper, Total Recoverable	0.001	0.003	0.003	0.0
Lead, Total Recoverable	0.0003	0.0051	0.0052	1.9
Magnesium, Total Recoverable	1	7	8	13.3
Zinc, Total Recoverable	0.008	0.017	0.016	6.1
Mercury, Total	0.000005	0.000360	0.000300	18.2
Mercury, Methyl	0.00000005	0.00000119	0.00000072	49.7

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A12. Analyte concentrations in the second quarter during the peak of the spring snowmelt (June 11, 2014) surface water field sample (H14060255-014) and field duplicate (H14060255-015) from site MCWC-MWB in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14060255-014	H14060255-015	
Total Suspended Sediment	1	8	8	0.0
Total Alkalinity	4	48	48	0.0
Bicarbonate Alkalinity	4	58	57	1.7
Sulfate	1	5	6	18.2
Chloride	1	ND	ND	-
Hardness	1	46	47	2.2
Organic Carbon, Dissolved	0.5	2.8	2.9	3.5
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	0.15	0.21	33.3
Total Phosphorus	0.005	0.026	0.026	0.0
Arsenic, Dissolved	0.001	0.019	0.019	0.0
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	0.003	0.003	0.0
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	0.010	0.022	75.0
Arsenic, Total Recoverable	0.001	0.021	0.021	0.0
Cadmium, Total Recoverable	0.00003	0.0001	0.0001	0.0
Calcium, Total Recoverable	1	13	13	0.0
Copper, Total Recoverable	0.001	0.007	0.007	0.0
Lead, Total Recoverable	0.0003	0.0014	0.0016	13.3
Magnesium, Total Recoverable	1	3	3	0.0
Zinc, Total Recoverable	0.008	ND	ND	-

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A13. Analyte concentrations in the second quarter during the falling limb of the spring snowmelt (June 24, 2014) surface water field sample (H14060541-018) and field duplicate (H14060541-019) from site FC-CFR in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14060541-018	H14060541-019	
Total Suspended Sediment	1	13	ND	>146
Total Alkalinity	4	140	140	0.0
Bicarbonate Alkalinity	4	160	170	6.1
Sulfate	1	8	8	0.0
Chloride	1	3	3	0.0
Hardness	1	129	122	5.6
Organic Carbon, Dissolved	0.5	4.7	4.9	4.2
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	0.34	0.21	47.3
Total Phosphorus	0.005	0.048	0.049	2.1
Arsenic, Dissolved	0.001	0.009	0.009	0.0
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	0.001	0.002	66.7
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	0.014	0.014	0.0
Arsenic, Total Recoverable	0.001	0.012	0.012	0.0
Cadmium, Total Recoverable	0.00003	0.00006	0.00005	18.2
Calcium, Total Recoverable	1	36	34	5.7
Copper, Total Recoverable	0.001	0.003	0.003	0.0
Lead, Total Recoverable	0.0003	0.0048	0.0039	20.7
Magnesium, Total Recoverable	1	9	9	0.0
Zinc, Total Recoverable	0.008	0.015	0.014	6.9
Mercury, Total	0.000005	0.000220	0.000190	14.6
Mercury, Methyl	0.00000005	0.00000099	0.00000103	4.0

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A14. Analyte concentrations in the second quarter during the falling limb of the spring snowmelt (June 25, 2014) surface water field sample (H14060541-011) and field duplicate (H14060541-015) from site MCWC-MWB in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14060541-011	H14060541-015	
Total Suspended Sediment	1	10	18	57.1
Total Alkalinity	4	60	51	16.2
Bicarbonate Alkalinity	4	72	61	16.5
Sulfate	1	25	6	122.6
Chloride	1	1	ND	-
Hardness	1	75	47	45.9
Organic Carbon, Dissolved	0.5	3.4	3.7	8.5
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	0.21	0.19	10.0
Total Phosphorus	0.005	0.028	0.034	19.4
Arsenic, Dissolved	0.001	0.024	0.025	4.1
Cadmium, Dissolved	0.00003	0.00003	0.00004	28.6
Copper, Dissolved	0.001	0.004	0.005	22.2
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	0.011	0.012	8.7
Arsenic, Total Recoverable	0.001	0.026	0.028	7.4
Cadmium, Total Recoverable	0.00003	0.00011	0.00016	37.0
Calcium, Total Recoverable	1	22	14	44.4
Copper, Total Recoverable	0.001	0.008	0.011	31.6
Lead, Total Recoverable	0.0003	0.0016	0.0026	47.6
Magnesium, Total Recoverable	1	5	3	50.0
Zinc, Total Recoverable	0.008	0.01	0.015	40.0

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A15. Analyte concentrations in the third quarter (September 16, 2014) surface water field sample (H14090349-003) and field duplicate (H14090349-004) from site FC-CFR in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14090349-003	H14090349-004	
Total Suspended Sediment	1	4	5	22.2
Total Alkalinity	4	190	190	0.0
Bicarbonate Alkalinity	4	220	220	0.0
Sulfate	1	19	19	0.0
Chloride	1	4	4	0.0
Hardness	1	195	192	1.6
Organic Carbon, Dissolved	0.5	2.9	2.9	0.0
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	0.28	0.08	111.1
Total Phosphorus	0.005	0.046	0.046	0.0
Arsenic, Dissolved	0.001	0.008	0.008	0.0
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	ND	ND	-
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	ND	ND	-
Arsenic, Total Recoverable	0.001	0.008	0.008	0.0
Cadmium, Total Recoverable	0.00003	ND	ND	-
Calcium, Total Recoverable	1	52	51	1.9
Copper, Total Recoverable	0.001	0.002	0.002	0.0
Lead, Total Recoverable	0.0003	0.0009	0.0009	0.0
Magnesium, Total Recoverable	1	16	16	0.0
Zinc, Total Recoverable	0.008	ND	ND	-
Mercury, Total	0.000005	0.000058	0.000038	41.7
Mercury, Methyl	0.00000005	0.00000046	0.00000062	30.4

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.



**Table A16. Analyte concentrations in the third quarter (September 17, 2014) surface water field sample (H14090349-014) and field duplicate (H14090349-015) from site MCWC-MWB in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14090349-014	H14090349-015	
Total Suspended Sediment	1	2	2	0.0
Total Alkalinity	4	83	84	1.2
Bicarbonate Alkalinity	4	100	100	0.0
Sulfate	1	15	15	0.0
Chloride	1	1	1	0.0
Hardness	1	94	93	1.1
Organic Carbon, Dissolved	0.5	1.9	1.8	5.4
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	ND	ND	-
Total Nitrogen	0.05	ND	ND	-
Total Phosphorus	0.005	0.018	0.017	5.7
Arsenic, Dissolved	0.001	0.019	0.018	5.4
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	0.002	0.002	0.0
Lead, Dissolved	0.0003	0.0003	0.0003	0.0
Zinc, Dissolved	0.008	ND	ND	-
Arsenic, Total Recoverable	0.001	0.02	0.02	0.0
Cadmium, Total Recoverable	0.00003	0.00004	0.00005	22.2
Calcium, Total Recoverable	1	26	26	0.0
Copper, Total Recoverable	0.001	0.004	0.003	28.6
Lead, Total Recoverable	0.0003	0.0008	0.0008	0.0
Magnesium, Total Recoverable	1	7	7	0.0
Zinc, Total Recoverable	0.008	ND	ND	-

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A17. Analyte concentrations in the fourth quarter (December 1, 2014) surface water field sample (H14120106-003) and field duplicate (H14120106-004) from site FC-CFR in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14120106-003	H14120106-004	
Total Suspended Sediment	1	8	8	0.0
Total Alkalinity	4	180	180	0.0
Bicarbonate Alkalinity	4	220	210	4.7
Sulfate	1	16	16	0.0
Chloride	1	4	4	0.0
Hardness	1	170	169	0.6
Organic Carbon, Dissolved	0.5	2.3	2.3	0.0
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	0.21	0.2	4.9
Total Nitrogen	0.05	0.5	0.4	22.2
Total Phosphorus	0.005	0.046	0.048	4.3
Arsenic, Dissolved	0.001	0.006	0.006	0.0
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	ND	ND	-
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	ND	ND	-
Arsenic, Total Recoverable	0.001	0.007	0.007	0.0
Cadmium, Total Recoverable	0.00003	ND	ND	-
Calcium, Total Recoverable	1	46	45	2.2
Copper, Total Recoverable	0.001	0.002	0.007	111.1
Lead, Total Recoverable	0.0003	0.002	0.0016	22.2
Magnesium, Total Recoverable	1	14	14	0.0
Zinc, Total Recoverable	0.008	ND	0.009	-
Mercury, Total	0.000005	0.000190	0.000120	45.2
Mercury, Methyl	0.00000005	0.00000055	0.00000054	1.5

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A18. Analyte concentrations in the fourth quarter (December 2, 2014) surface water field sample (H14120106-014) and field duplicate (H14120106-015) from site MCWC-MWB in the Clark Fork River Operable Unit.**

Analyte	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
		H14120106-014	H14120106-015	
Total Suspended Sediment	1	37	35	5.6
Total Alkalinity	4	98	99	1.0
Bicarbonate Alkalinity	4	120	120	0.0
Sulfate	1	24	24	0.0
Chloride	1	2	2	0.0
Hardness	1	108	108	0.0
Organic Carbon, Dissolved	0.5	1.7	1.7	0.0
Ammonia Nitrogen	0.05	ND	ND	-
Nitrate plus Nitrite Nitrogen	0.05	0.12	0.11	8.7
Total Nitrogen	0.05	0.42	0.45	6.9
Total Phosphorus	0.005	0.059	0.058	1.7
Arsenic, Dissolved	0.001	0.011	0.012	8.7
Cadmium, Dissolved	0.00003	ND	ND	-
Copper, Dissolved	0.001	0.001	0.001	0.0
Lead, Dissolved	0.0003	ND	ND	-
Zinc, Dissolved	0.008	ND	ND	-
Arsenic, Total Recoverable	0.001	0.019	0.02	5.1
Cadmium, Total Recoverable	0.00003	0.00034	0.00035	2.9
Calcium, Total Recoverable	1	30	31	3.3
Copper, Total Recoverable	0.001	0.034	0.034	0.0
Lead, Total Recoverable	0.0003	0.0112	0.0112	0.0
Magnesium, Total Recoverable	1	8	8	0.0
Zinc, Total Recoverable	0.008	0.054	0.055	1.8

ND

Not detected at analytical reporting limit.

-

Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (25%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (25%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A19. Analyte concentrations in the first quarter (March 19, 2014) instream sediment field sample (H14030285-030) and field duplicate (H14030285-031) from site MCWC-MWB in the Streamside Tailings Operable Unit.**

Analyte	Size fraction (mm)	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
			H14030285-030	H14030285-031	
Arsenic, Total	<0.065 mm	5	100	102	2.0
Cadmium, Total	<0.065 mm	0.2	6.6	6.9	4.4
Copper, Total	<0.065 mm	5	323	358	10.3
Lead, Total	<0.065 mm	9	157	156	0.6
Zinc, Total	<0.065 mm	5	519	570	9.4

ND Not detected at analytical reporting limit.

- Relative percent difference unknown because one or both of the concentrations was unknown.

Relative percent difference of sample and duplicate pair exceeds project goal (40%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (40%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A20. Analyte concentrations in the third quarter (September 16, 2014) instream sediment field sample (H14090349-019) and field duplicate (H14090349-020) from site FC-CFR in the Streamside Tailings Operable Unit.**

Analyte	Size fraction (mm)	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
			H14090349-019	H14090349-020	
Arsenic, Total	<0.065 mm	1	116	112	3.5
Cadmium, Total	<0.065 mm	0.5	2.7	2.6	3.8
Copper, Total	<0.065 mm	5	87	87	0.0
Lead, Total	<0.065 mm	5	266	262	1.5
Zinc, Total	<0.065 mm	10	785	770	1.9

ND Not detected at analytical reporting limit.

- Relative percent difference unknown because one or both of the concentrations was unknown.

Relative percent difference of sample and duplicate pair exceeds project goal (40%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.

Relative percent difference of sample and duplicate pair exceeds project goal (40%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

**Table A21. Analyte concentrations in the third quarter (September 17, 2014) instream sediment field sample (H14090349-029) and field duplicate (H14090349-030) from site MCWC-MWB in the Streamside Tailings Operable Unit.**

Analyte	Size fraction (mm)	Reporting limit (mg/L)	Concentration (mg/L)		Relative percent difference (%)
			H14090349-019	H14090349-020	
Arsenic, Total	<0.065 mm	1	141	118	17.8
Cadmium, Total	<0.065 mm	0.4	9.6	8.5	12.2
Copper, Total	<0.065 mm	5	405	377	7.2
Lead, Total	<0.065 mm	5	204	189	7.6
Zinc, Total	<0.065 mm	10	640	625	2.4

ND Not detected at analytical reporting limit.

- Relative percent difference unknown because one or both of the concentrations was unknown.



Relative percent difference of sample and duplicate pair exceeds project goal (40%). We recommend "J-flagging" all analyte concentrations (which are >5 times the reporting limit) from this sample period in the project database.



Relative percent difference of sample and duplicate pair exceeds project goal (40%). However, because both of the concentrations were <5 times the reporting limit we do not recommend "J-flagging" any analytes in the project database.

## **APPENDIX B**

### **ANALYTICAL LABORATORY RESULTS**

---

**APPENDIX B1**  
**ANALYTICAL LABORATORY RESULTS**  
**1<sup>ST</sup> QUARTER MONITORING**

---



## ANALYTICAL SUMMARY REPORT

May 16, 2014

MT DEQ-Federal Superfund  
PO Box 200901  
Helena, MT 59620-0901

Work Order: H14030285 Quote ID: H958

Project Name: CFR Monitoring-474374

Energy Laboratories Inc Helena MT received the following 33 samples for MT DEQ-Federal Superfund on 3/20/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14030285-001	CFR-116A	03/18/14 9:00	03/20/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14030285-002	Field Blank #1	03/18/14 12:30	03/20/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Mercury, Total Recoverable Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14030285-003	FC-CFR	03/18/14 13:30	03/20/14	Aqueous	Same As Above
H14030285-004	FC-CFR Duplicate	03/18/14 13:30	03/20/14	Aqueous	Same As Above

## ANALYTICAL SUMMARY REPORT

H14030285-005	LBR-CFR	03/18/14 15:00	03/20/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14030285-006	CFR-27H	03/18/14 16:30	03/20/14	Aqueous	Same As Above
H14030285-007	CFR-11F	03/18/14 17:45	03/20/14	Aqueous	Same As Above
H14030285-008	CFR-07D	03/19/14 8:45	03/20/14	Aqueous	Same As Above
H14030285-009	CFR-03A	03/19/14 10:00	03/20/14	Aqueous	Same As Above
H14030285-010	WSC-SBC	03/19/14 11:00	03/20/14	Aqueous	Same As Above
H14030285-011	SS-25	03/19/14 12:00	03/20/14	Aqueous	Same As Above
H14030285-012	MWB-SBC	03/19/14 13:30	03/20/14	Aqueous	Same As Above
H14030285-013	Field Blank #2	03/19/14 14:15	03/20/14	Aqueous	Same As Above
H14030285-014	MCWC-MWB	03/19/14 15:00	03/20/14	Aqueous	Same As Above
H14030285-015	MCWC-MWB Duplicate	03/19/14 15:00	03/20/14	Aqueous	Same As Above
H14030285-016	CFR-84F	03/18/14 11:00	03/20/14	Aqueous	Mercury, Total Recoverable Digestion, Mercury by CVAA Subcontracted, Analytics
H14030285-017	Field Blank #1	03/18/14 12:30	03/20/14	Aqueous	
H14030285-018	FC-CFR	03/18/14 13:30	03/20/14	Aqueous	
H14030285-019	FC-CFR Duplicate	03/18/14 13:30	03/20/14	Aqueous	
H14030285-020	TB 14-0034 3/7/14	03/18/14 9:00	03/20/14	Trip Blank	
H14030285-021	CFR-116A Sediment Sieve <0.065mm	03/18/14 9:00	03/20/14	Sediment	Metals by ICP/ICPMS, Total Percent Moisture Digestion, Total Metals Sieves Soil Preparation
H14030285-022	LBR-CFR Sediment Sieve <0.065mm	03/18/14 15:00	03/20/14	Sediment	Metals by ICP/ICPMS, Total Percent Moisture Digestion, Total Metals Sieves
H14030285-023	CFR-27H Sediment Sieve <0.065mm	03/18/14 16:30	03/20/14	Sediment	Same As Above
H14030285-024	CFR-11F Sediment Sieve <0.065mm	03/18/14 17:45	03/20/14	Sediment	Same As Above
H14030285-025	CFR-07D Sediment Sieve <0.065mm	03/19/14 8:45	03/20/14	Sediment	Same As Above
H14030285-026	CFR-03A Sediment Sieve <0.065mm	03/19/14 10:00	03/20/14	Sediment	Same As Above

## ANALYTICAL SUMMARY REPORT

H14030285-027	WSC-SBC Sediment Sieve <0.065mm	03/19/14 11:00 03/20/14	Sediment	Same As Above
H14030285-028	SS-25 Sediment Sieve <0.065mm	03/19/14 12:00 03/20/14	Sediment	Same As Above
H14030285-029	MWB-SBC Sediment Sieve <0.065mm	03/19/14 13:30 03/20/14	Sediment	Same As Above
H14030285-030	MCWC-MWB Sediment Sieve <0.065mm	03/19/14 15:00 03/20/14	Sediment	Same As Above
H14030285-031	MCWC-MWB Duplicate Sediment Sieve <0.065mm	03/19/14 15:00 03/20/14	Sediment	Same As Above
H14030285-032	LC-7.5 Sediment Sieve <0.065mm	03/19/14 16:00 03/20/14	Sediment	Same As Above
H14030285-033	RTC-1.5 Sediment Sieve <0.065mm	03/19/14 16:45 03/20/14	Sediment	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

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

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

Report Approved By:



**CLIENT:** MT DEQ-Federal Superfund  
**Project:** CFR Monitoring-474374  
**Work Order:** H14030285

**Revised Date:** 05/16/14

**Report Date:** 04/17/14

## CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Samples 016 through 020 were submitted to BrooksRandLabs for analysis of Methyl Mercury analysis, attached is the final report. Wj 4/16/14

Per client request, the TSS reporting limit was lowered to 1.0 mg/L, Copper to 0.001mg/L and Cadmium for the aqueous samples the reporting limit was changed to 0.00003 mg/L. abb 5/16/14



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A  
**Lab ID:** H14030285-001  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 09:00  
**Report Date:** 04/17/14  
**Date Received:** 03/20/14  
**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	39	mg/L		1		A2540 D	03/21/14 08:45 / JRS		I24 (14410200)_140321A : 18		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	120	mg/L		4		A2320 B	03/24/14 14:54 / JRS		MAN-TECH_140324A : 27		R95766
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	03/24/14 14:54 / JRS		MAN-TECH_140324A : 27		R95766
Chloride	7	mg/L		1		E300.0	03/24/14 12:53 / JRS		IC102-H_140324A : 27		R95784
Sulfate	48	mg/L		1		E300.0	03/24/14 12:53 / JRS		IC102-H_140324A : 27		R95784
Hardness as CaCO <sub>3</sub>	148	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 2		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.2	mg/L		0.5		A5310 C	03/24/14 17:30 / eli-c		SUB-C184755 : 16		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:01 / cm		FIA203-HE_140326B : 21		R95816
Nitrogen, Nitrate+Nitrite as N	0.18	mg/L		0.05		E353.2	03/24/14 12:17 / cm		FIA203-HE_140324B : 34		R95737
Nitrogen, Total	0.70	mg/L		0.05		A4500 N-C	03/28/14 13:10 / cm	03/28/14 09:43	FIA203-HE_140328A : 13		24004
Phosphorus, Total as P	0.128	mg/L		0.005		E365.1	03/21/14 13:27 / cm	03/21/14 09:46	FIA202-HE_140321A : 34		23913
<b>METALS, DISSOLVED</b>											
Arsenic	0.007	mg/L		0.001		E200.8	03/24/14 13:22 / dck		ICPMS204-B_140324A : 28		R95757
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 13:22 / dck		ICPMS204-B_140324A : 28		R95757
Copper	0.007	mg/L		0.001		E200.8	03/24/14 13:22 / dck		ICPMS204-B_140324A : 28		R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 13:22 / dck		ICPMS204-B_140324A : 28		R95757
Zinc	0.015	mg/L		0.008		E200.8	03/24/14 13:22 / dck		ICPMS204-B_140324A : 28		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	03/24/14 14:06 / dck	03/21/14 08:02	ICPMS204-B_140324A : 38		23919
Cadmium	0.00024	mg/L		0.00003		E200.8	03/24/14 14:06 / dck	03/21/14 08:02	ICPMS204-B_140324A : 38		23919
Calcium	42	mg/L		1		E200.7	03/24/14 14:29 / sld	03/21/14 08:02	ICP2-HE_140324B : 30		23919
Copper	0.038	mg/L		0.001		E200.8	03/24/14 14:06 / dck	03/21/14 08:02	ICPMS204-B_140324A : 38		23919
Lead	0.0079	mg/L		0.0003		E200.8	03/24/14 14:06 / dck	03/21/14 08:02	ICPMS204-B_140324A : 38		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A  
**Lab ID:** H14030285-001  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 09:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	03/24/14 14:29 / sld	03/21/14 08:02	ICP2-HE_140324B : 30		23919
Zinc	0.060	mg/L		0.008		E200.8	03/24/14 14:06 / dck	03/21/14 08:02	ICPMS204-B_140324A : 38		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14030285-002  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 12:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	03/21/14 08:45 / JRS		I24 (14410200)_140321A : 19		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	03/24/14 14:59 / JRS		MAN-TECH_140324A : 28		R95766
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	03/24/14 14:59 / JRS		MAN-TECH_140324A : 28		R95766
Chloride	ND	mg/L		1		E300.0	03/24/14 13:23 / JRS		IC102-H_140324A : 30		R95784
Sulfate	ND	mg/L		1		E300.0	03/24/14 13:23 / JRS		IC102-H_140324A : 30		R95784
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	03/24/14 14:51 / abb		CALC_140326A : 25		R95809
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	ND	mg/L		0.5		A5310 C	03/24/14 17:40 / eli-c		SUB-C184755 : 17		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:03 / cm		FIA203-HE_140326B : 22		R95816
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	03/24/14 12:19 / cm		FIA203-HE_140324B : 35		R95737
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	03/28/14 13:13 / cm	03/28/14 09:43	FIA203-HE_140328A : 16		24004
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	03/21/14 13:28 / cm	03/21/14 09:46	FIA202-HE_140321A : 35		23913
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	03/24/14 14:27 / dck		ICPMS204-B_140324A : 43		R95757
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 14:27 / dck		ICPMS204-B_140324A : 43		R95757
Copper	ND	mg/L		0.001		E200.8	03/24/14 14:27 / dck		ICPMS204-B_140324A : 43		R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 14:27 / dck		ICPMS204-B_140324A : 43		R95757
Zinc	0.017	mg/L		0.008		E200.8	03/24/14 14:27 / dck		ICPMS204-B_140324A : 43		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	03/24/14 14:31 / dck	03/21/14 08:02	ICPMS204-B_140324A : 44		23919
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 14:31 / dck	03/21/14 08:02	ICPMS204-B_140324A : 44		23919
Calcium	ND	mg/L		1		E200.7	03/24/14 14:51 / sld	03/21/14 08:02	ICP2-HE_140324B : 36		23919
Copper	ND	mg/L		0.001		E200.8	03/24/14 14:31 / dck	03/21/14 08:02	ICPMS204-B_140324A : 44		23919
Lead	ND	mg/L		0.0003		E200.8	03/24/14 14:31 / dck	03/21/14 08:02	ICPMS204-B_140324A : 44		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14030285-002  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 12:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	03/24/14 14:51 / sld	03/21/14 08:02	ICP2-HE_140324B : 36		23919
Mercury	ND	mg/L		5E-06		E245.1	03/27/14 12:46 / sbk	03/25/14 10:14	HGCV202-H_140327A : 14		23953
Zinc	ND	mg/L		0.008		E200.8	03/24/14 14:31 / dck	03/21/14 08:02	ICPMS204-B_140324A : 44		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14030285-003  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 13:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	23	mg/L		1		A2540 D	03/21/14 08:46 / JRS		I24 (14410200)_140321A : 20		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	03/24/14 15:11 / JRS		MAN-TECH_140324A : 31		R95766
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	03/24/14 15:11 / JRS		MAN-TECH_140324A : 31		R95766
Chloride	6	mg/L		1		E300.0	03/24/14 13:54 / JRS		IC102-H_140324A : 33		R95784
Sulfate	17	mg/L		1		E300.0	03/24/14 13:54 / JRS		IC102-H_140324A : 33		R95784
Hardness as CaCO <sub>3</sub>	133	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 4		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	5.3	mg/L		0.5		A5310 C	03/24/14 17:51 / eli-c		SUB-C184755 : 18		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:06 / cm		FIA203-HE_140326B : 25		R95816
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.05		E353.2	03/24/14 12:22 / cm		FIA203-HE_140324B : 38		R95737
Nitrogen, Total	0.84	mg/L		0.05		A4500 N-C	03/28/14 13:14 / cm	03/28/14 09:43	FIA203-HE_140328A : 17		24004
Phosphorus, Total as P	0.144	mg/L		0.005		E365.1	03/21/14 13:29 / cm	03/21/14 09:46	FIA202-HE_140321A : 36		23913
<b>METALS, DISSOLVED</b>											
Arsenic	0.008	mg/L		0.001		E200.8	03/24/14 14:36 / dck		ICPMS204-B_140324A : 45		R95757
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 14:36 / dck		ICPMS204-B_140324A : 45		R95757
Copper	0.001	mg/L		0.001		E200.8	03/24/14 14:36 / dck		ICPMS204-B_140324A : 45		R95757
Lead	0.0005	mg/L		0.0003		E200.8	03/24/14 14:36 / dck		ICPMS204-B_140324A : 45		R95757
Zinc	0.013	mg/L		0.008		E200.8	03/24/14 14:36 / dck		ICPMS204-B_140324A : 45		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.013	mg/L		0.001		E200.8	03/24/14 14:40 / dck	03/21/14 08:02	ICPMS204-B_140324A : 46		23919
Cadmium	0.00008	mg/L		0.00003		E200.8	03/24/14 14:40 / dck	03/21/14 08:02	ICPMS204-B_140324A : 46		23919
Calcium	35	mg/L		1		E200.7	03/24/14 14:54 / sld	03/21/14 08:02	ICP2-HE_140324B : 37		23919
Copper	0.004	mg/L		0.001		E200.8	03/24/14 14:40 / dck	03/21/14 08:02	ICPMS204-B_140324A : 46		23919
Lead	0.0087	mg/L		0.0003		E200.8	03/24/14 14:40 / dck	03/21/14 08:02	ICPMS204-B_140324A : 46		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14030285-003  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 13:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	03/24/14 14:54 / sld	03/21/14 08:02	ICP2-HE_140324B : 37		23919
Mercury	0.00040	mg/L		5E-06		E245.1	03/27/14 12:50 / sbk	03/25/14 10:14	HGCV202-H_140327A : 15		23953
Zinc	0.029	mg/L		0.008		E200.8	03/24/14 14:40 / dck	03/21/14 08:02	ICPMS204-B_140324A : 46		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14030285-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 13:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	22	mg/L		1		A2540 D	03/21/14 08:46 / JRS		I24 (14410200)_140321A : 21		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	03/24/14 15:18 / JRS		MAN-TECH_140324A : 32		R95766
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	03/24/14 15:18 / JRS		MAN-TECH_140324A : 32		R95766
Chloride	6	mg/L		1		E300.0	03/24/14 14:04 / JRS		IC102-H_140324A : 34		R95784
Sulfate	17	mg/L		1		E300.0	03/24/14 14:04 / JRS		IC102-H_140324A : 34		R95784
Hardness as CaCO <sub>3</sub>	128	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 5		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	5.2	mg/L		0.5		A5310 C	03/24/14 18:02 / eli-c		SUB-C184755 : 19		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:10 / cm		FIA203-HE_140326B : 28		R95816
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.05		E353.2	03/24/14 12:26 / cm		FIA203-HE_140324B : 41		R95737
Nitrogen, Total	0.84	mg/L		0.05		A4500 N-C	03/28/14 13:16 / cm	03/28/14 09:43	FIA203-HE_140328A : 18		24004
Phosphorus, Total as P	0.146	mg/L		0.005		E365.1	03/21/14 13:30 / cm	03/21/14 09:46	FIA202-HE_140321A : 37		23913
<b>METALS, DISSOLVED</b>											
Arsenic	0.008	mg/L		0.001		E200.8	03/24/14 14:44 / dck		ICPMS204-B_140324A : 47		R95757
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 14:44 / dck		ICPMS204-B_140324A : 47		R95757
Copper	0.002	mg/L		0.001		E200.8	03/24/14 14:44 / dck		ICPMS204-B_140324A : 47		R95757
Lead	0.0005	mg/L		0.0003		E200.8	03/24/14 14:44 / dck		ICPMS204-B_140324A : 47		R95757
Zinc	0.011	mg/L		0.008		E200.8	03/24/14 14:44 / dck		ICPMS204-B_140324A : 47		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.013	mg/L		0.001		E200.8	03/24/14 14:49 / dck	03/21/14 08:02	ICPMS204-B_140324A : 48		23919
Cadmium	0.00008	mg/L		0.00003		E200.8	03/24/14 14:49 / dck	03/21/14 08:02	ICPMS204-B_140324A : 48		23919
Calcium	34	mg/L		1		E200.7	03/24/14 14:58 / sld	03/21/14 08:02	ICP2-HE_140324B : 38		23919
Copper	0.004	mg/L		0.001		E200.8	03/24/14 14:49 / dck	03/21/14 08:02	ICPMS204-B_140324A : 48		23919
Lead	0.0088	mg/L		0.0003		E200.8	03/24/14 14:49 / dck	03/21/14 08:02	ICPMS204-B_140324A : 48		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14030285-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 13:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	03/24/14 14:58 / sld	03/21/14 08:02	ICP2-HE_140324B : 38		23919
Mercury	0.00035	mg/L		5E-06		E245.1	03/27/14 12:54 / sbk	03/25/14 10:14	HGCV202-H_140327A : 16		23953
Zinc	0.032	mg/L		0.008		E200.8	03/24/14 14:49 / dck	03/21/14 08:02	ICPMS204-B_140324A : 48		23919

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR  
**Lab ID:** H14030285-005  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	03/21/14 08:47 / JRS		I24 (14410200)_140321A	: 22	TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	03/24/14 15:25 / JRS		MAN-TECH_140324A	: 33	R95766
Bicarbonate as HCO <sub>3</sub>	130	mg/L		4		A2320 B	03/24/14 15:25 / JRS		MAN-TECH_140324A	: 33	R95766
Chloride	4	mg/L		1		E300.0	03/24/14 14:14 / JRS		IC102-H_140324A	: 35	R95784
Sulfate	16	mg/L		1		E300.0	03/24/14 14:14 / JRS		IC102-H_140324A	: 35	R95784
Hardness as CaCO <sub>3</sub>	104	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B	: 6	R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.5		A5310 C	03/24/14 18:13 / eli-c		SUB-C184755	: 20	C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:11 / cm		FIA203-HE_140326B	: 29	R95816
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.05		E353.2	03/24/14 12:27 / cm		FIA203-HE_140324B	: 42	R95737
Nitrogen, Total	0.32	mg/L		0.05		A4500 N-C	03/28/14 13:17 / cm	03/28/14 09:43	FIA203-HE_140328A	: 19	24004
Phosphorus, Total as P	0.074	mg/L		0.005		E365.1	03/21/14 13:31 / cm	03/21/14 09:46	FIA202-HE_140321A	: 38	23913
<b>METALS, DISSOLVED</b>											
Arsenic	0.004	mg/L		0.001		E200.8	03/24/14 14:53 / dck		ICPMS204-B_140324A	: 49	R95757
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 14:53 / dck		ICPMS204-B_140324A	: 49	R95757
Copper	0.001	mg/L		0.001		E200.8	03/24/14 14:53 / dck		ICPMS204-B_140324A	: 49	R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 14:53 / dck		ICPMS204-B_140324A	: 49	R95757
Zinc	0.009	mg/L		0.008		E200.8	03/24/14 14:53 / dck		ICPMS204-B_140324A	: 49	R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.005	mg/L		0.001		E200.8	03/24/14 15:11 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 53	23919
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 15:11 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 53	23919
Calcium	30	mg/L		1		E200.7	03/24/14 15:02 / sld	03/21/14 08:02	ICP2-HE_140324B	: 39	23919
Copper	0.001	mg/L		0.001		E200.8	03/24/14 15:11 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 53	23919
Lead	0.0003	mg/L		0.0003		E200.8	03/24/14 15:11 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 53	23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR  
**Lab ID:** H14030285-005  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	03/24/14 15:02 / sld	03/21/14 08:02	ICP2-HE_140324B : 39		23919
Zinc	ND	mg/L		0.008		E200.8	03/24/14 15:11 / dck	03/21/14 08:02	ICPMS204-B_140324A : 53		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H  
**Lab ID:** H14030285-006  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 16:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	45	mg/L		1		A2540 D	03/21/14 08:47 / JRS		I24 (14410200)_140321A	: 23	TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	150	mg/L		4		A2320 B	03/24/14 15:32 / JRS		MAN-TECH_140324A	: 34	R95766
Bicarbonate as HCO <sub>3</sub>	180	mg/L		4		A2320 B	03/24/14 15:32 / JRS		MAN-TECH_140324A	: 34	R95766
Chloride	17	mg/L		1		E300.0	03/24/14 14:24 / JRS		IC102-H_140324A	: 36	R95784
Sulfate	110	mg/L		1		E300.0	03/24/14 14:24 / JRS		IC102-H_140324A	: 36	R95784
Hardness as CaCO <sub>3</sub>	221	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B	: 7	R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.1	mg/L		0.5		A5310 C	03/24/14 19:32 / eli-c		SUB-C184755	: 24	C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	0.06	mg/L		0.05		E350.1	03/26/14 15:12 / cm		FIA203-HE_140326B	: 30	R95816
Nitrogen, Nitrate+Nitrite as N	0.41	mg/L		0.05		E353.2	03/24/14 12:28 / cm		FIA203-HE_140324B	: 43	R95737
Nitrogen, Total	0.94	mg/L		0.05		A4500 N-C	03/28/14 13:18 / cm	03/28/14 09:43	FIA203-HE_140328A	: 20	24004
Phosphorus, Total as P	0.091	mg/L		0.005		E365.1	03/21/14 13:36 / cm	03/21/14 09:47	FIA202-HE_140321A	: 43	23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.014	mg/L		0.001		E200.8	03/24/14 15:15 / dck		ICPMS204-B_140324A	: 54	R95757
Cadmium	0.00007	mg/L		0.00003		E200.8	03/24/14 15:15 / dck		ICPMS204-B_140324A	: 54	R95757
Copper	0.010	mg/L		0.001		E200.8	03/24/14 15:15 / dck		ICPMS204-B_140324A	: 54	R95757
Lead	0.0003	mg/L		0.0003		E200.8	03/24/14 15:15 / dck		ICPMS204-B_140324A	: 54	R95757
Zinc	0.017	mg/L		0.008		E200.8	03/24/14 15:15 / dck		ICPMS204-B_140324A	: 54	R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.023	mg/L		0.001		E200.8	03/24/14 15:19 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 55	23919
Cadmium	0.00038	mg/L		0.00003		E200.8	03/24/14 15:19 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 55	23919
Calcium	65	mg/L		1		E200.7	03/24/14 15:06 / sld	03/21/14 08:02	ICP2-HE_140324B	: 40	23919
Copper	0.083	mg/L		0.001		E200.8	03/24/14 15:19 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 55	23919
Lead	0.0122	mg/L		0.0003		E200.8	03/24/14 15:19 / dck	03/21/14 08:02	ICPMS204-B_140324A	: 55	23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-27H

**Lab ID:** H14030285-006

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 03/18/14 16:30

**Date Received:** 03/20/14

**Report Date:** 04/17/14

**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	14	mg/L		1		E200.7	03/24/14 15:06 / sld	03/21/14 08:02	ICP2-HE_140324B : 40		23919
Zinc	0.075	mg/L		0.008		E200.8	03/24/14 15:19 / dck	03/21/14 08:02	ICPMS204-B_140324A : 55		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F  
**Lab ID:** H14030285-007  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 17:45 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	19	mg/L		1		A2540 D	03/21/14 08:48 / JRS		I24 (14410200)_140321A : 24		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	150	mg/L		4		A2320 B	03/24/14 15:40 / JRS		MAN-TECH_140324A : 35		R95766
Bicarbonate as HCO <sub>3</sub>	180	mg/L		4		A2320 B	03/24/14 15:40 / JRS		MAN-TECH_140324A : 35		R95766
Chloride	19	mg/L		1		E300.0	03/24/14 14:34 / JRS		IC102-H_140324A : 37		R95784
Sulfate	130	mg/L		1		E300.0	03/24/14 14:34 / JRS		IC102-H_140324A : 37		R95784
Hardness as CaCO <sub>3</sub>	244	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 8		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.5	mg/L		0.5		A5310 C	03/24/14 19:44 / eli-c		SUB-C184755 : 25		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	0.06	mg/L		0.05		E350.1	03/26/14 15:13 / cm		FIA203-HE_140326B : 31		R95816
Nitrogen, Nitrate+Nitrite as N	0.38	mg/L		0.05		E353.2	03/24/14 12:29 / cm		FIA203-HE_140324B : 44		R95737
Nitrogen, Total	0.88	mg/L		0.05		A4500 N-C	03/28/14 13:19 / cm	03/28/14 09:43	FIA203-HE_140328A : 21		24004
Phosphorus, Total as P	0.064	mg/L		0.005		E365.1	03/21/14 13:39 / cm	03/21/14 09:47	FIA202-HE_140321A : 46		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.015	mg/L		0.001		E200.8	03/24/14 15:24 / dck		ICPMS204-B_140324A : 56		R95757
Cadmium	0.00006	mg/L		0.00003		E200.8	03/24/14 15:24 / dck		ICPMS204-B_140324A : 56		R95757
Copper	0.008	mg/L		0.001		E200.8	03/24/14 15:24 / dck		ICPMS204-B_140324A : 56		R95757
Lead	0.0003	mg/L		0.0003		E200.8	03/24/14 15:24 / dck		ICPMS204-B_140324A : 56		R95757
Zinc	0.014	mg/L		0.008		E200.8	03/24/14 15:24 / dck		ICPMS204-B_140324A : 56		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	03/24/14 15:28 / dck	03/21/14 08:02	ICPMS204-B_140324A : 57		23919
Cadmium	0.00020	mg/L		0.00003		E200.8	03/24/14 15:28 / dck	03/21/14 08:02	ICPMS204-B_140324A : 57		23919
Calcium	71	mg/L		1		E200.7	03/24/14 15:09 / sld	03/21/14 08:02	ICP2-HE_140324B : 41		23919
Copper	0.036	mg/L		0.001		E200.8	03/24/14 15:28 / dck	03/21/14 08:02	ICPMS204-B_140324A : 57		23919
Lead	0.0060	mg/L		0.0003		E200.8	03/24/14 15:28 / dck	03/21/14 08:02	ICPMS204-B_140324A : 57		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-11F

**Lab ID:** H14030285-007

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 03/18/14 17:45

**Date Received:** 03/20/14

**Report Date:** 04/17/14

**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	16	mg/L		1		E200.7	03/24/14 15:09 / sld	03/21/14 08:02	ICP2-HE_140324B : 41		23919
Zinc	0.041	mg/L		0.008		E200.8	03/24/14 15:28 / dck	03/21/14 08:02	ICPMS204-B_140324A : 57		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-07D  
**Lab ID:** H14030285-008  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 08:45 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	13	mg/L		1		A2540 D	03/21/14 08:49 / JRS		I24 (14410200)_140321A : 27		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	03/24/14 15:47 / JRS		MAN-TECH_140324A : 36		R95766
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	03/24/14 15:47 / JRS		MAN-TECH_140324A : 36		R95766
Chloride	20	mg/L		1		E300.0	03/24/14 14:44 / JRS		IC102-H_140324A : 38		R95784
Sulfate	130	mg/L		1		E300.0	03/24/14 14:44 / JRS		IC102-H_140324A : 38		R95784
Hardness as CaCO <sub>3</sub>	233	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 9		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.5		A5310 C	03/24/14 19:57 / eli-c		SUB-C184755 : 26		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:14 / cm		FIA203-HE_140326B : 32		R95816
Nitrogen, Nitrate+Nitrite as N	0.38	mg/L		0.05		E353.2	03/24/14 12:30 / cm		FIA203-HE_140324B : 45		R95737
Nitrogen, Total	0.86	mg/L		0.05		A4500 N-C	03/28/14 13:20 / cm	03/28/14 09:43	FIA203-HE_140328A : 22		24004
Phosphorus, Total as P	0.067	mg/L		0.005		E365.1	03/21/14 13:40 / cm	03/21/14 09:47	FIA202-HE_140321A : 47		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.015	mg/L		0.001		E200.8	03/24/14 15:32 / dck		ICPMS204-B_140324A : 58		R95757
Cadmium	0.00005	mg/L		0.00003		E200.8	03/24/14 15:32 / dck		ICPMS204-B_140324A : 58		R95757
Copper	0.008	mg/L		0.001		E200.8	03/24/14 15:32 / dck		ICPMS204-B_140324A : 58		R95757
Lead	0.0004	mg/L		0.0003		E200.8	03/24/14 15:32 / dck		ICPMS204-B_140324A : 58		R95757
Zinc	0.014	mg/L		0.008		E200.8	03/24/14 15:32 / dck		ICPMS204-B_140324A : 58		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.018	mg/L		0.001		E200.8	03/24/14 15:37 / dck	03/21/14 08:02	ICPMS204-B_140324A : 59		23919
Cadmium	0.00019	mg/L		0.00003		E200.8	03/24/14 15:37 / dck	03/21/14 08:02	ICPMS204-B_140324A : 59		23919
Calcium	68	mg/L		1		E200.7	03/24/14 15:13 / sld	03/21/14 08:02	ICP2-HE_140324B : 42		23919
Copper	0.028	mg/L		0.001		E200.8	03/24/14 15:37 / dck	03/21/14 08:02	ICPMS204-B_140324A : 59		23919
Lead	0.0054	mg/L		0.0003		E200.8	03/24/14 15:37 / dck	03/21/14 08:02	ICPMS204-B_140324A : 59		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-07D

**Lab ID:** H14030285-008

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 03/19/14 08:45

**Date Received:** 03/20/14

**Report Date:** 04/17/14

**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	15	mg/L		1		E200.7	03/24/14 15:13 / sld	03/21/14 08:02	ICP2-HE_140324B : 42		23919
Zinc	0.036	mg/L		0.008		E200.8	03/24/14 15:37 / dck	03/21/14 08:02	ICPMS204-B_140324A : 59		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A  
**Lab ID:** H14030285-009  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 10:00  
**Date Received:** 03/20/14  
**Report Date:** 04/17/14  
**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	03/21/14 08:49 / JRS		I24 (14410200)_140321A : 29		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	120	mg/L		4		A2320 B	03/24/14 15:54 / JRS		MAN-TECH_140324A : 37		R95766
Bicarbonate as HCO <sub>3</sub>	150	mg/L		4		A2320 B	03/24/14 15:54 / JRS		MAN-TECH_140324A : 37		R95766
Chloride	25	mg/L		1		E300.0	03/24/14 14:54 / JRS		IC102-H_140324A : 39		R95784
Sulfate	120	mg/L		1		E300.0	03/24/14 14:54 / JRS		IC102-H_140324A : 39		R95784
Hardness as CaCO <sub>3</sub>	203	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 10		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.4	mg/L		0.5		A5310 C	03/24/14 20:09 / eli-c		SUB-C184755 : 27		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	0.11	mg/L		0.05		E350.1	03/26/14 15:16 / cm		FIA203-HE_140326B : 33		R95816
Nitrogen, Nitrate+Nitrite as N	0.37	mg/L		0.05		E353.2	03/24/14 12:32 / cm		FIA203-HE_140324B : 46		R95737
Nitrogen, Total	0.92	mg/L		0.05		A4500 N-C	03/27/14 14:47 / cm	03/24/14 09:30	FIA203-HE_140327B : 41		23939
Phosphorus, Total as P	0.080	mg/L		0.005		E365.1	03/21/14 13:41 / cm	03/21/14 09:47	FIA202-HE_140321A : 48		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.013	mg/L		0.001		E200.8	03/24/14 15:41 / dck		ICPMS204-B_140324A : 60		R95757
Cadmium	0.00007	mg/L		0.00003		E200.8	03/24/14 15:41 / dck		ICPMS204-B_140324A : 60		R95757
Copper	0.010	mg/L		0.001		E200.8	03/24/14 15:41 / dck		ICPMS204-B_140324A : 60		R95757
Lead	0.0004	mg/L		0.0003		E200.8	03/24/14 15:41 / dck		ICPMS204-B_140324A : 60		R95757
Zinc	0.014	mg/L		0.008		E200.8	03/24/14 15:41 / dck		ICPMS204-B_140324A : 60		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.016	mg/L		0.001		E200.8	03/24/14 15:45 / dck	03/21/14 08:02	ICPMS204-B_140324A : 61		23919
Cadmium	0.00018	mg/L		0.00003		E200.8	03/24/14 15:45 / dck	03/21/14 08:02	ICPMS204-B_140324A : 61		23919
Calcium	60	mg/L		1		E200.7	03/24/14 15:24 / sld	03/21/14 08:02	ICP2-HE_140324B : 45		23919
Copper	0.023	mg/L		0.001		E200.8	03/24/14 15:45 / dck	03/21/14 08:02	ICPMS204-B_140324A : 61		23919
Lead	0.0051	mg/L		0.0003		E200.8	03/24/14 15:45 / dck	03/21/14 08:02	ICPMS204-B_140324A : 61		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-03A

**Lab ID:** H14030285-009

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 03/19/14 10:00

**Date Received:** 03/20/14

**Report Date:** 04/17/14

**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	13	mg/L		1		E200.7	03/24/14 15:24 / sld	03/21/14 08:02	ICP2-HE_140324B : 45		23919
Zinc	0.037	mg/L		0.008		E200.8	03/24/14 15:45 / dck	03/21/14 08:02	ICPMS204-B_140324A : 61		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14030285-010  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 11:00  
**Report Date:** 04/17/14  
**Date Received:** 03/20/14  
**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	03/21/14 08:50 / JRS		I24 (14410200)_140321A : 30		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	150	mg/L		4		A2320 B	03/24/14 16:01 / JRS		MAN-TECH_140324A : 38		R95766
Bicarbonate as HCO <sub>3</sub>	190	mg/L		4		A2320 B	03/24/14 16:01 / JRS		MAN-TECH_140324A : 38		R95766
Chloride	3	mg/L		1		E300.0	03/24/14 15:04 / JRS		IC102-H_140324A : 40		R95784
Sulfate	84	mg/L		1		E300.0	03/24/14 15:04 / JRS		IC102-H_140324A : 40		R95784
Hardness as CaCO <sub>3</sub>	217	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 11		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.4	mg/L		0.5		A5310 C	03/24/14 20:19 / eli-c		SUB-C184755 : 28		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:17 / cm		FIA203-HE_140326B : 34		R95816
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	03/24/14 12:33 / cm		FIA203-HE_140324B : 47		R95737
Nitrogen, Total	0.06	mg/L		0.05		A4500 N-C	03/27/14 14:51 / cm	03/24/14 09:30	FIA203-HE_140327B : 44		23939
Phosphorus, Total as P	0.008	mg/L		0.005		E365.1	03/21/14 13:42 / cm	03/21/14 09:47	FIA202-HE_140321A : 49		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.008	mg/L		0.001		E200.8	03/24/14 15:50 / dck		ICPMS204-B_140324A : 62		R95757
Cadmium	0.00004	mg/L		0.00003		E200.8	03/24/14 15:50 / dck		ICPMS204-B_140324A : 62		R95757
Copper	0.003	mg/L		0.001		E200.8	03/24/14 15:50 / dck		ICPMS204-B_140324A : 62		R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 15:50 / dck		ICPMS204-B_140324A : 62		R95757
Zinc	ND	mg/L		0.008		E200.8	03/24/14 15:50 / dck		ICPMS204-B_140324A : 62		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.008	mg/L		0.001		E200.8	03/24/14 16:07 / dck	03/21/14 08:02	ICPMS204-B_140324A : 66		23919
Cadmium	0.00008	mg/L		0.00003		E200.8	03/24/14 16:07 / dck	03/21/14 08:02	ICPMS204-B_140324A : 66		23919
Calcium	65	mg/L		1		E200.7	03/24/14 15:28 / sld	03/21/14 08:02	ICP2-HE_140324B : 46		23919
Copper	0.008	mg/L		0.001		E200.8	03/24/14 16:07 / dck	03/21/14 08:02	ICPMS204-B_140324A : 66		23919
Lead	0.0005	mg/L		0.0003		E200.8	03/24/14 16:07 / dck	03/21/14 08:02	ICPMS204-B_140324A : 66		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14030285-010  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 11:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	13	mg/L		1		E200.7	03/24/14 15:28 / sld	03/21/14 08:02	ICP2-HE_140324B : 46		23919
Zinc	0.009	mg/L		0.008		E200.8	03/24/14 16:07 / dck	03/21/14 08:02	ICPMS204-B_140324A : 66		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SS-25  
**Lab ID:** H14030285-011  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 12:00  
**Report Date:** 04/17/14  
**Date Received:** 03/20/14  
**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	7	mg/L		1		A2540 D	03/21/14 08:50 / JRS		I24 (14410200)_140321A : 31		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	03/24/14 16:08 / JRS		MAN-TECH_140324A : 39		R95766
Bicarbonate as HCO <sub>3</sub>	130	mg/L		4		A2320 B	03/24/14 16:08 / JRS		MAN-TECH_140324A : 39		R95766
Chloride	30	mg/L		1		E300.0	03/24/14 15:14 / JRS		IC102-H_140324A : 41		R95784
Sulfate	110	mg/L		1		E300.0	03/24/14 15:14 / JRS		IC102-H_140324A : 41		R95784
Hardness as CaCO <sub>3</sub>	193	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 12		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	5.0	mg/L		0.5		A5310 C	03/24/14 20:31 / eli-c		SUB-C184755 : 29		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	1.08	mg/L		0.05		E350.1	03/26/14 15:18 / cm		FIA203-HE_140326B : 35		R95816
Nitrogen, Nitrate+Nitrite as N	0.44	mg/L		0.05		E353.2	03/24/14 12:34 / cm		FIA203-HE_140324B : 48		R95737
Nitrogen, Total	1.08	mg/L		0.05		A4500 N-C	03/27/14 14:52 / cm	03/24/14 09:30	FIA203-HE_140327B : 45		23939
Phosphorus, Total as P	0.113	mg/L		0.005		E365.1	03/21/14 13:43 / cm	03/21/14 09:47	FIA202-HE_140321A : 50		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.014	mg/L		0.001		E200.8	03/24/14 16:11 / dck		ICPMS204-B_140324A : 67		R95757
Cadmium	0.00008	mg/L		0.00003		E200.8	03/24/14 16:11 / dck		ICPMS204-B_140324A : 67		R95757
Copper	0.011	mg/L		0.001		E200.8	03/24/14 16:11 / dck		ICPMS204-B_140324A : 67		R95757
Lead	0.0005	mg/L		0.0003		E200.8	03/24/14 16:11 / dck		ICPMS204-B_140324A : 67		R95757
Zinc	0.012	mg/L		0.008		E200.8	03/24/14 16:11 / dck		ICPMS204-B_140324A : 67		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.016	mg/L		0.001		E200.8	03/24/14 16:29 / dck	03/21/14 08:02	ICPMS204-B_140324A : 71		23919
Cadmium	0.00019	mg/L		0.00003		E200.8	03/24/14 16:29 / dck	03/21/14 08:02	ICPMS204-B_140324A : 71		23919
Calcium	57	mg/L		1		E200.7	03/24/14 15:32 / sld	03/21/14 08:02	ICP2-HE_140324B : 47		23919
Copper	0.022	mg/L		0.001		E200.8	03/24/14 16:29 / dck	03/21/14 08:02	ICPMS204-B_140324A : 71		23919
Lead	0.0056	mg/L		0.0003		E200.8	03/24/14 16:29 / dck	03/21/14 08:02	ICPMS204-B_140324A : 71		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** SS-25

**Lab ID:** H14030285-011

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 03/19/14 12:00

**Date Received:** 03/20/14

**Report Date:** 04/17/14

**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	13	mg/L		1		E200.7	03/24/14 15:32 / sld	03/21/14 08:02	ICP2-HE_140324B : 47		23919
Zinc	0.041	mg/L		0.008		E200.8	03/24/14 16:29 / dck	03/21/14 08:02	ICPMS204-B_140324A : 71		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14030285-012  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 13:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	4	mg/L		1		A2540 D	03/21/14 08:51 / JRS		I24 (14410200)_140321A : 32		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	03/24/14 16:32 / JRS		MAN-TECH_140324A : 45		R95766
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	03/24/14 16:32 / JRS		MAN-TECH_140324A : 45		R95766
Chloride	7	mg/L		1		E300.0	03/24/14 15:45 / JRS		IC102-H_140324A : 44		R95784
Sulfate	160	mg/L		1		E300.0	03/24/14 15:45 / JRS		IC102-H_140324A : 44		R95784
Hardness as CaCO <sub>3</sub>	239	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 13		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.4	mg/L		0.5		A5310 C	03/24/14 20:42 / eli-c		SUB-C184755 : 30		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/26/14 15:19 / cm		FIA203-HE_140326B : 36		R95816
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	03/24/14 12:35 / cm		FIA203-HE_140324B : 49		R95737
Nitrogen, Total	0.19	mg/L		0.05		A4500 N-C	03/27/14 14:53 / cm	03/24/14 09:30	FIA203-HE_140327B : 46		23939
Phosphorus, Total as P	0.027	mg/L		0.005		E365.1	03/21/14 13:44 / cm	03/21/14 09:47	FIA202-HE_140321A : 51		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.018	mg/L		0.001		E200.8	03/24/14 16:50 / dck		ICPMS204-B_140324A : 76		R95757
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 16:50 / dck		ICPMS204-B_140324A : 76		R95757
Copper	0.002	mg/L		0.001		E200.8	03/24/14 16:50 / dck		ICPMS204-B_140324A : 76		R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 16:50 / dck		ICPMS204-B_140324A : 76		R95757
Zinc	0.011	mg/L		0.008		E200.8	03/24/14 16:50 / dck		ICPMS204-B_140324A : 76		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	03/24/14 16:54 / dck	03/21/14 08:02	ICPMS204-B_140324A : 77		23919
Cadmium	0.00009	mg/L		0.00003		E200.8	03/24/14 16:54 / dck	03/21/14 08:02	ICPMS204-B_140324A : 77		23919
Calcium	69	mg/L		1		E200.7	03/24/14 15:47 / sld	03/21/14 08:02	ICP2-HE_140324B : 51		23919
Copper	0.006	mg/L		0.001		E200.8	03/24/14 16:54 / dck	03/21/14 08:02	ICPMS204-B_140324A : 77		23919
Lead	0.0015	mg/L		0.0003		E200.8	03/24/14 16:54 / dck	03/21/14 08:02	ICPMS204-B_140324A : 77		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14030285-012  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 13:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	16	mg/L		1		E200.7	03/24/14 15:47 / sld	03/21/14 08:02	ICP2-HE_140324B : 51		23919
Zinc	0.017	mg/L		0.008		E200.8	03/24/14 16:54 / dck	03/21/14 08:02	ICPMS204-B_140324A : 77		23919

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14030285-013  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 14:15  
**Report Date:** 04/17/14  
**Date Received:** 03/20/14  
**Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	03/21/14 08:51 / JRS		I24 (14410200)_140321A : 33		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	03/24/14 16:42 / JRS		MAN-TECH_140324A : 48		R95766
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	03/24/14 16:42 / JRS		MAN-TECH_140324A : 48		R95766
Chloride	7	mg/L		1		E300.0	03/24/14 16:15 / JRS		IC102-H_140324A : 47		R95784
Sulfate	ND	mg/L		1		E300.0	03/24/14 16:15 / JRS		IC102-H_140324A : 47		R95784
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	03/24/14 15:50 / abb		CALC_140402A : 256		R95976
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	ND	mg/L		0.5		A5310 C	03/24/14 20:52 / eli-c		SUB-C184755 : 31		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/31/14 09:25 / cm		FIA203-HE_140331A : 11		R95894
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	03/24/14 13:10 / cm		FIA203-HE_140324C : 14		R95743
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	03/27/14 14:54 / cm	03/24/14 09:30	FIA203-HE_140327B : 47		23939
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	03/21/14 13:45 / cm	03/21/14 09:47	FIA202-HE_140321A : 52		23924
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	03/24/14 16:59 / dck		ICPMS204-B_140324A : 78		R95757
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 16:59 / dck		ICPMS204-B_140324A : 78		R95757
Copper	ND	mg/L		0.001		E200.8	03/24/14 16:59 / dck		ICPMS204-B_140324A : 78		R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 16:59 / dck		ICPMS204-B_140324A : 78		R95757
Zinc	ND	mg/L		0.008		E200.8	03/24/14 16:59 / dck		ICPMS204-B_140324A : 78		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	03/24/14 17:16 / dck	03/21/14 08:02	ICPMS204-B_140324A : 82		23919
Cadmium	ND	mg/L		0.00003		E200.8	03/24/14 17:16 / dck	03/21/14 08:02	ICPMS204-B_140324A : 82		23919
Calcium	ND	mg/L		1		E200.7	03/24/14 15:50 / sld	03/21/14 08:02	ICP2-HE_140324B : 52		23919
Copper	ND	mg/L		0.001		E200.8	03/24/14 17:16 / dck	03/21/14 08:02	ICPMS204-B_140324A : 82		23919
Lead	ND	mg/L		0.0003		E200.8	03/24/14 17:16 / dck	03/21/14 08:02	ICPMS204-B_140324A : 82		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14030285-013  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 14:15 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	03/24/14 15:50 / sld	03/21/14 08:02	ICP2-HE_140324B : 52		23919
Zinc	ND	mg/L		0.008		E200.8	03/24/14 17:16 / dck	03/21/14 08:02	ICPMS204-B_140324A : 82		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14030285-014  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	6	mg/L		1		A2540 D	03/21/14 08:51 / JRS		I24 (14410200)_140321A : 34		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	96	mg/L		4		A2320 B	03/24/14 16:58 / JRS		MAN-TECH_140324A : 51		R95766
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	03/24/14 16:58 / JRS		MAN-TECH_140324A : 51		R95766
Chloride	2	mg/L		1		E300.0	03/24/14 16:25 / JRS		IC102-H_140324A : 48		R95784
Sulfate	38	mg/L		1		E300.0	03/24/14 16:25 / JRS		IC102-H_140324A : 48		R95784
Hardness as CaCO <sub>3</sub>	107	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 15		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.0	mg/L		0.5		A5310 C	03/24/14 21:02 / eli-c		SUB-C184755 : 32		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/31/14 09:29 / cm		FIA203-HE_140331A : 14		R95894
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.05		E353.2	03/24/14 13:14 / cm		FIA203-HE_140324C : 17		R95743
Nitrogen, Total	0.16	mg/L		0.05		A4500 N-C	03/27/14 14:55 / cm	03/24/14 09:30	FIA203-HE_140327B : 48		23939
Phosphorus, Total as P	0.031	mg/L		0.005		E365.1	03/21/14 13:46 / cm	03/21/14 09:47	FIA202-HE_140321A : 53		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.019	mg/L		0.001		E200.8	03/24/14 17:21 / dck		ICPMS204-B_140324A : 83		R95757
Cadmium	0.00005	mg/L		0.00003		E200.8	03/24/14 17:21 / dck		ICPMS204-B_140324A : 83		R95757
Copper	0.003	mg/L		0.001		E200.8	03/24/14 17:21 / dck		ICPMS204-B_140324A : 83		R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 17:21 / dck		ICPMS204-B_140324A : 83		R95757
Zinc	0.014	mg/L		0.008		E200.8	03/24/14 17:21 / dck		ICPMS204-B_140324A : 83		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.022	mg/L		0.001		E200.8	03/24/14 17:25 / dck	03/21/14 08:02	ICPMS204-B_140324A : 84		23919
Cadmium	0.00013	mg/L		0.00003		E200.8	03/24/14 17:25 / dck	03/21/14 08:02	ICPMS204-B_140324A : 84		23919
Calcium	30	mg/L		1		E200.7	03/24/14 15:54 / sld	03/21/14 08:02	ICP2-HE_140324B : 53		23919
Copper	0.008	mg/L		0.001		E200.8	03/24/14 17:25 / dck	03/21/14 08:02	ICPMS204-B_140324A : 84		23919
Lead	0.0020	mg/L		0.0003		E200.8	03/24/14 17:25 / dck	03/21/14 08:02	ICPMS204-B_140324A : 84		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14030285-014  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	03/24/14 15:54 / sld	03/21/14 08:02	ICP2-HE_140324B : 53		23919
Zinc	0.021	mg/L		0.008		E200.8	03/24/14 17:25 / dck	03/21/14 08:02	ICPMS204-B_140324A : 84		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14030285-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	03/21/14 08:52 / JRS		I24 (14410200)_140321A : 35		TSS140321A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	96	mg/L		4		A2320 B	03/24/14 17:05 / JRS		MAN-TECH_140324A : 52		R95766
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	03/24/14 17:05 / JRS		MAN-TECH_140324A : 52		R95766
Chloride	2	mg/L		1		E300.0	03/24/14 16:35 / JRS		IC102-H_140324A : 49		R95784
Sulfate	36	mg/L		1		E300.0	04/01/14 12:49 / abb		IC102-H_140401A : 25		R95949
Hardness as CaCO <sub>3</sub>	107	mg/L		1		A2340 B	03/25/14 16:10 / sld		WATERCALC_140325B : 16		R95778
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.0	mg/L		0.5		A5310 C	03/24/14 21:13 / eli-c		SUB-C184755 : 33		C_40890
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	03/31/14 09:30 / cm		FIA203-HE_140331A : 15		R95894
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.05		E353.2	03/24/14 13:15 / cm		FIA203-HE_140324C : 18		R95743
Nitrogen, Total	0.18	mg/L		0.05		A4500 N-C	03/27/14 14:57 / cm	03/24/14 09:30	FIA203-HE_140327B : 49		23939
Phosphorus, Total as P	0.030	mg/L		0.005		E365.1	03/21/14 13:47 / cm	03/21/14 09:47	FIA202-HE_140321A : 54		23924
<b>METALS, DISSOLVED</b>											
Arsenic	0.019	mg/L		0.001		E200.8	03/24/14 17:30 / dck		ICPMS204-B_140324A : 85		R95757
Cadmium	0.00005	mg/L		0.00003		E200.8	03/24/14 17:30 / dck		ICPMS204-B_140324A : 85		R95757
Copper	0.003	mg/L		0.001		E200.8	03/24/14 17:30 / dck		ICPMS204-B_140324A : 85		R95757
Lead	ND	mg/L		0.0003		E200.8	03/24/14 17:30 / dck		ICPMS204-B_140324A : 85		R95757
Zinc	0.016	mg/L		0.008		E200.8	03/24/14 17:30 / dck		ICPMS204-B_140324A : 85		R95757
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.022	mg/L		0.001		E200.8	03/24/14 17:34 / dck	03/21/14 08:02	ICPMS204-B_140324A : 86		23919
Cadmium	0.00013	mg/L		0.00003		E200.8	03/24/14 17:34 / dck	03/21/14 08:02	ICPMS204-B_140324A : 86		23919
Calcium	30	mg/L		1		E200.7	03/24/14 15:58 / sld	03/21/14 08:02	ICP2-HE_140324B : 54		23919
Copper	0.009	mg/L		0.001		E200.8	03/24/14 17:34 / dck	03/21/14 08:02	ICPMS204-B_140324A : 86		23919
Lead	0.0022	mg/L		0.0003		E200.8	03/24/14 17:34 / dck	03/21/14 08:02	ICPMS204-B_140324A : 86		23919

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14030285-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	03/24/14 15:58 / sld	03/21/14 08:02	ICP2-HE_140324B : 54		23919
Zinc	0.022	mg/L		0.008		E200.8	03/24/14 17:34 / dck	03/21/14 08:02	ICPMS204-B_140324A : 86		23919

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-84F  
**Lab ID:** H14030285-016  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 11:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Mercury	0.00016	mg/L		5E-06		E245.1	03/25/14 16:10 / sbk	03/24/14 08:39	HGCV202-H_140325A : 18		23935

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A Sediment Sieve <0.065mm  
**Lab ID:** H14030285-021  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 09:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	41.4	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 1		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	68.0	wt%		0.2		D2974	04/02/14 13:53 / raw		EXTRACT OV 2_140401B : 1		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	15	mg/kg	D	2		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 33		23973
Cadmium	1.3	mg/kg		0.2		SW6020	03/31/14 14:04 / dck	03/26/14 14:04	ICPMS204-B_140331B : 29		23973
Copper	159	mg/kg		5		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 33		23973
Lead	30	mg/kg		5		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 33		23973
Zinc	254	mg/kg		5		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 33		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	48	mg/kg-dry	D	6		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 139		23973
Cadmium	4.1	mg/kg-dry		0.2		SW6020	03/31/14 14:04 / dck	03/26/14 14:04	ICPMS204-B_140331B : 138		23973
Copper	497	mg/kg-dry		5		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 139		23973
Lead	94	mg/kg-dry		10		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 139		23973
Zinc	795	mg/kg-dry		5		SW6010B	03/31/14 16:54 / sld	03/26/14 14:04	ICP2-HE_140331B : 139		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** LBR-CFR Sediment Sieve <0.065mm  
**Lab ID:** H14030285-022  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	8.4	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 2		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	59.2	wt%		0.2		D2974	04/02/14 13:53 / raw		EXTRACT OV 2_140401B : 3		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	9	mg/kg		1		SW6020	03/31/14 14:26 / dck 03/26/14 14:04		ICPMS204-B_140331B : 34		23973
Cadmium	0.5	mg/kg		0.2		SW6020	03/31/14 14:26 / dck 03/26/14 14:04		ICPMS204-B_140331B : 34		23973
Copper	17	mg/kg		5		SW6010B	03/31/14 17:20 / sld 03/26/14 14:04		ICP2-HE_140331B : 40		23973
Lead	24	mg/kg		5		SW6010B	04/01/14 18:55 / sld 03/26/14 14:04		ICP2-HE_140401B : 29		23973
Zinc	55	mg/kg		5		SW6010B	03/31/14 17:20 / sld 03/26/14 14:04		ICP2-HE_140331B : 40		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	22	mg/kg-dry		1		SW6020	03/31/14 14:26 / dck 03/26/14 14:04		ICPMS204-B_140331B : 143		23973
Cadmium	1.1	mg/kg-dry		0.2		SW6020	03/31/14 14:26 / dck 03/26/14 14:04		ICPMS204-B_140331B : 143		23973
Copper	41	mg/kg-dry		5		SW6010B	03/31/14 17:20 / sld 03/26/14 14:04		ICP2-HE_140331B : 146		23973
Lead	59	mg/kg-dry		8		SW6010B	04/01/14 18:55 / sld 03/26/14 14:04		ICP2-HE_140401B : 110		23973
Zinc	134	mg/kg-dry		5		SW6010B	03/31/14 17:20 / sld 03/26/14 14:04		ICP2-HE_140331B : 146		23973

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H Sediment Sieve <0.065mm  
**Lab ID:** H14030285-023  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 16:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	33.4	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 3		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	66.1	wt%		0.2		D2974	04/02/14 13:53 / raw		EXTRACT OV 2_140401B : 4		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	55	mg/kg	D	2		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 41		23973
Cadmium	2.2	mg/kg		0.2		SW6020	03/31/14 14:31 / dck	03/26/14 14:04	ICPMS204-B_140331B : 35		23973
Copper	533	mg/kg		5		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 41		23973
Lead	71	mg/kg		5		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 41		23973
Zinc	363	mg/kg		5		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 41		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	163	mg/kg-dry	D	5		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 147		23973
Cadmium	6.3	mg/kg-dry		0.2		SW6020	03/31/14 14:31 / dck	03/26/14 14:04	ICPMS204-B_140331B : 144		23973
Copper	1570	mg/kg-dry		5		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 147		23973
Lead	209	mg/kg-dry		9		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 147		23973
Zinc	1070	mg/kg-dry		5		SW6010B	03/31/14 17:24 / sld	03/26/14 14:04	ICP2-HE_140331B : 147		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** CFR-11F Sediment Sieve <0.065mm  
**Lab ID:** H14030285-024  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/18/14 17:45 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	6.2	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 4		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	61.5	wt%		0.2		D2974	04/02/14 13:53 / raw		EXTRACT OV 2_140401B : 5		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	50	mg/kg	D	2		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 42		23973
Cadmium	2.4	mg/kg		0.2		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 42		23973
Copper	451	mg/kg		5		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 42		23973
Lead	66	mg/kg		5		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 42		23973
Zinc	411	mg/kg		5		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 42		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	131	mg/kg-dry	D	4		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 148		23973
Cadmium	6.2	mg/kg-dry		0.2		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 148		23973
Copper	1170	mg/kg-dry		5		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 148		23973
Lead	171	mg/kg-dry		8		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 148		23973
Zinc	1070	mg/kg-dry		5		SW6010B	03/31/14 17:27 / sld	03/26/14 14:04	ICP2-HE_140331B : 148		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** CFR-07D Sediment Sieve <0.065mm  
**Lab ID:** H14030285-025  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 08:45 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	15.7	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 5		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	55.0	wt%		0.2		D2974	04/02/14 13:53 / raw		EXTRACT OV 2_140401B : 6		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	60	mg/kg	D	2		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 43		23973
Cadmium	2.0	mg/kg		0.2		SW6020	03/31/14 14:53 / dck	03/26/14 14:04	ICPMS204-B_140331B : 40		23973
Copper	548	mg/kg		5		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 43		23973
Lead	80	mg/kg		5		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 43		23973
Zinc	411	mg/kg		5		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 43		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	133	mg/kg-dry	D	4		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 149		23973
Cadmium	4.4	mg/kg-dry		0.2		SW6020	03/31/14 14:53 / dck	03/26/14 14:04	ICPMS204-B_140331B : 149		23973
Copper	1220	mg/kg-dry		5		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 149		23973
Lead	178	mg/kg-dry		7		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 149		23973
Zinc	912	mg/kg-dry		5		SW6010B	03/31/14 17:31 / sld	03/26/14 14:04	ICP2-HE_140331B : 149		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** CFR-03A Sediment Sieve <0.065mm  
**Lab ID:** H14030285-026  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 10:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	31.8	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 6		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	81.1	wt%		0.2		D2974	04/02/14 13:53 / raw		EXTRACT OV 2_140401B : 7		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	42	mg/kg	D	2		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 44		23973
Cadmium	1.9	mg/kg		0.2		SW6020	03/31/14 14:57 / dck	03/26/14 14:04	ICPMS204-B_140331B : 41		23973
Copper	324	mg/kg		5		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 44		23973
Lead	49	mg/kg		5		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 44		23973
Zinc	293	mg/kg		5		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 44		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	222	mg/kg-dry	D	9		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 150		23973
Cadmium	9.9	mg/kg-dry		0.3		SW6020	03/31/14 14:57 / dck	03/26/14 14:04	ICPMS204-B_140331B : 150		23973
Copper	1720	mg/kg-dry		6		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 150		23973
Lead	259	mg/kg-dry		20		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 150		23973
Zinc	1550	mg/kg-dry		5		SW6010B	03/31/14 17:34 / sld	03/26/14 14:04	ICP2-HE_140331B : 150		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** WSC-SBC Sediment Sieve <0.065mm  
**Lab ID:** H14030285-027  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 11:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	2.9	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 7		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	61.4	wt%		0.2		D2974	04/02/14 13:53 / raw		EXTRACT OV 2_140401B : 9		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	33	mg/kg	D	2		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 45		23973
Cadmium	1.6	mg/kg		0.2		SW6020	03/31/14 15:01 / dck	03/26/14 14:04	ICPMS204-B_140331B : 42		23973
Copper	297	mg/kg		5		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 45		23973
Lead	43	mg/kg		5		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 45		23973
Zinc	132	mg/kg		5		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 45		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	86	mg/kg-dry	D	5		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 151		23973
Cadmium	4.2	mg/kg-dry		0.2		SW6020	03/31/14 15:01 / dck	03/26/14 14:04	ICPMS204-B_140331B : 151		23973
Copper	771	mg/kg-dry		5		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 151		23973
Lead	111	mg/kg-dry		8		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 151		23973
Zinc	343	mg/kg-dry		5		SW6010B	03/31/14 17:38 / sld	03/26/14 14:04	ICP2-HE_140331B : 151		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** SS-25 Sediment Sieve <0.065mm  
**Lab ID:** H14030285-028  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 12:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	2.3	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 8		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	73.6	wt%		0.2		D2974	04/02/14 13:53 / raw		:XTRACT OV 2_140401B : 10		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	47	mg/kg	D	2		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 46		23973
Cadmium	2.9	mg/kg		0.2		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 46		23973
Copper	131	mg/kg		5		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 46		23973
Lead	74	mg/kg		5		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 46		23973
Zinc	412	mg/kg		5		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 46		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	177	mg/kg-dry	D	7		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 152		23973
Cadmium	10.9	mg/kg-dry		0.2		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 152		23973
Copper	497	mg/kg-dry		5		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 152		23973
Lead	280	mg/kg-dry		10		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 152		23973
Zinc	1560	mg/kg-dry		5		SW6010B	03/31/14 17:42 / sld	03/26/14 14:04	ICP2-HE_140331B : 152		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** MWB-SBC Sediment Sieve <0.065mm  
**Lab ID:** H14030285-029  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 13:30 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	2.0	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 9		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	68.6	wt%		0.2		D2974	04/02/14 13:53 / raw		:XTRACT OV 2_140401B : 11		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	60	mg/kg	D	2		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 49		23973
Cadmium	2.7	mg/kg		0.2		SW6020	03/31/14 15:10 / dck	03/26/14 14:04	ICPMS204-B_140331B : 44		23973
Copper	106	mg/kg		5		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 49		23973
Lead	82	mg/kg		5		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 49		23973
Zinc	319	mg/kg		5		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 49		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	191	mg/kg-dry	D	5		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 155		23973
Cadmium	8.5	mg/kg-dry		0.2		SW6020	03/31/14 15:10 / dck	03/26/14 14:04	ICPMS204-B_140331B : 153		23973
Copper	337	mg/kg-dry		5		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 155		23973
Lead	262	mg/kg-dry		10		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 155		23973
Zinc	1020	mg/kg-dry		5		SW6010B	03/31/14 17:53 / sld	03/26/14 14:04	ICP2-HE_140331B : 155		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** MCWC-MWB Sediment Sieve <0.065mm  
**Lab ID:** H14030285-030  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	3.6	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 10		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	66.5	wt%		0.2		D2974	04/02/14 13:53 / raw		:XTRACT OV 2_140401B : 12		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	34	mg/kg	D	2		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 50		23973
Cadmium	2.2	mg/kg		0.2		SW6020	03/31/14 15:15 / dck	03/26/14 14:04	ICPMS204-B_140331B : 45		23973
Copper	108	mg/kg		5		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 50		23973
Lead	53	mg/kg		5		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 50		23973
Zinc	174	mg/kg		5		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 50		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	100	mg/kg-dry	D	5		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 156		23973
Cadmium	6.6	mg/kg-dry		0.2		SW6020	03/31/14 15:15 / dck	03/26/14 14:04	ICPMS204-B_140331B : 154		23973
Copper	323	mg/kg-dry		5		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 156		23973
Lead	157	mg/kg-dry		9		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 156		23973
Zinc	519	mg/kg-dry		5		SW6010B	03/31/14 17:56 / sld	03/26/14 14:04	ICP2-HE_140331B : 156		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate Sediment Sieve <0.065mm  
**Lab ID:** H14030285-031  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 15:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	3.8	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 11		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	66.0	wt%		0.2		D2974	04/02/14 13:53 / raw		:XTRACT OV 2_140401B : 13		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	35	mg/kg	D	2		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 51		23973
Cadmium	2.3	mg/kg		0.2		SW6020	03/31/14 15:19 / dck	03/26/14 14:04	ICPMS204-B_140331B : 46		23973
Copper	122	mg/kg		5		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 51		23973
Lead	53	mg/kg		5		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 51		23973
Zinc	194	mg/kg		5		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 51		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	102	mg/kg-dry	D	5		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 157		23973
Cadmium	6.9	mg/kg-dry		0.2		SW6020	03/31/14 15:19 / dck	03/26/14 14:04	ICPMS204-B_140331B : 155		23973
Copper	358	mg/kg-dry		5		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 157		23973
Lead	156	mg/kg-dry		9		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 157		23973
Zinc	570	mg/kg-dry		5		SW6010B	03/31/14 18:00 / sld	03/26/14 14:04	ICP2-HE_140331B : 157		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** LC-7.5 Sediment Sieve <0.065mm  
**Lab ID:** H14030285-032  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 16:00 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	11.6	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 12		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	59.5	wt%		0.2		D2974	04/02/14 13:53 / raw		:XTRACT OV 2_140401B : 14		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	25	mg/kg	D	2		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 52		23973
Cadmium	1.4	mg/kg		0.2		SW6020	03/31/14 15:23 / dck	03/26/14 14:04	ICPMS204-B_140331B : 47		23973
Copper	113	mg/kg		5		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 52		23973
Lead	68	mg/kg		5		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 52		23973
Zinc	188	mg/kg		5		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 52		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	62	mg/kg-dry	D	4		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 158		23973
Cadmium	3.4	mg/kg-dry		0.2		SW6020	03/31/14 15:23 / dck	03/26/14 14:04	ICPMS204-B_140331B : 156		23973
Copper	279	mg/kg-dry		5		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 158		23973
Lead	167	mg/kg-dry		8		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 158		23973
Zinc	464	mg/kg-dry		5		SW6010B	03/31/14 18:04 / sld	03/26/14 14:04	ICP2-HE_140331B : 158		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** RTC-1.5 Sediment Sieve <0.065mm  
**Lab ID:** H14030285-033  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 03/19/14 16:45 **Date Received:** 03/20/14  
**Report Date:** 04/17/14 **Revised Date:** 05/16/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	0.6	wt% retained		0.1		ASA15-2	03/24/14 12:14 / raw		MISC SOILS_140324E : 13		R95865
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	62.6	wt%		0.2		D2974	04/02/14 13:53 / raw		:XTRACT OV 2_140401B : 15		R95975
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	29	mg/kg	D	2		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 53		23973
Cadmium	0.8	mg/kg		0.2		SW6020	03/31/14 15:28 / dck	03/26/14 14:04	ICPMS204-B_140331B : 48		23973
Copper	34	mg/kg		5		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 53		23973
Lead	101	mg/kg		5		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 53		23973
Zinc	72	mg/kg		5		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 53		23973
<b>METAL, DRY WEIGHT</b>											
Arsenic	76	mg/kg-dry	D	5		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 159		23973
Cadmium	2.1	mg/kg-dry		0.2		SW6020	03/31/14 15:28 / dck	03/26/14 14:04	ICPMS204-B_140331B : 157		23973
Copper	92	mg/kg-dry		5		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 159		23973
Lead	271	mg/kg-dry		8		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 159		23973
Zinc	191	mg/kg-dry		5		SW6010B	03/31/14 18:07 / sld	03/26/14 14:04	ICP2-HE_140331B : 159		23973

**Report** RL - Analyte reporting limit.  
**Definitions:** D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 140325wa

Run ID :Run Order: <b>HGCV202-H_140325A: 1</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>03/25/14 14:57</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00019	0.00010	0.0002		<b>97</b>	90	110				

Associated samples: **H14030285-016B**

Run ID :Run Order: <b>HGCV202-H_140325A: 2</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>			
Analysis Date: <b>03/25/14 15:01</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002		<b>101</b>	95	105				

Associated samples: **H14030285-016B**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 140327wa

Run ID :Run Order: <b>HGCV202-H_140327A: 1</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>03/27/14 11:51</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00019	0.00010	0.0002		<b>96</b>	90	110				

Associated samples: **H14030285-002C; H14030285-003C; H14030285-004C**

Run ID :Run Order: <b>HGCV202-H_140327A: 2</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>			
Analysis Date: <b>03/27/14 11:55</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002		<b>102</b>	95	105				

Associated samples: **H14030285-002C; H14030285-003C; H14030285-004C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 23913

Run ID :Run Order: <b>FIA202-HE_140321A: 11</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-23913</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:03</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/20/2014</b>			Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.205	0.010	0.2		<b>102</b>	90	110				

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D**

Run ID :Run Order: <b>FIA202-HE_140321A: 12</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-23913</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:04</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/20/2014</b>			Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	ND	0.001									

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D**

Run ID :Run Order: <b>FIA202-HE_140321A: 20</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030259-001AMS</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:12</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>			Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.161	0.010	0.1	0.06394	<b>97</b>	90	110				

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D**

Run ID :Run Order: <b>FIA202-HE_140321A: 21</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030259-001AMSD</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:13</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>			Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.166	0.010	0.1	0.06394	<b>102</b>	90	110	0.1612	<b>2.6</b>	20	

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D**

Run ID :Run Order: <b>FIA202-HE_140321A: 28</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030278-002CMS</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:20</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>			Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.107	0.010	0.1	0.00523	<b>102</b>	90	110				

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 17-Apr-14

Prepared by Helena, MT Branch

**BatchID:** 23913

Run ID :Run Order: <b>FIA202-HE_140321A: 29</b>				SampType: <b>Sample Matrix Spike Duplicate</b>		Lab ID: <b>H14030278-002CMSD</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:21</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/21/2014</b>			Prep Method: <b>E365.1</b>					
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P		0.107	0.010	0.1	0.00523	<b>102</b>	90	110	0.1071	<b>0.3</b>	20	

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 17-Apr-14

Prepared by Helena, MT Branch

**BatchID:** 23919

Run ID :Run Order: ICP2-HE_140324B: 28				SampType: Method Blank				Lab ID: MB-23919				Method: E200.7			
Analysis Date: 03/24/14 14:21				Units: mg/L				Prep Info: Prep Date: 3/21/2014				Prep Method: E200.2			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium				0.04	0.03										
Magnesium				ND	0.01										

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 29				SampType: Laboratory Control Sample				Lab ID: LCS-23919				Method: E200.7			
Analysis Date: 03/24/14 14:25				Units: mg/L				Prep Info: Prep Date: 3/21/2014				Prep Method: E200.2			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium				24.2	1.0	25	0.04273	97	85	115					
Magnesium				23.8	1.0	25		95	85	115					

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 33				SampType: Serial Dilution				Lab ID: H14030285-001CDIL				Method: E200.7		
Analysis Date: 03/24/14 14:40				Units: mg/L				Prep Info: Prep Date: 3/21/2014				Prep Method:		
Analytes <u>2</u>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium				42.4	1.0				0	0	41.94	1.0	10	
Magnesium				10.9	1.0				0	0	10.58	3.1	10	

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 34				SampType: Sample Matrix Spike		Lab ID: H14030285-001CMS3				Method: E200.7		
Analysis Date: 03/24/14 14:43		Units: mg/L		Prep Info: Prep Date: 3/21/2014				Prep Method: E200.2				
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium		68.0	1.0	25	41.94	104	70	130				
Magnesium		35.6	1.0	25	10.58	100	70	130				

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 35				SampType: Sample Matrix Spike Duplicate			Lab ID: H14030285-001CMSD3			Method: E200.7		
Analysis Date: 03/24/14 14:47				Units: mg/L		Prep Info: Prep Date: 3/21/2014			Prep Method: E200.2			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium		65.4	1.0	25	41.94	94	70	130	68	4.0	20	

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 23919**

**Date:** 17-Apr-14

Run ID :Run Order: ICP2-HE_140324B: 35		SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-001CMSD3			Method: E200.7		
Analysis Date: 03/24/14 14:47		Units: mg/L		Prep Info:			Prep Date: 3/21/2014		Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	34.2	1.0	25	10.58	95	70	130	35.62	4.1	20	
Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C											

Run ID :Run Order: ICP2-HE_140324B: 48		SampType: Serial Dilution			Lab ID: H14030285-011CDIL				Method: E200.7		
Analysis Date: 03/24/14 15:36		Units: mg/L		Prep Info: Prep Date: 3/21/2014				Prep Method:			
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	57.3	1.0				0	0	56.54	1.4	10	
Magnesium	13.1	1.0				0	0	12.64	3.7	10	
Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C											

Run ID :Run Order: ICP2-HE_140324B: 49		SampType: Sample Matrix Spike				Lab ID: H14030285-011CMS3				Method: E200.7	
Analysis Date: 03/24/14 15:39		Units: mg/L				Prep Info: Prep Date: 3/21/2014		Prep Method: E200.2			
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	81.9	1.0	25	56.54	102	70	130				
Magnesium	37.4	1.0	25	12.64	99	70	130				
Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C											

Run ID :Run Order: ICP2-HE_140324B: 50		SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-011CMSD3			Method: E200.7		
Analysis Date: 03/24/14 15:43		Units: mg/L		Prep Info:			Prep Date: 3/21/2014		Prep Method: E200.2		
Analytes <span>2</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	81.4	1.0	25	56.54	99	70	130	81.93	0.6	20	
Magnesium	37.1	1.0	25	12.64	98	70	130	37.44	1.0	20	
Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 23919**

**Date:** 17-Apr-14

Run ID :Run Order: <b>ICPMS204-B_140324A: 34</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-23919</b>				Method: <b>E200.8</b>			
Analysis Date: <b>03/24/14 13:49</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	7E-05	6E-05										
Cadmium	ND	3E-05										
Copper	ND	0.0003										
Lead	ND	3E-05										
Zinc	0.005	0.001										

Associated samples: **H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C**

Run ID :Run Order: <b>ICPMS204-B_140324A: 35</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-23919</b>				Method: <b>E200.8</b>			
Analysis Date: <b>03/24/14 13:53</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.510	0.0010	0.5	0.0000727	<b>102</b>	85	115					
Cadmium	0.214	0.0010	0.25		<b>86</b>	85	115					
Copper	0.436	0.0050	0.5		<b>87</b>	85	115					
Lead	0.466	0.0010	0.5		<b>93</b>	85	115					
Zinc	0.508	0.010	0.5	0.005476	<b>100</b>	85	115					

Associated samples: **H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C**

Run ID :Run Order: <b>ICPMS204-B_140324A: 39</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-001CMS3</b>				Method: <b>E200.8</b>			
Analysis Date: <b>03/24/14 14:10</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.518	0.0010	0.5	0.01222	<b>101</b>	70	130					
Cadmium	0.209	0.0010	0.25	0.0002394	<b>83</b>	70	130					
Copper	0.460	0.0050	0.5	0.03807	<b>84</b>	70	130					
Lead	0.467	0.0010	0.5	0.007889	<b>92</b>	70	130					
Zinc	0.536	0.010	0.5	0.05988	<b>95</b>	70	130					

Associated samples: **H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: 23919**

**Date:** 17-Apr-14

Run ID :Run Order: ICPMS204-B_140324A: 40				SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-001CMSD3				Method: E200.8	
Analysis Date: 03/24/14 14:14				Units: mg/L				Prep Info: Prep Date: 3/21/2014				Prep Method: E200.2	
Analytes <span>5</span>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic		0.518	0.0010	0.5	0.01222	101	70	130	0.518	0.0	20		
Cadmium		0.213	0.0010	0.25	0.0002394	85	70	130	0.2086	2.1	20		
Copper		0.460	0.0050	0.5	0.03807	84	70	130	0.4597	0.1	20		
Lead		0.474	0.0010	0.5	0.007889	93	70	130	0.4666	1.6	20		
Zinc		0.537	0.010	0.5	0.05988	95	70	130	0.5355	0.3	20		

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C;  
H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICPMS204-B_140324A: 72		SampType: Sample Matrix Spike			Lab ID: H14030285-011CMS3				Method: E200.8		
Analysis Date: 03/24/14 16:33		Units: mg/L			Prep Info: Prep Date: 3/21/2014			Prep Method: E200.2			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.0010	0.5	0.0162	99	70	130				
Cadmium	0.209	0.0010	0.25	0.0001928	83	70	130				
Copper	0.437	0.0050	0.5	0.02232	83	70	130				
Lead	0.476	0.0010	0.5	0.005562	94	70	130				
Zinc	0.511	0.010	0.5	0.04113	94	70	130				

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C;  
H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICPMS204-B_140324A: 73			SampType: Sample Matrix Spike Duplicate			Lab ID: H14030285-011CMSD3			Method: E200.8				
Analysis Date: 03/24/14 16:37			Units: mg/L		Prep Info: Prep Date: 3/21/2014			Prep Method: E200.2					
Analytes <span>5</span>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic			0.515	0.0010	0.5	0.0162	100	70	130	0.5128	0.5	20	
Cadmium			0.210	0.0010	0.25	0.0001928	84	70	130	0.2089	0.6	20	
Copper			0.436	0.0050	0.5	0.02232	83	70	130	0.4372	0.3	20	
Lead			0.470	0.0010	0.5	0.005562	93	70	130	0.4759	1.2	20	
Zinc			0.513	0.010	0.5	0.04113	94	70	130	0.5107	0.5	20	

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C;  
H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 23924

Run ID :Run Order: <b>FIA202-HE_140321A: 41</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-23924</b>				Method: <b>E365.1</b>		
Analysis Date: <b>03/21/14 13:34</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>				Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.207	0.010	0.2		<b>104</b>	90	110				

Associated samples: **H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D; H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA202-HE_140321A: 42</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-23924</b>				Method: <b>E365.1</b>		
Analysis Date: <b>03/21/14 13:35</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>				Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	ND	0.001									

Associated samples: **H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D; H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA202-HE_140321A: 44</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-006DMS</b>				Method: <b>E365.1</b>		
Analysis Date: <b>03/21/14 13:37</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>				Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.179	0.010	0.1	0.09122	<b>88</b>	90	110				S

Associated samples: **H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D; H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA202-HE_140321A: 45</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030285-006DMSD</b>				Method: <b>E365.1</b>		
Analysis Date: <b>03/21/14 13:38</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/21/2014</b>				Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.183	0.010	0.1	0.09122	<b>91</b>	90	110	0.1788	<b>2.1</b>	20	

Associated samples: **H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D; H14030285-013D; H14030285-014D; H14030285-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 23935**

**Date:** 17-Apr-14

Run ID :Run Order: <b>HGCV202-H_140325A: 4</b>				SampType: <b>Method Blank</b>				Lab ID: <b>MB-23935</b>				Method: <b>E245.1</b>													
Analysis Date: <b>03/25/14 15:11</b>				Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>3/24/2014</b>				Prep Method: <b>E245.1</b>													
Analytes <b>1</b>				Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual	
Mercury				ND		3E-06																			

Associated samples: **H14030285-016B**

Run ID :Run Order: <b>HGCV202-H_140325A: 6</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS-23935</b>				Method: <b>E245.1</b>		
Analysis Date: <b>03/25/14 15:20</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/24/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	0.00014	0.00010	0.00015		97	90	110					

Associated samples: **H14030285-016B**

Run ID :Run Order: <b>HGCV202-H_140325A: 13</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14030278-004EMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>03/25/14 15:49</b>		Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/25/2014</b>		Prep Method: <b>E245.1</b>				
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00016	0.00010	0.00015		105	70	130				

Associated samples: **H14030285-016B**

Run ID :Run Order: <b>HGCV202-H_140325A: 14</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030278-004EMSD</b>				Method: <b>E245.1</b>	
Analysis Date: <b>03/25/14 15:53</b>				Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/25/2014</b>				Prep Method: <b>E245.1</b>			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00015	0.00010	0.00015		101	70	130	0.0001573	4.1	20		

Associated samples: **H14030285-016B**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 23939

Run ID :Run Order: <b>FIA203-HE_140327B: 26</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030278-004Ams</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:29</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/24/2014</b>				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.03	0.10	1		<b>103</b>	90	110					

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>FIA203-HE_140327B: 27</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030278-004Amsd</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:30</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/24/2014</b>				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.04	0.10	1		<b>104</b>	90	110	1.029	<b>0.9</b>	20		

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>FIA203-HE_140327B: 39</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-23939</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:45</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/24/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	18.6	0.30	18.7		<b>99</b>	90	110					

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>FIA203-HE_140327B: 40</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-23939</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:46</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/24/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	ND	0.02										

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>FIA203-HE_140327B: 42</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-009Ams</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:48</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/24/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.81	0.10	1	0.9219	<b>88</b>	90	110				S	

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 23939

Run ID :Run Order: <b>FIA203-HE_140327B: 43</b>				SampType: <b>Sample Matrix Spike Duplicate</b>		Lab ID: <b>H14030285-009Amsd</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>03/27/14 14:50</b>		Units: <b>mg/L</b>		Prep Info:		Prep Date: <b>3/24/2014</b>				Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total		1.83	0.10	1	0.9219	91	90	110	1.806	1.3	20	

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 23953

Run ID :Run Order: <b>HGCV202-H_140327A: 4</b>				SampType: <b>Method Blank</b>		Lab ID: <b>MB-23953</b>				Method: <b>E245.1</b>				
Analysis Date: <b>03/27/14 12:04</b>				Units: <b>mg/L</b>		<b>Prep Info:</b> Prep Date: <b>3/25/2014</b>				Prep Method: <b>E245.1</b>				
<b>Analytes 1</b>				<b>Result</b>	<b>PQL</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>
Mercury				ND	3E-06									

Associated samples: **H14030285-002C; H14030285-003C; H14030285-004C**

Run ID :Run Order: <b>HGCV202-H_140327A: 5</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS-23953</b>			Method: <b>E245.1</b>		
Analysis Date: <b>03/27/14 12:08</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/25/2014</b>			Prep Method: <b>E245.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00014	0.00010	0.00015		95	90	110				

Associated samples: **H14030285-002C; H14030285-003C; H14030285-004C**

Run ID :Run Order: <b>HGCV202-H_140327A: 8</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14030299-025BMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>03/27/14 12:20</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/25/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	0.00016	0.00010	0.00015	0.00000867	101	70	130					

Associated samples: **H14030285-002C; H14030285-003C; H14030285-004C**

Run ID :Run Order: <b>HGCV202-H_140327A: 9</b>				SampType: <b>Sample Matrix Spike Duplicate</b>		Lab ID: <b>H14030299-025BMSD</b>				Method: <b>E245.1</b>	
Analysis Date: <b>03/27/14 12:25</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/25/2014</b>				Prep Method: <b>E245.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00016	0.00010	0.00015	0.00000867	101	70	130	0.0001604	0.4	20	

Associated samples: **H14030285-002C; H14030285-003C; H14030285-004C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 23973

Run ID :Run Order: ICP2-HE_140331B: 30	SampType: Method Blank				Lab ID: MB-23973				Method: SW6010B			
Analysis Date: 03/31/14 16:43	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	ND	0.4										
Cadmium	ND	0.01										
Copper	ND	0.2										
Lead	ND	0.6										
Zinc	0.3	0.09										

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

Run ID :Run Order: ICP2-HE_140331B: 31	SampType: Laboratory Fortified Blank				Lab ID: LFB-23973				Method: SW6010B			
Analysis Date: 03/31/14 16:47	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	47.2	1.0	50		94	80	120					
Cadmium	22.6	1.0	25		90	80	120					
Copper	47.5	1.0	50		95	80	120					
Lead	45.7	1.0	50		91	80	120					
Zinc	47.3	1.0	50	0.2515	94	80	120					

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

Run ID :Run Order: ICP2-HE_140331B: 32	SampType: Laboratory Control Sample				Lab ID: LCS-23973				Method: SW6010B			
Analysis Date: 03/31/14 16:51	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	257	1.8	343		75	72.3	106.4					
Cadmium	107	1.0	137		78	73	105.1					
Copper	234	1.1	280		83	77.5	109.6					
Lead	155	3.2	187		83	75.9	108.6					
Zinc	172	1.0	213	0.2515	81	74.2	109.9					

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 23973**

**Date:** 17-Apr-14

Run ID :Run Order: ICP2-HE_140331B: 38	SampType: Sample Matrix Spike				Lab ID: H14030285-021AMS				Method: SW6010B		
Analysis Date: 03/31/14 17:13	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	61.1	1.8	49.5	15.22	93	75	125				
Cadmium	23.0	1.0	24.75	0.9675	89	75	125				
Copper	209	1.1	49.5	159.1	101	75	125				
Lead	75.5	3.2	49.5	30.22	91	75	125				
Zinc	291	1.0	49.5	254.4		75	125				A

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

Run ID :Run Order: ICP2-HE_140331B: 39	SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-021AMSD				Method: SW6010B		
Analysis Date: 03/31/14 17:16	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	63.6	1.8	50	15.22	97	75	125	61.11	4.0	20	
Cadmium	23.3	1.0	25	0.9675	89	75	125	23.03	1.3	20	
Copper	212	1.1	50	159.1	106	75	125	209.2	1.3	20	
Lead	77.1	3.2	50	30.22	94	75	125	75.45	2.2	20	
Zinc	294	1.0	50	254.4		75	125	291	1.0	20	A

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

Run ID :Run Order: ICP2-HE_140331B: 144	SampType: Sample Matrix Spike				Lab ID: H14030285-021BMS				Method: SW6010B		
Analysis Date: 03/31/14 17:13	Units: mg/kg-dry				Prep Info: Prep Date: 3/26/2014				Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	191	5.6	154.7	47.56	93	75	125				
Cadmium	72.0	1.0	77.36	3.024	89	75	125				
Copper	654	3.4	154.7	497.4	101	75	125				
Lead	236	9.8	154.7	94.44	91	75	125				
Zinc	909	1.4	154.7	795		75	125				A

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 17-Apr-14

Prepared by Helena, MT Branch

**BatchID:** 23973

Run ID :Run Order: ICP2-HE_140331B: 145	SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-021BMSD				Method: SW6010B		
Analysis Date: 03/31/14 17:16	Units: mg/kg-dry				Prep Info: Prep Date: 3/26/2014				Prep Method:		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	199	5.6	156.3	47.56	97	75	125	191	4.0	20	
Cadmium	72.9	1.0	78.13	3.024	89	75	125	71.98	1.3	20	
Copper	662	3.4	156.3	497.4	106	75	125	653.8	1.3	20	
Lead	241	9.9	156.3	94.44	94	75	125	235.8	2.2	20	
Zinc	918	1.5	156.3	795		75	125	909.4	1.0	20	A

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

Run ID :Run Order: ICP2-HE_140401B: 28	SampType: Method Blank				Lab ID: MB-23973				Method: SW6010B		
Analysis Date: 04/01/14 18:51	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.4									
Cadmium	0.01	0.01									
Copper	ND	0.2									
Lead	ND	0.6									
Zinc	0.3	0.09									

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 23973**

**Date:** 17-Apr-14

Run ID :Run Order: ICPMS204-B_140331B: 25				SampType: Method Blank				Lab ID: MB-23973				Method: SW6020			
Analysis Date: 03/31/14 13:47				Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Arsenic		ND	0.1												
Cadmium		0.08	0.06												

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

Run ID :Run Order: ICPMS204-B_140331B: 26				SampType: Laboratory Control Sample				Lab ID: LCS-23973				Method: SW6020			
Analysis Date: 03/31/14 13:51				Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic				318	1.0	343		93	72.3	106.4					
Cadmium				126	1.0	137	0.0758	92	73	105.1					

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

Run ID :Run Order: ICPMS204-B_140331B: 27				SampType: Laboratory Fortified Blank				Lab ID: LFB-23973				Method: SW6020			
Analysis Date: 03/31/14 13:55				Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Arsenic		53.8	1.0	50		108	80	120							
Cadmium		27.2	1.0	25	0.0758	109	80	120							

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

Run ID :Run Order: ICPMS204-B_140331B: 31		SampType: Sample Matrix Spike			Lab ID: H14030285-021AMS				Method: SW6020		
Analysis Date: 03/31/14 14:13		Units: mg/kg			Prep Info:		Prep Date: 3/26/2014		Prep Method: SW3050 B		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	71.2	1.0	49.5	17.78	108	75	125				
Cadmium	26.9	1.0	24.75	1.319	104	75	125				

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 23973**

**Date:** 17-Apr-14

Run ID :Run Order: ICPMS204-B_140331B: 32	SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-021AMSD				Method: SW6020		
Analysis Date: 03/31/14 14:17	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	73.3	1.0	50	17.78	111	75	125	71.25	2.9	20	
Cadmium	27.1	1.0	25	1.319	103	75	125	26.94	0.6	20	

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

Run ID :Run Order: ICPMS204-B_140331B: 136	SampType: Laboratory Fortified Blank				Lab ID: LFB-23973				Method: SW6020		
Analysis Date: 03/31/14 13:55	Units: mg/kg				Prep Info: Prep Date: 3/26/2014				Prep Method: SW3050 B		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	53.8	1.0	50		108	80	120				
Cadmium	27.2	1.0	25	0.0758	109	80	120				

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

Run ID :Run Order: ICPMS204-B_140331B: 140	SampType: Sample Matrix Spike				Lab ID: H14030285-021BMS				Method: SW6020		
Analysis Date: 03/31/14 14:13	Units: mg/kg-dry				Prep Info: Prep Date: 3/26/2014				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	186	1.0	128.9	55.57	101	75	125				
Cadmium	70.2	1.0	64.46	4.122	102	75	125				

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

Run ID :Run Order: ICPMS204-B_140331B: 141	SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-021BMSD				Method: SW6020		
Analysis Date: 03/31/14 14:17	Units: mg/kg-dry				Prep Info: Prep Date: 3/26/2014				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	191	1.0	130.2	55.57	104	75	125	185.6	2.9	20	
Cadmium	70.6	1.0	65.11	4.122	102	75	125	70.16	0.6	20	

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** 24004

Run ID :Run Order: <b>FIA203-HE_140328A: 11</b>				SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24004</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/28/14 13:07</b>				Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>3/28/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total				17.0	0.30	18.7		91	90	110					

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A**

Run ID :Run Order: <b>FIA203-HE_140328A: 12</b>				SampType: <b>Method Blank</b>		Lab ID: <b>MB-24004</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>03/28/14 13:09</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/28/2014</b>				Prep Method: <b>A4500 N-C</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	ND	0.02										

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A**

Run ID :Run Order: <b>FIA203-HE_140328A: 14</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14030285-001AMS</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>03/28/14 13:11</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>3/28/2014</b>				Prep Method: <b>A4500 N-C</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.65	0.10	1	0.6969	96	90	110					

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A**

Run ID :Run Order: <b>FIA203-HE_140328A: 15</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030285-001AMSD</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>03/28/14 13:12</b>				Units: <b>mg/L</b>				Prep Info: Prep Date: <b>3/28/2014</b>				Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total				1.77	0.10	1	0.6969	107	90	110	1.653	6.7	20	

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: C\_40890**

**Date:** 17-Apr-14

Run ID :Run Order: SUB-C184755: 14		SampType: Method Blank			Lab ID: MB-40890				Method: A5310 C		
Analysis Date: 03/24/14 16:04		Units: mg/L			Prep Info: Prep Date: 3/19/2014				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	0.1	0.07									
Associated samples: H14030285-001E; H14030285-002E; H14030285-003E; H14030285-004E; H14030285-005E; H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

Run ID :Run Order: SUB-C184755: 15		SampType: Initial Calibration Verification Standard				Lab ID: ICV-40890			Method: A5310 C		
Analysis Date: 03/24/14 16:24		Units: mg/L		Prep Info:			Prep Date: 3/19/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.2	0.50	10		102	90	110				
Associated samples: H14030285-001E; H14030285-002E; H14030285-003E; H14030285-004E; H14030285-005E; H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

Run ID :Run Order: SUB-C184755: 21		SampType: Sample Matrix Spike				Lab ID: C14030518-002CMS				Method: A5310 C	
Analysis Date: 03/24/14 18:25		Units: mg/L		Prep Info: Prep Date: 3/19/2014				Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	7.17	0.50	5	2.039	103	85	115				
Associated samples: H14030285-001E; H14030285-002E; H14030285-003E; H14030285-004E; H14030285-005E; H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

Run ID :Run Order: SUB-C184755: 22		SampType: Sample Matrix Spike Duplicate				Lab ID: C14030518-002CMSD			Method: A5310 C		
Analysis Date: 03/24/14 18:36		Units: mg/L		Prep Info:			Prep Date: 3/19/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	7.16	0.50	5	2.039	102	85	115	7.172	0.2	10	
Associated samples: H14030285-001E; H14030285-002E; H14030285-003E; H14030285-004E; H14030285-005E; H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

Run ID :Run Order: SUB-C184755: 23		SampType: Continuing Calibration Verification Standar				Lab ID: CCV-40890			Method: A5310 C		
Analysis Date: 03/24/14 18:48		Units: mg/L		Prep Info:			Prep Date: 3/19/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.1	0.50	10		101	90	110				
Associated samples: H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** C\_40890

Run ID :Run Order: SUB-C184755: 34	SampType: Sample Matrix Spike				Lab ID: H14030285-006E				Method: A5310 C		
Analysis Date: 03/24/14 21:25	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
Organic Carbon, Dissolved (DOC)	8.10	0.50	5	3.068	101	85	115				
Associated samples: H14030285-001E; H14030285-002E; H14030285-003E; H14030285-004E; H14030285-005E; H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

Run ID :Run Order: SUB-C184755: 35	SampType: Sample Matrix Spike Duplicate				Lab ID: H14030285-006E				Method: A5310 C		
Analysis Date: 03/24/14 21:38	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
Organic Carbon, Dissolved (DOC)	8.14	0.50	5	3.068	101	85	115	8.098	0.5	10	
Associated samples: H14030285-001E; H14030285-002E; H14030285-003E; H14030285-004E; H14030285-005E; H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

Run ID :Run Order: SUB-C184755: 36	SampType: Laboratory Control Sample				Lab ID: LCS-40890				Method: A5310 C		
Analysis Date: 03/24/14 21:50	Units: mg/L				Prep Info: Prep Date: 3/19/2014				Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.1	0.50	10	0.1397	100	90	110				
Associated samples: H14030285-001E; H14030285-002E; H14030285-003E; H14030285-004E; H14030285-005E; H14030285-006E; H14030285-007E; H14030285-008E; H14030285-009E; H14030285-010E; H14030285-011E; H14030285-012E; H14030285-013E; H14030285-014E; H14030285-015E											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95705

Run ID :Run Order: <b>FIA202-HE_140321A: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:00</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.254	0.010	0.25		<b>101</b>	90	110				

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D; H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA202-HE_140321A: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:02</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.000390	0.010				0	0				

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D; H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA202-HE_140321A: 26</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:18</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0957	0.010	0.1		<b>96</b>	90	110				

Associated samples: **H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D**

Run ID :Run Order: <b>FIA202-HE_140321A: 39</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>03/21/14 13:32</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0958	0.010	0.1		<b>96</b>	90	110				

Associated samples: **H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D; H14030285-013D; H14030285-014D; H14030285-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R95737**

**Date:** 17-Apr-14

Run ID :Run Order: <b>FIA203-HE_140324B: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 11:46</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.977	0.010	1		<b>98</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 9</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 11:47</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.952	0.011	1		<b>95</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 11</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 11:50</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	-0.0231	0.010				0	0				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 13</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MBLK</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 11:52</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	ND	0.001									
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 27</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 12:09</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.503	0.010	0.5		<b>101</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D</b>											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R95737**

**Date:** 17-Apr-14

Run ID :Run Order: <b>FIA203-HE_140324B: 29</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030278-003CMS</b>				Method: <b>E353.2</b>		
Analysis Date: <b>03/24/14 12:11</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.944	0.011	1	0.03533	<b>91</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 30</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030278-003CMSD</b>				Method: <b>E353.2</b>		
Analysis Date: <b>03/24/14 12:13</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.966	0.011	1	0.03533	<b>93</b>	90	110	0.9442	<b>2.2</b>	20	
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 37</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>				Method: <b>E353.2</b>		
Analysis Date: <b>03/24/14 12:21</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.498	0.010	0.5		<b>100</b>	90	110				
Associated samples: <b>H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 39</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-003DMS</b>				Method: <b>E353.2</b>		
Analysis Date: <b>03/24/14 12:23</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	1.09	0.011	1	0.1856	<b>90</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140324B: 40</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030285-003DMSD</b>				Method: <b>E353.2</b>		
Analysis Date: <b>03/24/14 12:25</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	1.11	0.011	1	0.1856	<b>92</b>	90	110	1.09	<b>1.8</b>	20	
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95743

Run ID :Run Order: <b>FIA203-HE_140324C: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 13:03</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.926	0.010	1		<b>93</b>	90	110				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140324C: 9</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 13:04</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.911	0.011	1		<b>91</b>	90	110				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140324C: 10</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 13:06</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.511	0.010	0.5		<b>102</b>	90	110				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140324C: 11</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 13:07</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	-0.0145	0.010				0	0				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140324C: 13</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MBLK</b>			Method: <b>E353.2</b>			
Analysis Date: <b>03/24/14 13:09</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	ND	0.001									

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95743

Run ID :Run Order: <b>FIA203-HE_140324C: 15</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-013DMS</b>				Method: <b>E353.2</b>		
Analysis Date: <b>03/24/14 13:12</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.870	0.011	1		<b>87</b>	90	110				S

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140324C: 16</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030285-013DMSD</b>				Method: <b>E353.2</b>		
Analysis Date: <b>03/24/14 13:13</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.886	0.011	1		<b>89</b>	90	110	0.8703	<b>1.8</b>	20	S

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount  
Page 74 of 110



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95753

Run ID :Run Order: ICP2-HE_140324B: 6			SampType: Initial Calibration Verification Standard				Lab ID: ICV		Method: E200.7		
Analysis Date: 03/24/14 12:59		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
Calcium	41.4	1.0	40		103	95	105				
Magnesium	41.2	1.0	40		103	95	105				

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 7			SampType: Continuing Calibration Verification Standar				Lab ID: CCV-1		Method: E200.7		
Analysis Date: 03/24/14 13:03		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.2	1.0	25		101	95	105				
Magnesium	24.9	1.0	25		100	95	105				

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 10			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.7		
Analysis Date: 03/24/14 13:14			Units: mg/L		Prep Info: Prep Date:			Prep Method:			
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	467	1.0	500		93	80	120				
Magnesium	497	1.0	500		99	80	120				

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 11		SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7		
Analysis Date: 03/24/14 13:18		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	472	1.0	500		94	80	120				
Magnesium	499	1.0	500		100	80	120				

Associated samples: H14030285-001C; H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C; H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

Run ID :Run Order: ICP2-HE_140324B: 19				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E200.7		
Analysis Date: 03/24/14 13:48		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
Calcium		25.4	1.0	25		102	90	110				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95753

Run ID :Run Order: ICP2-HE_140324B: 19	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E200.7			
Analysis Date: 03/24/14 13:48	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
Magnesium	24.0	1.0	25		96	90	110				

Associated samples: H14030285-001C

Run ID :Run Order: ICP2-HE_140324B: 31	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E200.7			
Analysis Date: 03/24/14 14:32	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.1	1.0	25		100	90	110				
Magnesium	24.4	1.0	25		98	90	110				

Associated samples: H14030285-002C; H14030285-003C; H14030285-004C; H14030285-005C; H14030285-006C; H14030285-007C; H14030285-008C

Run ID :Run Order: ICP2-HE_140324B: 43	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E200.7			
Analysis Date: 03/24/14 15:17	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.8	1.0	25		95	90	110				
Magnesium	23.2	1.0	25		93	90	110				

Associated samples: H14030285-009C; H14030285-010C; H14030285-011C; H14030285-012C; H14030285-013C; H14030285-014C; H14030285-015C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 17-Apr-14

Prepared by Helena, MT Branch

**BatchID:** R95757

Run ID :Run Order: ICPMS204-B_140324A: 10			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 03/24/14 12:02		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
Arsenic	0.0609	0.0050	0.06		102	90	110				
Cadmium	0.0318	0.0010	0.03		106	90	110				
Copper	0.0638	0.010	0.06		106	90	110				
Lead	0.0607	0.010	0.06		101	90	110				
Zinc	0.0626	0.010	0.06		104	90	110				

Associated samples: H14030285-001B; H14030285-001C; H14030285-002B; H14030285-002C; H14030285-003B; H14030285-003C; H14030285-004B; H14030285-004C; H14030285-005B; H14030285-005C; H14030285-006B; H14030285-006C; H14030285-007B; H14030285-007C; H14030285-008B; H14030285-008C; H14030285-009B; H14030285-009C; H14030285-010B; H14030285-010C; H14030285-011B; H14030285-011C; H14030285-012B; H14030285-012C; H14030285-013B; H14030285-013C; H14030285-014B; H14030285-014C; H14030285-015B; H14030285-015C

Run ID :Run Order: ICPMS204-B_140324A: 11			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 03/24/14 12:07		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000194	0.0050									
Cadmium	0.000688	0.0010									
Copper	0.000429	0.010									
Lead	0.000289	0.010									
Zinc	0.00163	0.010									

Associated samples: H14030285-001B; H14030285-001C; H14030285-002B; H14030285-002C; H14030285-003B; H14030285-003C; H14030285-004B; H14030285-004C; H14030285-005B; H14030285-005C; H14030285-006B; H14030285-006C; H14030285-007B; H14030285-007C; H14030285-008B; H14030285-008C; H14030285-009B; H14030285-009C; H14030285-010B; H14030285-010C; H14030285-011B; H14030285-011C; H14030285-012B; H14030285-012C; H14030285-013B; H14030285-013C; H14030285-014B; H14030285-014C; H14030285-015B; H14030285-015C

Run ID :Run Order: ICPMS204-B_140324A: 12			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 03/24/14 12:11		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0105	0.0050	0.01		105	70	130				
Cadmium	0.0100	0.0010	0.01		100	70	130				
Copper	0.0208	0.010	0.02		104	70	130				
Lead	0.000304	0.010				0	0				
Zinc	0.0118	0.010	0.01		118	70	130				

Associated samples: H14030285-001B; H14030285-001C; H14030285-002B; H14030285-002C; H14030285-003B; H14030285-003C; H14030285-004B; H14030285-004C; H14030285-005B; H14030285-005C; H14030285-006B; H14030285-006C; H14030285-007B; H14030285-007C; H14030285-008B; H14030285-008C; H14030285-009B; H14030285-009C; H14030285-010B; H14030285-010C; H14030285-011B; H14030285-011C; H14030285-012B; H14030285-012C; H14030285-013B; H14030285-013C; H14030285-014B; H14030285-014C; H14030285-015B; H14030285-015C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95757

Run ID :Run Order: ICPMS204-B_140324A: 17			SampType: Method Blank			Lab ID: ICB			Method: E200.8				
Analysis Date: 03/24/14 12:34			Units: mg/L			Prep Info: Prep Date:			Prep Method:				
Analytes 5			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic			5E-05	3E-05									
Cadmium			ND	6E-06									
Copper			ND	3E-05									
Lead			1E-05	8E-06									
Zinc			ND	0.0003									

Associated samples: H14030285-001B; H14030285-002B; H14030285-003B; H14030285-004B; H14030285-005B; H14030285-006B; H14030285-007B; H14030285-008B;  
H14030285-009B; H14030285-010B; H14030285-011B; H14030285-012B; H14030285-013B; H14030285-014B; H14030285-015B

Run ID :Run Order: ICPMS204-B_140324A: 18				SampType: Laboratory Fortified Blank		Lab ID: LFB			Method: E200.8		
Analysis Date: 03/24/14 12:38		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0508	0.0050	0.05	0.0000454	101	85	115				
Cadmium	0.0518	0.0010	0.05		104	85	115				
Copper	0.0531	0.010	0.05		106	85	115				
Lead	0.0537	0.010	0.05	0.0000119	107	85	115				
Zinc	0.0543	0.010	0.05		109	85	115				

Associated samples: H14030285-001B; H14030285-002B; H14030285-003B; H14030285-004B; H14030285-005B; H14030285-006B; H14030285-007B; H14030285-008B;  
H14030285-009B; H14030285-010B; H14030285-011B; H14030285-012B; H14030285-013B; H14030285-014B; H14030285-015B

Run ID :Run Order: ICPMS204-B_140324A: 29			SampType: Sample Matrix Spike			Lab ID: H14030285-001BMS			Method: E200.8		
Analysis Date: 03/24/14 13:27			Units: mg/L		Prep Info: Prep Date:			Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0616	0.0010	0.05	0.007396	108	70	130				
Cadmium	0.0497	0.0010	0.05	0.000028	99	70	130				
Copper	0.0586	0.0050	0.05	0.006834	104	70	130				
Lead	0.0542	0.0010	0.05	0.000222	108	70	130				
Zinc	0.0682	0.010	0.05	0.01476	107	70	130				

Associated samples: H14030285-001B; H14030285-002B; H14030285-003B; H14030285-004B; H14030285-005B; H14030285-006B; H14030285-007B; H14030285-008B;  
H14030285-009B; H14030285-010B; H14030285-011B; H14030285-012B; H14030285-013B; H14030285-014B; H14030285-015B

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95757

Run ID :Run Order: ICPMS204-B_140324A: 30			SampType: Sample Matrix Spike Duplicate			Lab ID: H14030285-001BMSD			Method: E200.8		
Analysis Date: 03/24/14 13:31			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
Arsenic	0.0609	0.0010	0.05	0.007396	107	70	130	0.06156	1.1	20	
Cadmium	0.0493	0.0010	0.05	0.000028	99	70	130	0.04974	0.9	20	
Copper	0.0585	0.0050	0.05	0.006834	103	70	130	0.05859	0.2	20	
Lead	0.0528	0.0010	0.05	0.000222	105	70	130	0.05422	2.7	20	
Zinc	0.0673	0.010	0.05	0.01476	105	70	130	0.06816	1.3	20	

Associated samples: H14030285-001B; H14030285-002B; H14030285-003B; H14030285-004B; H14030285-005B; H14030285-006B; H14030285-007B; H14030285-008B;  
H14030285-009B; H14030285-010B; H14030285-011B; H14030285-012B; H14030285-013B; H14030285-014B; H14030285-015B

Run ID :Run Order: ICPMS204-B_140324A: 68			SampType: Sample Matrix Spike			Lab ID: H14030285-011BMS			Method: E200.8		
Analysis Date: 03/24/14 16:16			Units: mg/L		Prep Info: Prep Date:			Prep Method:			
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0670	0.0010	0.05	0.01361	107	70	130				
Cadmium	0.0495	0.0010	0.05	0.0000811	99	70	130				
Copper	0.0620	0.0050	0.05	0.01128	101	70	130				
Lead	0.0557	0.0010	0.05	0.0005442	110	70	130				
Zinc	0.0628	0.010	0.05	0.01239	101	70	130				

Associated samples: H14030285-001B; H14030285-002B; H14030285-003B; H14030285-004B; H14030285-005B; H14030285-006B; H14030285-007B; H14030285-008B;  
H14030285-009B; H14030285-010B; H14030285-011B; H14030285-012B; H14030285-013B; H14030285-014B; H14030285-015B

Run ID :Run Order: ICPMS204-B_140324A: 69			SampType: Sample Matrix Spike Duplicate			Lab ID: H14030285-011BMSD			Method: E200.8		
Analysis Date: 03/24/14 16:20		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0662	0.0010	0.05	0.01361	105	70	130	0.06696	1.1	20	
Cadmium	0.0486	0.0010	0.05	0.0000811	97	70	130	0.0495	1.8	20	
Copper	0.0614	0.0050	0.05	0.01128	100	70	130	0.06195	0.8	20	
Lead	0.0539	0.0010	0.05	0.0005442	107	70	130	0.0557	3.2	20	
Zinc	0.0623	0.010	0.05	0.01239	100	70	130	0.06283	0.9	20	

Associated samples: H14030285-001B; H14030285-002B; H14030285-003B; H14030285-004B; H14030285-005B; H14030285-006B; H14030285-007B; H14030285-008B;  
H14030285-009B; H14030285-010B; H14030285-011B; H14030285-012B; H14030285-013B; H14030285-014B; H14030285-015B





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 17-Apr-14

Prepared by Helena, MT Branch

**BatchID:** R95757

Run ID :Run Order: ICPMS204-B_140324A: 100			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 03/24/14 20:10		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0609	0.0050	0.06		101	90	110				
Cadmium	0.0321	0.0010	0.03		107	90	110				
Copper	0.0624	0.010	0.06		104	90	110				
Lead	0.0631	0.010	0.06		105	90	110				
Zinc	0.0634	0.010	0.06		106	90	110				

Associated samples: H14030285-001B; H14030285-001C; H14030285-002B; H14030285-002C; H14030285-003B; H14030285-003C; H14030285-004B; H14030285-004C;  
H14030285-005B; H14030285-005C; H14030285-006B; H14030285-006C; H14030285-007B; H14030285-007C; H14030285-008B; H14030285-008C;  
H14030285-009B; H14030285-009C; H14030285-010B; H14030285-010C; H14030285-011B; H14030285-011C; H14030285-012B; H14030285-012C;  
H14030285-013B; H14030285-013C; H14030285-014B; H14030285-014C; H14030285-015B; H14030285-015C

Run ID :Run Order: ICPMS204-B_140324A: 101			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 03/24/14 20:15			Units: mg/L			Prep Info: Prep Date:			Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000229	0.0050									
Cadmium	0.000743	0.0010									
Copper	0.000432	0.010									
Lead	0.000271	0.010									
Zinc	0.00158	0.010									

Associated samples: H14030285-001B; H14030285-001C; H14030285-002B; H14030285-002C; H14030285-003B; H14030285-003C; H14030285-004B; H14030285-004C;  
H14030285-005B; H14030285-005C; H14030285-006B; H14030285-006C; H14030285-007B; H14030285-007C; H14030285-008B; H14030285-008C;  
H14030285-009B; H14030285-009C; H14030285-010B; H14030285-010C; H14030285-011B; H14030285-011C; H14030285-012B; H14030285-012C;  
H14030285-013B; H14030285-013C; H14030285-014B; H14030285-014C; H14030285-015B; H14030285-015C

Run ID :Run Order: ICPMS204-B_140324A: 102			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 03/24/14 20:19			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
Arsenic	0.0108	0.0050	0.01		108	70	130				
Cadmium	0.0106	0.0010	0.01		106	70	130				
Copper	0.0209	0.010	0.02		104	70	130				
Lead	0.000274	0.010				0	0				
Zinc	0.0116	0.010	0.01		116	70	130				

Associated samples: H14030285-001B; H14030285-001C; H14030285-002B; H14030285-002C; H14030285-003B; H14030285-003C; H14030285-004B; H14030285-004C;  
H14030285-005B; H14030285-005C; H14030285-006B; H14030285-006C; H14030285-007B; H14030285-007C; H14030285-008B; H14030285-008C;  
H14030285-009B; H14030285-009C; H14030285-010B; H14030285-010C; H14030285-011B; H14030285-011C; H14030285-012B; H14030285-012C;  
H14030285-013B; H14030285-013C; H14030285-014B; H14030285-014C; H14030285-015B; H14030285-015C

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95766

Run ID :Run Order: <b>MAN-TECH_140324A: 5</b>			SampType: <b>Method Blank</b>			Lab ID: <b>MBLK</b>			Method: <b>A2320 B</b>				
Analysis Date: <b>03/24/14 13:17</b>			Units: <b>mg/L</b>			Prep Info: Prep Date:			Prep Method:				
Analytes <b>1</b>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3			ND	2									
Associated samples: <b>H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A</b>													

Run ID :Run Order: <b>MAN-TECH_140324A: 7</b>			SampType: <b>Laboratory Control Sample</b>			Lab ID: <b>LCS</b>			Method: <b>A2320 B</b>				
Analysis Date: <b>03/24/14 13:25</b>			Units: <b>mg/L</b>			Prep Info: Prep Date:			Prep Method:				
Analytes <b>1</b>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3			620	4.0	600		104	90	110				
Associated samples: <b>H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A</b>													

Run ID :Run Order: <b>MAN-TECH_140324A: 10</b>			SampType: <b>Sample Duplicate</b>			Lab ID: <b>H14030258-001ADUP</b>			Method: <b>A2320 B</b>				
Analysis Date: <b>03/24/14 13:40</b>			Units: <b>mg/L</b>			Prep Info: Prep Date:			Prep Method:				
Analytes <b>2</b>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3			450	4.0						441.8	1.0	10	
Bicarbonate as HCO3			540	4.0						539	1.0	10	
Associated samples: <b>H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A</b>													

Run ID :Run Order: <b>MAN-TECH_140324A: 13</b>				SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030258-002AMS</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>03/24/14 13:57</b>				Units: <b>mg/L</b>				Prep Info:		Prep Date:		Prep Method:			
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3				960	4.0	600	413.3	92	80	120					
Associated samples: <b>H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A</b>															

Run ID :Run Order: <b>MAN-TECH_140324A: 29</b>		SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14030285-002ADUP</b>				Method: <b>A2320 B</b>		
Analysis Date: <b>03/24/14 15:03</b>		Units: <b>mg/L</b>				Prep Info:		Prep Date:		Prep Method:		
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	ND	4.0									10	
Bicarbonate as HCO3	1.2	4.0						1.3			10	
Associated samples: <b>H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A</b>												

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95766

Run ID :Run Order: <b>MAN-TECH_140324A: 41</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MBLK</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>03/24/14 16:16</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	ND	4.0										

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>MAN-TECH_140324A: 43</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>03/24/14 16:24</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	630	4.0	600		105	90	110					

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>MAN-TECH_140324A: 46</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14030285-012ADUP</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>03/24/14 16:39</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	120	4.0						114.9	0.3	10		
Bicarbonate as HCO <sub>3</sub>	140	4.0						140.2	0.3	10		

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>MAN-TECH_140324A: 49</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-013AMS</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>03/24/14 16:50</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	570	4.0	600		96	80	120					

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>MAN-TECH_140324A: 61</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14030295-006ADUP</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>03/24/14 18:04</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	300	4.0						303.3	0.5	10		
Bicarbonate as HCO <sub>3</sub>	370	4.0						370	0.2	10		

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95784

Run ID :Run Order: IC102-H_140324A: 12			SampType: Initial Calibration Verification Standard				Lab ID: ICV		Method: E300.0		
Analysis Date: 03/24/14 10:21		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	110	1.0	100		107	90	110				
Sulfate	430	1.0	400		107	90	110				

Associated samples: H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A;  
H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

Run ID :Run Order: IC102-H_140324A: 13			SampType: Method Blank			Lab ID: ICB			Method: E300.0		
Analysis Date: 03/24/14 10:31		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	0.05	0.008									
Sulfate	ND	0.08									

Associated samples: H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A;  
H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

Run ID :Run Order: IC102-H_140324A: 14				SampType: Laboratory Fortified Blank		Lab ID: LFB			Method: E300.0		
Analysis Date: 03/24/14 10:41		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
Chloride	52	1.0	50	0.046	104	90	110				
Sulfate	210	1.0	200		105	90	110				

Associated samples: H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A;  
H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

Run ID :Run Order: IC102-H_140324A: 15			SampType: Continuing Calibration Verification Standar				Lab ID: CCV032114-1			Method: E300.0		
Analysis Date: 03/24/14 10:52		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	110	1.0	100		107	90	110					
Sulfate	430	1.0	400		107	90	110					

Associated samples: H14030285-001A

Run ID :Run Order: IC102-H_140324A: 28				SampType: Continuing Calibration Verification Standar				Lab ID: CCV032114-2		Method: E300.0		
Analysis Date: 03/24/14 13:03		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		110	1.0	100		107	90	110				

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95784

Run ID :Run Order: IC102-H_140324A: 28	SampType: Continuing Calibration Verification Standar	Lab ID: CCV032114-2	Method: E300.0
Analysis Date: 03/24/14 13:03	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	430 1.0 400	108 90 110	

Associated samples: H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A

Run ID :Run Order: IC102-H_140324A: 31	SampType: Sample Matrix Spike	Lab ID: H14030285-002AMS	Method: E300.0
Analysis Date: 03/24/14 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	53 1.0 50 0.01	106 90 110	
Sulfate	210 1.0 200	107 90 110	

Associated samples: H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

Run ID :Run Order: IC102-H_140324A: 32	SampType: Sample Matrix Spike Duplicate	Lab ID: H14030285-002AMSD	Method: E300.0
Analysis Date: 03/24/14 13:43	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chloride	53 1.0 50 0.01	106 90 110 52.82	0.8 20
Sulfate	210 1.0 200	107 90 110 213.8	0.0 20

Associated samples: H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

Run ID :Run Order: IC102-H_140324A: 42	SampType: Continuing Calibration Verification Standar	Lab ID: CCV032114-3	Method: E300.0
Analysis Date: 03/24/14 15:25	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	110 1.0 100	106 90 110	
Sulfate	430 1.0 400	108 90 110	

Associated samples: H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

Run ID :Run Order: IC102-H_140324A: 45	SampType: Sample Matrix Spike	Lab ID: H14030285-012AMS	Method: E300.0
Analysis Date: 03/24/14 15:55	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	59 1.0 50 7.105	104 90 110	
Sulfate	370 1.0 200 162.2	105 90 110	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R95784**

**Date:** 17-Apr-14

Run ID :Run Order: IC102-H_140324A: 45	SampType: Sample Matrix Spike	Lab ID: H14030285-012AMS	Method: E300.0								
Analysis Date: 03/24/14 15:55	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

Associated samples: H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A;  
H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

Run ID :Run Order: IC102-H_140324A: 46	SampType: Sample Matrix Spike Duplicate	Lab ID: H14030285-012AMSD	Method: E300.0								
Analysis Date: 03/24/14 16:05	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	60	1.0	50	7.105	105	90	110	59.03	0.8	20	
Sulfate	380	1.0	200	162.2	107	90	110	373	0.9	20	

Associated samples: H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A;  
H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R95816**

**Date:** 17-Apr-14

Run ID :Run Order: <b>FIA203-HE_140326B: 7</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/26/14 14:45</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	15.2	0.50	15.2		<b>100</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140326B: 8</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/26/14 14:46</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.974	0.055	1		<b>97</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140326B: 9</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/26/14 14:47</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.492	0.050	0.5		<b>99</b>	90	110				
Associated samples: <b>H14030285-001D; H14030285-002D</b>											

Run ID :Run Order: <b>FIA203-HE_140326B: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/26/14 14:48</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.00351	0.050				0	0				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140326B: 23</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/26/14 15:04</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.463	0.050	0.5		<b>93</b>	90	110				
Associated samples: <b>H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95816

Run ID :Run Order: <b>FIA203-HE_140326B: 26</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-003DMS</b>				Method: <b>E350.1</b>		
Analysis Date: <b>03/26/14 15:07</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.927	0.055	1	0.04512	<b>88</b>	80	120				
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140326B: 27</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030285-003DMSD</b>				Method: <b>E350.1</b>		
Analysis Date: <b>03/26/14 15:09</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.900	0.055	1	0.04512	<b>86</b>	80	120	0.9271	<b>2.9</b>	10	
Associated samples: <b>H14030285-001D; H14030285-002D; H14030285-003D; H14030285-004D; H14030285-005D; H14030285-006D; H14030285-007D; H14030285-008D; H14030285-009D; H14030285-010D; H14030285-011D; H14030285-012D</b>											

Run ID :Run Order: <b>FIA203-HE_140326B: 37</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>				Method: <b>E350.1</b>		
Analysis Date: <b>03/26/14 15:20</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.451	0.050	0.5		<b>90</b>	90	110				
Associated samples:											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95848

Run ID :Run Order: <b>FIA203-HE_140327B: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:10</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	-0.0466	0.10				0	0				

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>FIA203-HE_140327B: 23</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:26</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.520	0.10	0.5		<b>104</b>	90	110				

Associated samples:

Run ID :Run Order: <b>FIA203-HE_140327B: 37</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/27/14 14:42</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.509	0.10	0.5		<b>102</b>	90	110				

Associated samples: **H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95869

Run ID :Run Order: <b>FIA203-HE_140328A: 9</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/28/14 13:05</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.470	0.10	0.5		<b>94</b>	90	110				

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A**

Run ID :Run Order: <b>FIA203-HE_140328A: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>03/28/14 13:06</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	-0.0596	0.10				0	0				

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95894

Run ID :Run Order: <b>FIA203-HE_140331A: 7</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/31/14 09:20</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	15.7	0.50	15.2		<b>103</b>	90	110				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140331A: 8</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/31/14 09:22</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.974	0.055	1		<b>97</b>	90	110				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140331A: 9</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/31/14 09:23</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.488	0.050	0.5		<b>98</b>	90	110				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140331A: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/31/14 09:24</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	-0.000956	0.050				0	0				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

Run ID :Run Order: <b>FIA203-HE_140331A: 12</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030285-013DMS</b>			Method: <b>E350.1</b>			
Analysis Date: <b>03/31/14 09:26</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.963	0.055	1		<b>96</b>	80	120				

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95894

Run ID :Run Order: <b>FIA203-HE_140331A: 13</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14030285-013DMSD</b>				Method: <b>E350.1</b>		
Analysis Date: <b>03/31/14 09:28</b>				Units: <b>mg/L</b>		<b>Prep Info:</b> Prep Date:				Prep Method:				
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N				0.968	0.055	1		97	80	120	0.9635	0.5	10	

Associated samples: **H14030285-013D; H14030285-014D; H14030285-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: R95909**

**Date:** 17-Apr-14

Run ID :Run Order: ICP2-HE_140331B: 6			SampType: Initial Calibration Verification Standard			Lab ID: ICV			Method: E200.7		
Analysis Date: 03/31/14 10:15			Units: mg/L		Prep Info:		Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.817	0.0085	0.8		102	90	110				
Cadmium	0.393	0.0010	0.4		98	90	110				
Copper	0.816	0.010	0.8		102	90	110				
Lead	0.799	0.010	0.8		100	90	110				
Zinc	0.808	0.010	0.8		101	90	110				

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

Run ID :Run Order: ICP2-HE_140331B: 10			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.7		
Analysis Date: 03/31/14 10:29		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	-0.00487	0.0085				0	0				
Cadmium	0.00106	0.0010				0	0				
Copper	0.000570	0.010				0	0				
Lead	-0.0120	0.010				0	0				
Zinc	-0.00207	0.010				0	0				

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

Run ID :Run Order: ICP2-HE_140331B: 11		SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7		
Analysis Date: 03/31/14 10:33		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.01	0.0085	1		101	80	120				
Cadmium	0.930	0.0010	1		93	80	120				
Copper	0.540	0.010	0.5		108	80	120				
Lead	0.937	0.010	1		94	80	120				
Zinc	1.03	0.010	1		103	80	120				

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-024A; H14030285-024B;  
H14030285-025A; H14030285-025B; H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-028A; H14030285-028B;  
H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B; H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B;  
H14030285-033A; H14030285-033B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95927

Run ID :Run Order: ICPMS204-B_140331B: 13			SampType: Initial Calibration Verification Standard				Lab ID: ICV STD		Method: SW6020		
Analysis Date: 03/31/14 12:35		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
Arsenic	0.0619	0.0010	0.06		103	90	110				
Cadmium	0.0326	0.0010	0.03		109	90	110				

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

Run ID :Run Order: ICPMS204-B_140331B: 100			SampType: Initial Calibration Verification Standard				Lab ID: ICV STD			Method: SW6020		
Analysis Date: 03/31/14 19:18		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0614	0.0010	0.06		102	90	110					
Cadmium	0.0329	0.0010	0.03		110	90	110					

Associated samples: H14030285-021A; H14030285-021B; H14030285-022A; H14030285-022B; H14030285-023A; H14030285-023B; H14030285-025A; H14030285-025B;  
H14030285-026A; H14030285-026B; H14030285-027A; H14030285-027B; H14030285-029A; H14030285-029B; H14030285-030A; H14030285-030B;  
H14030285-031A; H14030285-031B; H14030285-032A; H14030285-032B; H14030285-033A; H14030285-033B

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95949

Run ID :Run Order: <b>IC102-H_140401A: 13</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E300.0</b>			
Analysis Date: <b>04/01/14 10:47</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	400	1.0	400		<b>99</b>	90	110				

Associated samples: **H14030285-015A**

Run ID :Run Order: <b>IC102-H_140401A: 14</b>	SampType: <b>Method Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E300.0</b>			
Analysis Date: <b>04/01/14 10:58</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.08									

Associated samples: **H14030285-015A**

Run ID :Run Order: <b>IC102-H_140401A: 15</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E300.0</b>			
Analysis Date: <b>04/01/14 11:08</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	210	1.0	200		<b>104</b>	90	110				

Associated samples: **H14030285-015A**

Run ID :Run Order: <b>IC102-H_140401A: 16</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E300.0</b>			
Analysis Date: <b>04/01/14 11:18</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	410	1.0	400		<b>102</b>	90	110				

Associated samples: **H14030285-015A**

Run ID :Run Order: <b>IC102-H_140401A: 19</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14030401-001AMS</b>			Method: <b>E300.0</b>			
Analysis Date: <b>04/01/14 11:48</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	290	1.0	200	85.79	<b>104</b>	90	110				

Associated samples: **H14030285-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 17-Apr-14

Prepared by Helena, MT Branch

**BatchID:** R95949

Run ID :Run Order: <b>IC102-H_140401A: 20</b>				SampType: <b>Sample Matrix Spike Duplicate</b>			Lab ID: <b>H14030401-001AMSD</b>			Method: <b>E300.0</b>				
Analysis Date: <b>04/01/14 11:58</b>				Units: <b>mg/L</b>		<b>Prep Info:</b>		Prep Date:		Prep Method:				
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate				300	1.0	200	85.79	106	90	110	293.6	1.4	20	

Associated samples: **H14030285-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95950

Run ID :Run Order: <b>ICP2-HE_140401B: 6</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E200.7</b>			
Analysis Date: <b>04/01/14 09:19</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.765	0.010	0.8		<b>96</b>	90	110				

Associated samples: **H14030285-022A; H14030285-022B**

Run ID :Run Order: <b>ICP2-HE_140401B: 10</b>	SampType: <b>Interference Check Sample A</b>				Lab ID: <b>ICSA</b>			Method: <b>E200.7</b>			
Analysis Date: <b>04/01/14 09:34</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	-0.0295	0.010				0	0				

Associated samples: **H14030285-022A; H14030285-022B**

Run ID :Run Order: <b>ICP2-HE_140401B: 11</b>	SampType: <b>Interference Check Sample AB</b>				Lab ID: <b>ICSAB</b>			Method: <b>E200.7</b>			
Analysis Date: <b>04/01/14 09:38</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.898	0.010	1		<b>90</b>	80	120				

Associated samples: **H14030285-022A; H14030285-022B**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** R95975

Run ID :Run Order: <b>EXTRACT OV 2_140401B: 2</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14030285-021BDUP</b>				Method: <b>D2974</b>		
Analysis Date: <b>04/02/14 13:53</b>	Units: <b>wt%</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Moisture	61.6	0.20						68			

Associated samples: **H14030285-021B; H14030285-022B; H14030285-023B; H14030285-024B; H14030285-025B; H14030285-026B; H14030285-027B; H14030285-028B; H14030285-029B; H14030285-030B; H14030285-031B; H14030285-032B; H14030285-033B**

Run ID :Run Order: <b>EXTRACT OV 2_140401B: 8</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14030285-026BDUP</b>				Method: <b>D2974</b>		
Analysis Date: <b>04/02/14 13:53</b>	Units: <b>wt%</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Moisture	72.9	0.20						81.13			

Associated samples: **H14030285-021B; H14030285-022B; H14030285-023B; H14030285-024B; H14030285-025B; H14030285-026B; H14030285-027B; H14030285-028B; H14030285-029B; H14030285-030B; H14030285-031B; H14030285-032B; H14030285-033B**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** TSS140321A

Run ID :Run Order: <b>ACCU-124 (14410200)_140321A: 1</b>	SampType: <b>Method Blank</b>	Lab ID: <b>MB-1_140321A</b>	Method: <b>A2540 D</b>
Analysis Date: <b>03/21/14 08:38</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	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: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140321A: 2</b>	SampType: <b>Laboratory Control Sample</b>	Lab ID: <b>LCS-2_140321A</b>	Method: <b>A2540 D</b>
Analysis Date: <b>03/21/14 08:39</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result	PQL	SPK value
		SPK Ref Val	%REC
		LowLimit	HighLimit
		RPD Ref Val	%RPD
		RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	87.0	10	100
			87
			80
			120

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140321A: 4</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14030120-001B DUP</b>	Method: <b>A2540 D</b>
Analysis Date: <b>03/21/14 08:39</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result	PQL	SPK value
		SPK Ref Val	%REC
		LowLimit	HighLimit
		RPD Ref Val	%RPD
		RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	52.0	10	
			34
			42
			5
			R

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140321A: 1</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14030278-004A DUP</b>	Method: <b>A2540 D</b>
Analysis Date: <b>03/21/14 08:44</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	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: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140321A: 2</b>	SampType: <b>Method Blank</b>	Lab ID: <b>MB-25_140321A</b>	Method: <b>A2540 D</b>
Analysis Date: <b>03/21/14 08:48</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result	PQL	SPK value
		SPK Ref Val	%REC
		LowLimit	HighLimit
		RPD Ref Val	%RPD
		RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	4.0	

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14030285  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 17-Apr-14

**BatchID:** TSS140321A

Run ID :Run Order: <b>ACCU-124 (14410200)_140321A: 2</b>					SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-26_140321A</b>				Method: <b>A2540 D</b>	
Analysis Date: <b>03/21/14 08:48</b>		Units: <b>mg/L</b>			Prep Info:		Prep Date:		Prep Method:					
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Solids, Total Suspended TSS @ 105 C		81.0	10	100		81	80	120						

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140321A: 2</b>					SampType: <b>Sample Duplicate</b>		Lab ID: <b>H14030285-008A DUP</b>			Method: <b>A2540 D</b>		
Analysis Date: <b>03/21/14 08:49</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:			
Analytes <b>1</b>	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					13	<b>8.0</b>	5	R	

Associated samples: **H14030285-001A; H14030285-002A; H14030285-003A; H14030285-004A; H14030285-005A; H14030285-006A; H14030285-007A; H14030285-008A; H14030285-009A; H14030285-010A; H14030285-011A; H14030285-012A; H14030285-013A; H14030285-014A; H14030285-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



April 15, 2014

Energy Laboratories, Inc.  
ATTN: Jonathan Dee Hager  
PO Box 5688  
Helena MT 59604  
jhager@energylab.com

RE: Project ENL-HL1201

Client Project: Silver Bow / Clark Fork

Dear Jonathan Dee Hager,

This report contains results for the 5 samples received by Brooks Rand Labs (BRL) on March 24, 2014. The samples were logged-in for the contracted analyses according to the chain-of-custody form(s). The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were method blank corrected as described in the calculations section of the relevant BRL SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details. All data is reported without qualification (with the exception of concentration qualifiers), and all associated quality control sample results meet the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Lydia Greaves  
Project Manager  
Lydia@brooksrands.com

## Report Information

### Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <<http://www.brooksrand.com/default.asp?contentID=586>>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BLK</b>	method blank	<b>MS</b>	matrix spike
<b>BRL</b>	Brooks Rand Labs	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>CRM</b>	certified reference material	<b>RPD</b>	relative percent difference
<b>D</b>	dissolved fraction	<b>RSD</b>	relative standard deviation
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>ICV</b>	initial calibration verification	<b>SOP</b>	standard operating procedure
<b>MDL</b>	method detection limit	<b>SRM</b>	standard reference material
<b>MRL</b>	method reporting limit	<b>T</b>	total recoverable fraction
<b>IBL</b>	instrument blank		

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.

**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1413002  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12911

## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H14030285-016A	1413002-01	Water	Sample	03/18/2014	03/24/2014
H14030285-017A	1413002-02	Water	Field Blank	03/18/2014	03/24/2014
H14030285-018A	1413002-03	Water	Sample	03/18/2014	03/24/2014
H14030285-019A	1413002-04	Water	Field Duplicate	03/18/2014	03/24/2014
H14030285-020A	1413002-05	DIW	Trip Blank	03/18/2014	03/24/2014

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	03/31/2014	04/02/2014	B140537	1400278

## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>H14030285-016A</b>										
1413002-01	MeHg	Water	T	0.615		0.020	0.050	ng/L	B140537	1400278
<b>H14030285-017A</b>										
1413002-02	MeHg	Water	T	0.020	U	0.020	0.050	ng/L	B140537	1400278
<b>H14030285-018A</b>										
1413002-03	MeHg	Water	T	1.14		0.020	0.049	ng/L	B140537	1400278
<b>H14030285-019A</b>										
1413002-04	MeHg	Water	T	1.34		0.020	0.050	ng/L	B140537	1400278
<b>H14030285-020A</b>										
1413002-05	MeHg	DIW	T	0.020	U	0.020	0.050	ng/L	B140537	1400278

## Accuracy & Precision Summary

Batch: B140537  
Lab Matrix: Water  
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B140537-BS1	Laboratory Fortified Blank (1413016) MeHg		1.000	1.033	ng/L	103% 67-133	
B140537-BS2	Laboratory Fortified Blank (1413016) MeHg		1.000	1.013	ng/L	101% 67-133	
B140537-MS1	Matrix Spike (1413002-01) MeHg	0.615	1.000	1.663	ng/L	105% 65-135	
B140537-MSD1	Matrix Spike Duplicate (1413002-01) MeHg	0.615	1.000	1.737	ng/L	112% 65-135	4% 35

## Method Blanks & Reporting Limits

Batch: B140537  
Matrix: Water  
Method: EPA 1630  
Analyte: MeHg

Sample	Result	Units
B140537-BLK1	0.005	ng/L
B140537-BLK2	0.009	ng/L
B140537-BLK3	0.006	ng/L
B140537-BLK4	0.007	ng/L
Average: 0.007		Standard Deviation: 0.002
Limit: 0.045		Limit: 0.015
		MDL: 0.020
		MRL: 0.050



**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1413002  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12911

## Sample Containers

<b>Lab ID:</b> 1413002-01 <b>Sample:</b> H14030285-016A			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample			<b>Collected:</b> 03/18/2014 <b>Received:</b> 03/24/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCL (PP)	1410052	<2	Cooler
<b>Lab ID:</b> 1413002-02 <b>Sample:</b> H14030285-017A			<b>Report Matrix:</b> Water <b>Sample Type:</b> Field Blank			<b>Collected:</b> 03/18/2014 <b>Received:</b> 03/24/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCL (PP)	1410052	<2	Cooler
<b>Lab ID:</b> 1413002-03 <b>Sample:</b> H14030285-018A			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample			<b>Collected:</b> 03/18/2014 <b>Received:</b> 03/24/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCL (PP)	1410052	<2	Cooler
<b>Lab ID:</b> 1413002-04 <b>Sample:</b> H14030285-019A			<b>Report Matrix:</b> Water <b>Sample Type:</b> Field Duplicate			<b>Collected:</b> 03/18/2014 <b>Received:</b> 03/24/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCL (PP)	1410052	<2	Cooler
<b>Lab ID:</b> 1413002-05 <b>Sample:</b> H14030285-020A			<b>Report Matrix:</b> DIW <b>Sample Type:</b> Trip Blank			<b>Collected:</b> 03/18/2014 <b>Received:</b> 03/24/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCL (PP)	1410052	<2	Cooler

## Shipping Containers

### Cooler

**Received:** March 24, 2014 12:00  
**Tracking No:** 1Z37EW970351426858 via UPS  
**Coolant Type:** Ice  
**Temperature:** 1.4 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No

**Custody seals present?** Yes  
**Custody seals intact?** Yes  
**COC present?** Yes

3161 East Lyndale Avenue  
Helena, MT 59601  
(406) 442-0711



H14030285

BRL Report 1413002  
Page 1 of 1  
20-Mar-14

## CHAIN-OF-CUSTODY RECORD

**Subcontractor:**

Brooks Rand Labs  
3958 6th Ave NW  
Seattle, WA 98106

TEL: (206) 632-6206 FAX: (206) 632-6017  
Acct #:

## Subcontractor's Client:

Rush	Sample ID	Matrix	Collection Date	Bottle Type
<input type="checkbox"/>	H14030285-016A	Aqueous	03/18/14 11:00 A	1-CLIENT-SLD
<input type="checkbox"/>	H14030285-017A	Aqueous	03/18/14 12:30 P	1-CLIENT-SLD
<input type="checkbox"/>	H14030285-018A	Aqueous	03/18/14 01:30 P	1-CLIENT-SLD
<input type="checkbox"/>	H14030285-019A	Aqueous	03/18/14 01:30 P	1-CLIENT-SLD
<input type="checkbox"/>	H14030285-020A	Trip Blank	03/18/14 09:00 A	1-TRIP BLANK

**Earliest Due Date:** 4/3/2014

**Comments:**

PO# 116214

QC Level:

**QNTS**

**Relinquished by:**

**Relinquished by:**

Date/Time

Received by:

Received by:

# Workorder Receipt Checklist

MT DEQ-Federal Superfund

H14030285

Login completed by: Tracy L. Lorash

Date Received: 3/20/2014

Reviewed by: BL2000\sdull

Received by: SRW

Reviewed Date: 3/27/2014

Carrier Hand Del  
name:

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

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Sample ID on COC is Field Blank #1 -ID on methyl mercury bottle is Field Blank. Logged in with ID from COC. Cooler 1 was received at 5.0°C, Cooler 2 at 0.6°C, Cooler 3 at 1.4°C. Samples in Cooler 1 were not received on ice and samples in Coolers 2 & 3 were received on wet ice. TI 3/20/14



# Chain of Custody and Analytical Request Record

Page 1 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (via RESPEC)</b>		Project Name, PWS, Permit, Etc. <b>CFRou Monitoring</b>		Sample Origin State: <b>MT</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>jgriffin@mt.gov</b> <b>erich.weber@respec.com</b> <b>gary.ingman@respec.com</b> <input type="checkbox"/> No Hard Copy Email:		Contact Name: <b>Joe Griffin 500-6060 (MTDEQ)</b> <b>Erich Weber 502-1546</b>		Cell: <b>439-0563</b>		Sampler: (Please Print) <b>J. Naughton</b> <b>E. Weber</b> <b>H. Meadens</b>	
Invoice Address (Required): <b>MT DEQ</b> <b>P.O. Box 200901</b> <b>Helena, MT 59620-0901</b> <input type="checkbox"/> No Hard Copy Email:		Invoice Contact & Phone: <b>Joe Griffin (above)</b>		Purchase Order: <b>H958/14276</b>		Quote/Bottle Order:	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/MWTP <input type="checkbox"/> Format: <input type="checkbox"/> State: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: <input type="checkbox"/> NELAC		ANALYSIS REQUESTED SEE ATTACHED		Standard Turnaround (TAT) <b>R U S H</b>		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
Number of Containers Sample Type: A W S V B O DW Vegetation Bioassay Other DW - Drinking Water		MATRIX		Comments: <b>sieve sediments for &lt;0.063mm fraction only; Total metals as dry weight.</b>		Shipped by: <b>Hand</b>	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date		Collection Time		Receipt Stamp <b>3-23-14 8:00 AM</b>	
1-3 CFR-116A		3-18-2014		09:00		On Bottle <b>Y</b>	
1-1 Field Blank #1		3-18-2014		12:30		On Cooler <b>Y</b>	
1-1 FC-CFR		3-18-2014		13:30		Intact <b>Y</b>	
1-1 FC-CFR Duplicate		3-18-2014		13:30		Signature Match <b>Y</b>	
1-1 BR-CFR		3-18-2014		15:00		Custody Seal <b>Y</b>	
1-3 CFR-27H		3-18-2014		16:30		On Bottle <b>Y</b>	
1-3 CFR-11F		3-18-2014		17:45		On Cooler <b>Y</b>	
1-3 CFR-07D		3-19-2014		08:45		Intact <b>Y</b>	
1-3 CFR-03A		3-19-2014		10:00		Signature Match <b>Y</b>	
1-3 WSC-SBC		3-19-2014		11:00		On Bottle <b>Y</b>	
Relinquished by (print): <b>Erich Weber</b>		Date/Time: <b>3-20-2014 13:40</b>		Received by (print): <b>Scott Winkler</b>		Date/Time: <b>3/20/14 1340</b>	
Relinquished by (print):		Date/Time:		Received by (print):		Date/Time:	
Signature: <b>Erich Weber</b>		Signature: <b>Scott Winkler</b>		Signature: <b>Scott Winkler</b>		Signature: <b>Scott Winkler</b>	
Sample Disposal:		Return to Client:		Lab Disposal:		Signature: <b>Scott Winkler</b>	

LABORATORY USE ONLY

414630285

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

Page 2 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (via RESPEC)</b>		Project Name, PWS, Permit, Etc. <b>CFROW Monitoring</b>		Sample Origin State: <b>MT</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required):  <b>See page 1</b>		Contact Name:  <b>See page 1</b>		Cell:		Sampler: (Please Print) <b>J. Neughton</b> <b>E. Weber</b> <b>H. McAdams</b>	
<input type="checkbox"/> No Hard Copy Email:		Invoice Contact & Phone:  <b>See page 1</b>		Purchase Order:		Quote/Bottle Order: <b>H958 / 14276</b>	
Invoice Address (Required):  <b>See page 1</b>		Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:		Standard Turnaround (TAT) <b>↑ R U S H</b>		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
Number of Containers Sample Type: A W S V B O DW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water		MATRIX		ANALYSIS REQUESTED		Comments:	
TR As, Cd, Cu, Pb, Zn		X		X		Sieve sediment for <0.063mm fraction only; Total metals as dry weight	
Dis As, Cd, Cu, Pb, Zn		X		X		no sediment	
TPZ		X		X			
NH <sub>3</sub> , NO <sub>3</sub> <sup>-</sup> , TP		X		X			
TSS		X		X			
Tot. Alk, SO <sub>4</sub> , Cl <sup>-</sup>		X		X			
Hardness (TR Ca + Mg)		X		X			
DOC		X		X			
Tot As, Cd, Cu, Pb, Zn (DW)		X		X			
SEE ATTACHED							
C-2, 3 SS-25		3-19-2014		12:00		5W, 1S	
C-2, 3 MWB-SBC		3-19-2014		13:30		5W, 1S	
C-2 Field Blank #2		3-19-2014		14:15		5W	
C-2, 3 MCWC-MWB		3-19-2014		15:00		5W, 1S	
C-2, 3 MCWC-MWB Duplicate		3-19-2014		15:00		5W, 1S	
C-3 LC-7.5		3-19-2014		16:00		1S	
C-3 RTC-1.5		3-19-2014		16:45		1S	
8							
9							
10							
Custody Record MUST be Signed		Relinquished by (print): <b>Erich Weber</b>		Date/Time: <b>3-20-2014 13:40</b>		Signature: <b>SDS</b>	
		Relinquished by (print):		Date/Time:		Signature:	
Sample Disposal:		Return to Client:		Lab Disposal:		Received by Laboratory: <b>Scott Wunderlich</b>	
						Date/Time: <b>3/20/14 1340</b>	
						Signature: <b>[Signature]</b>	

LABORATORY USE ONLY

Shipped by: **hand**  
Cooler ID(s): **Y**  
Receiving Temp: **6-11:50 P.B.**  
On Ice: **6-11:50 P.B.**  
Custody Seal: **6-11:50 P.B.**  
On Bottle: **Y**  
On Cooler: **Y**  
Intact: **Y**  
Signature Match: **Y**  
**H14030285**

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

Page 3 of 3

**PLEASE PRINT (Provide as much information as possible.)**

Company Name: <b>MT DEQ (via RESPEC)</b>		Project Name, PWS, Permit, Etc. <b>CFRDM Monitoring</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>see page 1</b>		Contact Name: <b>see page 1</b>		Sampler: (Please Print) <b>J. Naughton</b>	
No Hard Copy Email: <input type="checkbox"/>		Phone/Fax:		F. Weber	
Invoice Address (Required): <b>see page 1</b>		Invoice Contact & Phone: <b>see page 1</b>		E. McAdams	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> Format: <input type="checkbox"/> State: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: <input type="checkbox"/> NELAC		Purchase Order: <b>H958/14276</b>		Quote/Bottle Order:	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		ANALYSIS REQUESTED		Standard Turnaround (TAT)	
1 CFR-84F		Methyl Hg (Contract)		SEE ATTACHED	
2 Field Blank #1		Total Hg (Low Level)		R U S H	
3 FC-CFR		Matrix		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
4 FC-CFR Duplicate		Number of Containers Sample Type: A W S V B O DW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water		Comments:	
5		Collection Date		Receipt Tag C-1: 8.3 T-B C-2: 0.6 T-B C-3: 1.4	
6		Collection Time		On Ice: <b>6-20-03</b>	
7		3-18-2014 11:00		Custody Seal On Bottle On Cooler Intact Signature Match	
8		3-18-2014 12:30		Y Y Y Y Y	
9		3-18-2014 13:30		Y Y Y Y Y	
10		3-18-2014 13:30		Y Y Y Y Y	
Relinquished by (print): <b>Erich Weber</b>		Date/Time: <b>3-20-2014 13:40</b>		Signature: <b>[Signature]</b>	
Relinquished by (print):		Date/Time:		Signature:	
Custody Record MUST be Signed		Sample Disposal: Return to Client:		Date/Time: <b>3/20/14 1340</b>	
Signature: <b>[Signature]</b>		Signature: <b>[Signature]</b>		Signature: <b>[Signature]</b>	

LABORATORY USE ONLY

Separate sample for  
Total Hg  
Total Hg from TR metals  
Total Hg from TR metals  
Total Hg from TR metals

H44030285

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.

**APPENDIX B2**  
**ANALYTICAL LABORATORY RESULTS**  
**2<sup>ND</sup> QUARTER MONITORING**

---

## ANALYTICAL SUMMARY REPORT

June 12, 2014

MT DEQ-Federal Superfund  
PO Box 200901  
Helena, MT 59620-0901

Work Order: H14050278 Quote ID: H958

Project Name: CFR Monitoring-474374

Energy Laboratories Inc Helena MT received the following 20 samples for MT DEQ-Federal Superfund on 5/15/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14050278-001	CFR-116A	05/13/14 9:30	05/15/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14050278-002	CSC	05/13/14 10:45	05/15/14	Aqueous	Same As Above
H14050278-003	LBR-CFR	05/13/14 15:30	05/15/14	Aqueous	Same As Above
H14050278-004	CFR-42G	05/13/14 17:30	05/15/14	Aqueous	Same As Above
H14050278-005	CFR-27H	05/14/14 8:45	05/15/14	Aqueous	Same As Above
H14050278-006	CFR-11F	05/14/14 9:45	05/15/14	Aqueous	Same As Above
H14050278-007	CFR-07D	05/14/14 10:45	05/15/14	Aqueous	Same As Above
H14050278-008	CFR-03A	05/14/14 11:45	05/15/14	Aqueous	Same As Above
H14050278-009	WSC-SBC	05/14/14 12:45	05/15/14	Aqueous	Same As Above
H14050278-010	SS-25	05/14/14 13:45	05/15/14	Aqueous	Same As Above
H14050278-011	MWB-SBC	05/14/14 14:30	05/15/14	Aqueous	Same As Above
H14050278-012	SBC P2	05/14/14 15:30	05/15/14	Aqueous	Same As Above
H14050278-013	Field Blank #2	05/14/14 16:00	05/15/14	Aqueous	Same As Above
H14050278-014	MCWC-MWB	05/14/14 16:30	05/15/14	Aqueous	Same As Above
H14050278-015	MCWC-MWB Duplicate	05/14/14 16:30	05/15/14	Aqueous	Same As Above



## ANALYTICAL SUMMARY REPORT

H14050278-016	CFR-84F	05/13/14 12:00 05/15/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Mercury, Total Recoverable Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H14050278-017	Field Blank #1	05/13/14 13:15 05/15/14	Aqueous	Same As Above
H14050278-018	FC-CFR	05/13/14 13:45 05/15/14	Aqueous	Same As Above
H14050278-019	FC-CFR Duplicate	05/13/14 13:45 05/15/14	Aqueous	Same As Above
H14050278-020	Trip Blank	05/13/14 9:30 05/15/14	Trip Blank	Subcontracted, Analytics

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

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

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

Report Approved By:



**CLIENT:** MT DEQ-Federal Superfund  
**Project:** CFR Monitoring-474374  
**Work Order:** H14050278

**Report Date:** 06/12/14

## **CASE NARRATIVE**

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Samples 016, 017, 018, 019 & 020 were submitted to Brooks Rand Labs for analysis of Methyl Mercury. Attached is the final report. Wj 6/9/14



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A  
**Lab ID:** H14050278-001  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 09:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	18	mg/L		1		A2540 D	05/16/14 11:35 / blm		-124 (14410200)_140516A : 9		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	77	mg/L		4		A2320 B	05/19/14 10:11 / SR		PHSC_101-H_140519A : 9		R97213
Bicarbonate as HCO <sub>3</sub>	94	mg/L		4		A2320 B	05/19/14 10:11 / SR		PHSC_101-H_140519A : 9		R97213
Chloride	2	mg/L		1		E300.0	05/16/14 15:50 / SR		IC102-H_140516A : 17		R97231
Sulfate	20	mg/L		1		E300.0	05/16/14 15:50 / SR		IC102-H_140516A : 17		R97231
Hardness as CaCO <sub>3</sub>	92	mg/L		1		A2340 B	05/19/14 11:30 / abb		CALC_140520A : 36		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.3	mg/L		0.1		A5310 C	05/21/14 13:05 / eli-c		SUB-C186784 : 4		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:34 / cm		FIA203-HE_140519A : 49		R97227
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:01 / cm		FIA203-HE_140516B : 61		R97143
Nitrogen, Total	0.29	mg/L		0.05		A4500 N-C	05/20/14 16:33 / cm	05/16/14 09:44	FIA203-HE_140520H : 23		24571
Phosphorus, Total as P	0.036	mg/L		0.005		E365.1	05/19/14 16:13 / cm	05/19/14 13:11	FIA202-HE_140519B : 43		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.005	mg/L		0.001		E200.8	05/22/14 22:20 / dck		ICPMS204-B_140521A : 205		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/22/14 22:20 / dck		ICPMS204-B_140521A : 205		R97311
Copper	0.003	mg/L		0.001		E200.8	05/22/14 22:20 / dck		ICPMS204-B_140521A : 205		R97311
Lead	ND	mg/L		0.0003		E200.8	05/22/14 22:20 / dck		ICPMS204-B_140521A : 205		R97311
Zinc	0.011	mg/L		0.008		E200.8	05/22/14 22:20 / dck		ICPMS204-B_140521A : 205		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.006	mg/L		0.001		E200.8	05/22/14 22:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 210		24565
Cadmium	0.00012	mg/L		0.00003		E200.8	05/31/14 05:28 / dck	05/29/14 11:07	ICPMS204-B_140530B : 24		24721
Calcium	26	mg/L		1		E200.7	05/19/14 11:30 / sld	05/16/14 08:16	ICP2-HE_140519A : 27		24565
Copper	0.017	mg/L		0.001		E200.8	05/22/14 22:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 210		24565
Lead	0.0028	mg/L		0.0003		E200.8	05/22/14 22:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 210		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-116A

**Lab ID:** H14050278-001

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/13/14 09:30

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	05/19/14 11:30 / sld	05/16/14 08:16	ICP2-HE_140519A : 27		24565
Zinc	0.027	mg/L		0.008		E200.8	05/31/14 05:28 / dck	05/29/14 11:07	ICPMS204-B_140530B : 24		24721

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CSC  
**Lab ID:** H14050278-002  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 10:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	05/16/14 11:35 / blm		I24 (14410200)_140516A : 10		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	05/19/14 10:21 / SR		PHSC_101-H_140519A : 13		R97213
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	05/19/14 10:21 / SR		PHSC_101-H_140519A : 13		R97213
Chloride	3	mg/L		1		E300.0	05/16/14 16:23 / SR		IC102-H_140516A : 20		R97231
Sulfate	31	mg/L		1		E300.0	05/16/14 16:23 / SR		IC102-H_140516A : 20		R97231
Hardness as CaCO <sub>3</sub>	153	mg/L		1		A2340 B	05/19/14 11:52 / abb		CALC_140520A : 47		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.9	mg/L		0.1		A5310 C	05/21/14 13:15 / eli-c		SUB-C186784 : 5		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:35 / cm		FIA203-HE_140519A : 50		R97227
Nitrogen, Nitrate+Nitrite as N	0.29	mg/L		0.05		E353.2	05/16/14 10:02 / cm		FIA203-HE_140516B : 62		R97143
Nitrogen, Total	0.45	mg/L		0.05		A4500 N-C	05/20/14 16:34 / cm	05/16/14 09:44	FIA203-HE_140520H : 24		24571
Phosphorus, Total as P	0.012	mg/L		0.005		E365.1	05/19/14 16:16 / cm	05/19/14 13:11	FIA202-HE_140519B : 46		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.002	mg/L		0.001		E200.8	05/22/14 23:13 / dck		ICPMS204-B_140521A : 217		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/22/14 23:13 / dck		ICPMS204-B_140521A : 217		R97311
Copper	ND	mg/L		0.001		E200.8	05/22/14 23:13 / dck		ICPMS204-B_140521A : 217		R97311
Lead	ND	mg/L		0.0003		E200.8	05/22/14 23:13 / dck		ICPMS204-B_140521A : 217		R97311
Zinc	0.017	mg/L		0.008		E200.8	05/22/14 23:13 / dck		ICPMS204-B_140521A : 217		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.002	mg/L		0.001		E200.8	05/22/14 23:18 / dck	05/16/14 08:16	ICPMS204-B_140521A : 218		24565
Cadmium	0.00005	mg/L		0.00003		E200.8	05/31/14 05:32 / dck	05/29/14 11:07	ICPMS204-B_140530B : 25		24721
Calcium	45	mg/L		1		E200.7	05/19/14 11:52 / sld	05/16/14 08:16	ICP2-HE_140519A : 33		24565
Copper	0.001	mg/L		0.001		E200.8	05/22/14 23:18 / dck	05/16/14 08:16	ICPMS204-B_140521A : 218		24565
Lead	ND	mg/L		0.0003		E200.8	05/22/14 23:18 / dck	05/16/14 08:16	ICPMS204-B_140521A : 218		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CSC

**Lab ID:** H14050278-002

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/13/14 10:45

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	10	mg/L		1		E200.7	05/19/14 11:52 / sld	05/16/14 08:16	ICP2-HE_140519A : 33		24565
Zinc	0.010	mg/L		0.008		E200.8	05/28/14 17:41 / dck	05/27/14 13:15	ICPMS204-B_140528B : 25		24696

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR  
**Lab ID:** H14050278-003  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 15:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	10	mg/L		1		A2540 D	05/16/14 11:36 / blm		I24 (14410200)_140516A : 11		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	76	mg/L		4		A2320 B	05/19/14 10:42 / SR		PHSC_101-H_140519A : 16		R97213
Bicarbonate as HCO <sub>3</sub>	93	mg/L		4		A2320 B	05/19/14 10:42 / SR		PHSC_101-H_140519A : 16		R97213
Chloride	1	mg/L		1		E300.0	05/16/14 16:34 / SR		IC102-H_140516A : 21		R97231
Sulfate	8	mg/L		1		E300.0	05/16/14 16:34 / SR		IC102-H_140516A : 21		R97231
Hardness as CaCO <sub>3</sub>	75	mg/L		1		A2340 B	05/19/14 11:56 / abb		CALC_140520A : 58		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.4	mg/L		0.1		A5310 C	05/21/14 13:26 / eli-c		SUB-C186784 : 6		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:36 / cm		FIA203-HE_140519A : 51		R97227
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:04 / cm		FIA203-HE_140516B : 63		R97143
Nitrogen, Total	0.30	mg/L		0.05		A4500 N-C	05/20/14 16:35 / cm	05/16/14 09:44	FIA203-HE_140520H : 25		24571
Phosphorus, Total as P	0.033	mg/L		0.005		E365.1	05/19/14 16:17 / cm	05/19/14 13:11	FIA202-HE_140519B : 47		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.004	mg/L		0.001		E200.8	05/22/14 23:22 / dck		ICPMS204-B_140521A : 219		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/22/14 23:22 / dck		ICPMS204-B_140521A : 219		R97311
Copper	0.001	mg/L		0.001		E200.8	05/22/14 23:22 / dck		ICPMS204-B_140521A : 219		R97311
Lead	ND	mg/L		0.0003		E200.8	05/22/14 23:22 / dck		ICPMS204-B_140521A : 219		R97311
Zinc	0.009	mg/L		0.008		E200.8	05/22/14 23:22 / dck		ICPMS204-B_140521A : 219		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.005	mg/L		0.001		E200.8	05/22/14 23:27 / dck	05/16/14 08:16	ICPMS204-B_140521A : 220		24565
Cadmium	0.00004	mg/L		0.00003		E200.8	05/31/14 05:37 / dck	05/29/14 11:07	ICPMS204-B_140530B : 26		24721
Calcium	22	mg/L		1		E200.7	05/19/14 11:56 / sld	05/16/14 08:16	ICP2-HE_140519A : 34		24565
Copper	0.002	mg/L		0.001		E200.8	05/22/14 23:27 / dck	05/16/14 08:16	ICPMS204-B_140521A : 220		24565
Lead	0.0009	mg/L		0.0003		E200.8	05/22/14 23:27 / dck	05/16/14 08:16	ICPMS204-B_140521A : 220		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** LBR-CFR

**Lab ID:** H14050278-003

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/13/14 15:30

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	5	mg/L		1		E200.7	05/19/14 11:56 / sld	05/16/14 08:16	ICP2-HE_140519A : 34		24565
Zinc	ND	mg/L		0.008		E200.8	05/31/14 05:37 / dck	05/29/14 11:07	ICPMS204-B_140530B : 26		24721

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-42G  
**Lab ID:** H14050278-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 17:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	21	mg/L		1		A2540 D	05/16/14 12:16 / blm		I24 (14410200)_140516A : 37		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	120	mg/L		4		A2320 B	05/19/14 10:47 / SR		PHSC_101-H_140519A : 18		R97213
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	05/19/14 10:47 / SR		PHSC_101-H_140519A : 18		R97213
Chloride	10	mg/L		1		E300.0	05/16/14 16:45 / SR		IC102-H_140516A : 22		R97231
Sulfate	71	mg/L		1		E300.0	05/16/14 16:45 / SR		IC102-H_140516A : 22		R97231
Hardness as CaCO <sub>3</sub>	171	mg/L		1		A2340 B	05/19/14 12:00 / abb		CALC_140520A : 69		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.1		A5310 C	05/21/14 13:36 / eli-c		SUB-C186784 : 7		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:40 / cm		FIA203-HE_140519A : 54		R97227
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:05 / cm		FIA203-HE_140516B : 64		R97143
Nitrogen, Total	0.41	mg/L		0.05		A4500 N-C	05/20/14 16:43 / cm	05/16/14 09:46	FIA203-HE_140520H : 31		24572
Phosphorus, Total as P	0.030	mg/L		0.005		E365.1	05/19/14 16:18 / cm	05/19/14 13:11	FIA202-HE_140519B : 48		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.016	mg/L		0.001		E200.8	05/22/14 23:31 / dck		ICPMS204-B_140521A : 221		R97311
Cadmium	0.00003	mg/L		0.00003		E200.8	05/22/14 23:31 / dck		ICPMS204-B_140521A : 221		R97311
Copper	0.009	mg/L		0.001		E200.8	05/22/14 23:31 / dck		ICPMS204-B_140521A : 221		R97311
Lead	ND	mg/L		0.0003		E200.8	05/22/14 23:31 / dck		ICPMS204-B_140521A : 221		R97311
Zinc	0.014	mg/L		0.008		E200.8	05/22/14 23:31 / dck		ICPMS204-B_140521A : 221		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	05/22/14 23:36 / dck	05/16/14 08:16	ICPMS204-B_140521A : 222		24565
Cadmium	0.00018	mg/L	D	0.00005		E200.8	05/31/14 05:41 / dck	05/29/14 11:07	ICPMS204-B_140530B : 27		24721
Calcium	51	mg/L		1		E200.7	05/19/14 12:00 / sld	05/16/14 08:16	ICP2-HE_140519A : 35		24565
Copper	0.037	mg/L		0.001		E200.8	05/22/14 23:36 / dck	05/16/14 08:16	ICPMS204-B_140521A : 222		24565
Lead	0.0042	mg/L		0.0003		E200.8	05/22/14 23:36 / dck	05/16/14 08:16	ICPMS204-B_140521A : 222		24565

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** CFR-42G  
**Lab ID:** H14050278-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 17:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	05/19/14 12:00 / sld	05/16/14 08:16	ICP2-HE_140519A : 35		24565
Zinc	0.034	mg/L		0.008		E200.8	05/31/14 05:41 / dck	05/29/14 11:07	ICPMS204-B_140530B : 27		24721

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H  
**Lab ID:** H14050278-005  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 08:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	13	mg/L		1		A2540 D	05/16/14 11:37 / blm		I24 (14410200)_140516A : 12		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	120	mg/L		4		A2320 B	05/19/14 10:53 / SR		PHSC_101-H_140519A : 20		R97213
Bicarbonate as HCO <sub>3</sub>	150	mg/L		4		A2320 B	05/19/14 10:53 / SR		PHSC_101-H_140519A : 20		R97213
Chloride	10	mg/L		1		E300.0	05/16/14 16:57 / SR		IC102-H_140516A : 23		R97231
Sulfate	73	mg/L		1		E300.0	05/16/14 16:57 / SR		IC102-H_140516A : 23		R97231
Hardness as CaCO <sub>3</sub>	169	mg/L		1		A2340 B	05/19/14 12:04 / abb		CALC_140520A : 80		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.1		A5310 C	05/21/14 13:47 / eli-c		SUB-C186784 : 8		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:43 / cm		FIA203-HE_140519A : 57		R97227
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.05		E353.2	05/16/14 10:06 / cm		FIA203-HE_140516B : 65		R97143
Nitrogen, Total	0.46	mg/L		0.05		A4500 N-C	05/20/14 16:46 / cm	05/16/14 09:46	FIA203-HE_140520H : 34		24572
Phosphorus, Total as P	0.029	mg/L		0.005		E365.1	05/19/14 16:19 / cm	05/19/14 13:11	FIA202-HE_140519B : 49		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.015	mg/L		0.001		E200.8	05/22/14 23:40 / dck		ICPMS204-B_140521A : 223		R97311
Cadmium	0.00004	mg/L		0.00003		E200.8	05/22/14 23:40 / dck		ICPMS204-B_140521A : 223		R97311
Copper	0.008	mg/L		0.001		E200.8	05/22/14 23:40 / dck		ICPMS204-B_140521A : 223		R97311
Lead	ND	mg/L		0.0003		E200.8	05/22/14 23:40 / dck		ICPMS204-B_140521A : 223		R97311
Zinc	0.021	mg/L		0.008		E200.8	05/22/14 23:40 / dck		ICPMS204-B_140521A : 223		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.018	mg/L		0.001		E200.8	05/22/14 23:45 / dck	05/16/14 08:16	ICPMS204-B_140521A : 224		24565
Cadmium	0.00018	mg/L		0.00003		E200.8	05/31/14 06:03 / dck	05/29/14 11:07	ICPMS204-B_140530B : 32		24721
Calcium	50	mg/L		1		E200.7	05/19/14 12:04 / sld	05/16/14 08:16	ICP2-HE_140519A : 36		24565
Copper	0.033	mg/L		0.001		E200.8	05/22/14 23:45 / dck	05/16/14 08:16	ICPMS204-B_140521A : 224		24565
Lead	0.0035	mg/L		0.0003		E200.8	05/22/14 23:45 / dck	05/16/14 08:16	ICPMS204-B_140521A : 224		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-27H

**Lab ID:** H14050278-005

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/14/14 08:45

**DateReceived:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	05/19/14 12:04 / sld	05/16/14 08:16	ICP2-HE_140519A : 36		24565
Zinc	0.033	mg/L		0.008		E200.8	05/31/14 06:03 / dck	05/29/14 11:07	ICPMS204-B_140530B : 32		24721

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F  
**Lab ID:** H14050278-006  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 09:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	05/16/14 11:38 / blm		I24 (14410200)_140516A : 13		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	05/19/14 10:59 / SR		PHSC_101-H_140519A : 22		R97213
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	05/19/14 10:59 / SR		PHSC_101-H_140519A : 22		R97213
Chloride	10	mg/L		1		E300.0	05/16/14 17:07 / SR		IC102-H_140516A : 24		R97231
Sulfate	79	mg/L		1		E300.0	05/16/14 17:07 / SR		IC102-H_140516A : 24		R97231
Hardness as CaCO <sub>3</sub>	171	mg/L		1		A2340 B	05/19/14 12:07 / abb		CALC_140520A : 91		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.1	mg/L		0.1		A5310 C	05/21/14 13:57 / eli-c		SUB-C186784 : 9		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:44 / cm		FIA203-HE_140519A : 58		R97227
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.05		E353.2	05/16/14 10:07 / cm		FIA203-HE_140516B : 66		R97143
Nitrogen, Total	0.39	mg/L		0.05		A4500 N-C	05/20/14 16:47 / cm	05/16/14 09:46	FIA203-HE_140520H : 35		24572
Phosphorus, Total as P	0.025	mg/L		0.005		E365.1	05/19/14 16:20 / cm	05/19/14 13:11	FIA202-HE_140519B : 50		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.015	mg/L		0.001		E200.8	05/22/14 23:49 / dck		ICPMS204-B_140521A : 225		R97311
Cadmium	0.00003	mg/L		0.00003		E200.8	05/22/14 23:49 / dck		ICPMS204-B_140521A : 225		R97311
Copper	0.007	mg/L		0.001		E200.8	05/22/14 23:49 / dck		ICPMS204-B_140521A : 225		R97311
Lead	ND	mg/L		0.0003		E200.8	05/22/14 23:49 / dck		ICPMS204-B_140521A : 225		R97311
Zinc	0.009	mg/L		0.008		E200.8	05/22/14 23:49 / dck		ICPMS204-B_140521A : 225		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.017	mg/L		0.001		E200.8	05/22/14 23:54 / dck	05/16/14 08:16	ICPMS204-B_140521A : 226		24565
Cadmium	0.00015	mg/L		0.00003		E200.8	05/31/14 06:07 / dck	05/29/14 11:07	ICPMS204-B_140530B : 33		24721
Calcium	51	mg/L		1		E200.7	05/19/14 12:07 / sld	05/16/14 08:16	ICP2-HE_140519A : 37		24565
Copper	0.022	mg/L		0.001		E200.8	05/22/14 23:54 / dck	05/16/14 08:16	ICPMS204-B_140521A : 226		24565
Lead	0.0025	mg/L		0.0003		E200.8	05/22/14 23:54 / dck	05/16/14 08:16	ICPMS204-B_140521A : 226		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-11F

**Lab ID:** H14050278-006

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/14/14 09:45

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	05/19/14 12:07 / sld	05/16/14 08:16	ICP2-HE_140519A : 37		24565
Zinc	0.023	mg/L		0.008		E200.8	05/31/14 06:07 / dck	05/29/14 11:07	ICPMS204-B_140530B : 33		24721

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-07D  
**Lab ID:** H14050278-007  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 10:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	9	mg/L		1		A2540 D	05/16/14 11:39 / blm		I24 (14410200)_140516A : 15		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	05/19/14 11:04 / SR		PHSC_101-H_140519A : 24		R97213
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	05/19/14 11:04 / SR		PHSC_101-H_140519A : 24		R97213
Chloride	11	mg/L		1		E300.0	05/16/14 17:19 / SR		IC102-H_140516A : 25		R97231
Sulfate	81	mg/L		1		E300.0	05/16/14 17:19 / SR		IC102-H_140516A : 25		R97231
Hardness as CaCO <sub>3</sub>	179	mg/L		1		A2340 B	05/19/14 12:11 / abb		CALC_140520A : 102		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.1		A5310 C	05/21/14 15:15 / eli-c		SUB-C186784 : 13		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:46 / cm		FIA203-HE_140519A : 59		R97227
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.05		E353.2	05/16/14 10:08 / cm		FIA203-HE_140516B : 67		R97143
Nitrogen, Total	0.46	mg/L		0.05		A4500 N-C	05/20/14 16:48 / cm	05/16/14 09:46	FIA203-HE_140520H : 36		24572
Phosphorus, Total as P	0.027	mg/L		0.005		E365.1	05/19/14 16:21 / cm	05/19/14 13:11	FIA202-HE_140519B : 51		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.014	mg/L		0.001		E200.8	05/23/14 00:12 / dck		ICPMS204-B_140521A : 230		R97311
Cadmium	0.00004	mg/L		0.00003		E200.8	05/23/14 00:12 / dck		ICPMS204-B_140521A : 230		R97311
Copper	0.006	mg/L		0.001		E200.8	05/23/14 00:12 / dck		ICPMS204-B_140521A : 230		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 00:12 / dck		ICPMS204-B_140521A : 230		R97311
Zinc	0.016	mg/L		0.008		E200.8	05/23/14 00:12 / dck		ICPMS204-B_140521A : 230		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.017	mg/L		0.001		E200.8	05/23/14 00:17 / dck	05/16/14 08:16	ICPMS204-B_140521A : 231		24565
Cadmium	0.00012	mg/L		0.00003		E200.8	05/31/14 06:11 / dck	05/29/14 11:07	ICPMS204-B_140530B : 34		24721
Calcium	53	mg/L		1		E200.7	05/19/14 12:11 / sld	05/16/14 08:16	ICP2-HE_140519A : 38		24565
Copper	0.020	mg/L		0.001		E200.8	05/23/14 00:17 / dck	05/16/14 08:16	ICPMS204-B_140521A : 231		24565
Lead	0.0021	mg/L		0.0003		E200.8	05/23/14 00:17 / dck	05/16/14 08:16	ICPMS204-B_140521A : 231		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-07D

**Lab ID:** H14050278-007

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/14/14 10:45

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	05/19/14 12:11 / sld	05/16/14 08:16	ICP2-HE_140519A : 38		24565
Zinc	0.021	mg/L		0.008		E200.8	05/31/14 06:11 / dck	05/29/14 11:07	ICPMS204-B_140530B : 34		24721

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A  
**Lab ID:** H14050278-008  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 11:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	05/16/14 11:39 / blm		I24 (14410200)_140516A : 16		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	99	mg/L		4		A2320 B	05/19/14 11:09 / SR		PHSC_101-H_140519A : 26		R97213
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	05/19/14 11:09 / SR		PHSC_101-H_140519A : 26		R97213
Chloride	12	mg/L		1		E300.0	05/16/14 17:30 / SR		IC102-H_140516A : 26		R97231
Sulfate	68	mg/L		1		E300.0	05/16/14 17:30 / SR		IC102-H_140516A : 26		R97231
Hardness as CaCO <sub>3</sub>	153	mg/L		1		A2340 B	05/19/14 12:15 / abb		CALC_140520A : 113		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.2	mg/L		0.1		A5310 C	05/21/14 15:26 / eli-c		SUB-C186784 : 14		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:47 / cm		FIA203-HE_140519A : 60		R97227
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.05		E353.2	05/16/14 10:12 / cm		FIA203-HE_140516B : 70		R97143
Nitrogen, Total	0.48	mg/L		0.05		A4500 N-C	05/20/14 16:50 / cm	05/16/14 09:46	FIA203-HE_140520H : 37		24572
Phosphorus, Total as P	0.029	mg/L		0.005		E365.1	05/19/14 16:22 / cm	05/19/14 13:11	FIA202-HE_140519B : 52		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.015	mg/L		0.001		E200.8	05/23/14 00:21 / dck		ICPMS204-B_140521A : 232		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 00:21 / dck		ICPMS204-B_140521A : 232		R97311
Copper	0.005	mg/L		0.001		E200.8	05/23/14 00:21 / dck		ICPMS204-B_140521A : 232		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 00:21 / dck		ICPMS204-B_140521A : 232		R97311
Zinc	0.009	mg/L		0.008		E200.8	05/23/14 00:21 / dck		ICPMS204-B_140521A : 232		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.016	mg/L		0.001		E200.8	05/23/14 00:26 / dck	05/16/14 08:16	ICPMS204-B_140521A : 233		24565
Cadmium	0.00011	mg/L		0.00003		E200.8	06/05/14 13:31 / dck	06/03/14 11:15	ICPMS204-B_140605A : 21		24779
Calcium	46	mg/L		1		E200.7	05/19/14 12:15 / sld	05/16/14 08:16	ICP2-HE_140519A : 39		24565
Copper	0.012	mg/L		0.001		E200.8	05/23/14 00:26 / dck	05/16/14 08:16	ICPMS204-B_140521A : 233		24565
Lead	0.0013	mg/L		0.0003		E200.8	05/23/14 00:26 / dck	05/16/14 08:16	ICPMS204-B_140521A : 233		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A  
**Lab ID:** H14050278-008  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 11:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	05/19/14 12:15 / sld	05/16/14 08:16	ICP2-HE_140519A : 39		24565
Zinc	0.014	mg/L		0.008		E200.8	05/31/14 06:16 / dck	05/29/14 11:07	ICPMS204-B_140530B : 35		24721

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14050278-009  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 12:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	05/16/14 11:39 / blm		I24 (14410200)_140516A : 17		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	05/19/14 11:15 / SR		PHSC_101-H_140519A : 28		R97213
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	05/19/14 11:15 / SR		PHSC_101-H_140519A : 28		R97213
Chloride	2	mg/L		1		E300.0	05/16/14 17:41 / SR		IC102-H_140516A : 27		R97231
Sulfate	43	mg/L		1		E300.0	05/16/14 17:41 / SR		IC102-H_140516A : 27		R97231
Hardness as CaCO <sub>3</sub>	171	mg/L		1		A2340 B	05/19/14 12:19 / abb		CALC_140520A : 124		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.7	mg/L		0.1		A5310 C	05/21/14 15:36 / eli-c		SUB-C186784 : 15		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:48 / cm		FIA203-HE_140519A : 61		R97227
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:16 / cm		FIA203-HE_140516B : 73		R97143
Nitrogen, Total	0.22	mg/L		0.05		A4500 N-C	05/20/14 16:51 / cm	05/16/14 09:46	FIA203-HE_140520H : 38		24572
Phosphorus, Total as P	0.009	mg/L		0.005		E365.1	05/19/14 16:23 / cm	05/19/14 13:11	FIA202-HE_140519B : 53		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	05/23/14 00:30 / dck		ICPMS204-B_140521A : 234		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 00:30 / dck		ICPMS204-B_140521A : 234		R97311
Copper	0.004	mg/L		0.001		E200.8	05/23/14 00:30 / dck		ICPMS204-B_140521A : 234		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 00:30 / dck		ICPMS204-B_140521A : 234		R97311
Zinc	ND	mg/L		0.008		E200.8	05/23/14 00:30 / dck		ICPMS204-B_140521A : 234		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.007	mg/L		0.001		E200.8	05/23/14 00:48 / dck	05/16/14 08:16	ICPMS204-B_140521A : 238		24565
Cadmium	0.00007	mg/L		0.00003		E200.8	05/31/14 06:33 / dck	05/29/14 11:07	ICPMS204-B_140530B : 39		24721
Calcium	52	mg/L		1		E200.7	05/19/14 12:19 / sld	05/16/14 08:16	ICP2-HE_140519A : 40		24565
Copper	0.008	mg/L		0.001		E200.8	05/23/14 00:48 / dck	05/16/14 08:16	ICPMS204-B_140521A : 238		24565
Lead	0.0005	mg/L		0.0003		E200.8	05/23/14 00:48 / dck	05/16/14 08:16	ICPMS204-B_140521A : 238		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14050278-009  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 12:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	10	mg/L		1		E200.7	05/19/14 12:19 / sld	05/16/14 08:16	ICP2-HE_140519A : 40		24565
Zinc	ND	mg/L		0.008		E200.8	05/31/14 06:33 / dck	05/29/14 11:07	ICPMS204-B_140530B : 39		24721

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SS-25  
**Lab ID:** H14050278-010  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 13:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	05/16/14 11:40 / blm		I24 (14410200)_140516A : 18		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	91	mg/L		4		A2320 B	05/19/14 11:20 / SR		PHSC_101-H_140519A : 30		R97213
Bicarbonate as HCO <sub>3</sub>	110	mg/L		4		A2320 B	05/19/14 11:20 / SR		PHSC_101-H_140519A : 30		R97213
Chloride	15	mg/L		1		E300.0	05/16/14 17:52 / SR		IC102-H_140516A : 28		R97231
Sulfate	69	mg/L		1		E300.0	05/16/14 17:52 / SR		IC102-H_140516A : 28		R97231
Hardness as CaCO <sub>3</sub>	150	mg/L		1		A2340 B	05/19/14 12:22 / abb		CALC_140520A : 135		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.9	mg/L		0.1		A5310 C	05/21/14 15:47 / eli-c		SUB-C186784 : 16		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:49 / cm		FIA203-HE_140519A : 62		R97227
Nitrogen, Nitrate+Nitrite as N	0.13	mg/L		0.05		E353.2	05/16/14 10:17 / cm		FIA203-HE_140516B : 74		R97143
Nitrogen, Total	0.67	mg/L		0.05		A4500 N-C	05/20/14 16:52 / cm	05/16/14 09:46	FIA203-HE_140520H : 39		24572
Phosphorus, Total as P	0.031	mg/L		0.005		E365.1	05/19/14 16:24 / cm	05/19/14 13:11	FIA202-HE_140519B : 54		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.017	mg/L		0.001		E200.8	05/23/14 00:53 / dck		ICPMS204-B_140521A : 239		R97311
Cadmium	0.00003	mg/L		0.00003		E200.8	05/23/14 00:53 / dck		ICPMS204-B_140521A : 239		R97311
Copper	0.005	mg/L		0.001		E200.8	05/23/14 00:53 / dck		ICPMS204-B_140521A : 239		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 00:53 / dck		ICPMS204-B_140521A : 239		R97311
Zinc	0.008	mg/L		0.008		E200.8	05/23/14 00:53 / dck		ICPMS204-B_140521A : 239		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.018	mg/L		0.001		E200.8	05/23/14 00:57 / dck	05/16/14 08:16	ICPMS204-B_140521A : 240		24565
Cadmium	0.00009	mg/L		0.00003		E200.8	05/31/14 06:38 / dck	05/29/14 11:07	ICPMS204-B_140530B : 40		24721
Calcium	45	mg/L		1		E200.7	05/19/14 12:22 / sld	05/16/14 08:16	ICP2-HE_140519A : 41		24565
Copper	0.009	mg/L		0.001		E200.8	05/23/14 00:57 / dck	05/16/14 08:16	ICPMS204-B_140521A : 240		24565
Lead	0.0012	mg/L		0.0003		E200.8	05/23/14 00:57 / dck	05/16/14 08:16	ICPMS204-B_140521A : 240		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** SS-25

**Lab ID:** H14050278-010

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/14/14 13:45

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	05/19/14 12:22 / sld	05/16/14 08:16	ICP2-HE_140519A : 41		24565
Zinc	0.014	mg/L		0.008		E200.8	05/31/14 06:38 / dck	05/29/14 11:07	ICPMS204-B_140530B : 40		24721

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14050278-011  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 14:30 **Date Received:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	05/16/14 11:40 / blm		I24 (14410200)_140516A : 19		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	65	mg/L		4		A2320 B	05/19/14 11:25 / SR		PHSC_101-H_140519A : 32		R97213
Bicarbonate as HCO <sub>3</sub>	79	mg/L		4		A2320 B	05/19/14 11:25 / SR		PHSC_101-H_140519A : 32		R97213
Chloride	2	mg/L		1		E300.0	05/16/14 18:25 / SR		IC102-H_140516A : 31		R97231
Sulfate	51	mg/L		1		E300.0	05/16/14 18:25 / SR		IC102-H_140516A : 31		R97231
Hardness as CaCO <sub>3</sub>	111	mg/L		1		A2340 B	05/19/14 12:26 / abb		CALC_140528A : 25		R97464
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.0	mg/L		0.1		A5310 C	05/21/14 15:58 / eli-c		SUB-C186784 : 17		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:50 / cm		FIA203-HE_140519A : 63		R97227
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:18 / cm		FIA203-HE_140516B : 75		R97143
Nitrogen, Total	0.31	mg/L		0.05		A4500 N-C	05/20/14 16:53 / cm	05/16/14 09:46	FIA203-HE_140520H : 40		24572
Phosphorus, Total as P	0.030	mg/L		0.005		E365.1	05/19/14 16:27 / cm	05/19/14 13:11	FIA202-HE_140519B : 57		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.025	mg/L		0.001		E200.8	05/23/14 01:16 / dck		ICPMS204-B_140521A : 244		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 01:16 / dck		ICPMS204-B_140521A : 244		R97311
Copper	0.004	mg/L		0.001		E200.8	05/23/14 01:16 / dck		ICPMS204-B_140521A : 244		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 01:16 / dck		ICPMS204-B_140521A : 244		R97311
Zinc	ND	mg/L		0.008		E200.8	05/23/14 01:16 / dck		ICPMS204-B_140521A : 244		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.027	mg/L		0.001		E200.8	05/23/14 01:20 / dck	05/16/14 08:16	ICPMS204-B_140521A : 245		24565
Cadmium	0.00007	mg/L		0.00003		E200.8	05/28/14 18:50 / dck	05/27/14 13:15	ICPMS204-B_140528B : 41		24696
Calcium	33	mg/L		1		E200.7	05/19/14 12:26 / sld	05/16/14 08:16	ICP2-HE_140519A : 42		24565
Copper	0.007	mg/L		0.001		E200.8	05/23/14 01:20 / dck	05/16/14 08:16	ICPMS204-B_140521A : 245		24565
Lead	0.0011	mg/L		0.0003		E200.8	05/23/14 01:20 / dck	05/16/14 08:16	ICPMS204-B_140521A : 245		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14050278-011  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 14:30 **Date Received:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	05/19/14 12:26 / sld	05/16/14 08:16	ICP2-HE_140519A : 42		24565
Zinc	ND	mg/L		0.008		E200.8	05/28/14 18:50 / dck	05/27/14 13:15	ICPMS204-B_140528B : 41		24696

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SBC P2  
**Lab ID:** H14050278-012  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 15:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	05/16/14 11:41 / blm		I24 (14410200)_140516A : 20		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	100	mg/L		4		A2320 B	05/19/14 11:30 / SR		PHSC_101-H_140519A : 34		R97213
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	05/19/14 11:30 / SR		PHSC_101-H_140519A : 34		R97213
Chloride	21	mg/L		1		E300.0	05/16/14 18:59 / SR		IC102-H_140516A : 34		R97231
Sulfate	78	mg/L		1		E300.0	05/16/14 18:59 / SR		IC102-H_140516A : 34		R97231
Hardness as CaCO <sub>3</sub>	168	mg/L		1		A2340 B	05/19/14 12:48 / abb		CALC_140520A : 146		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	5.3	mg/L		0.1		A5310 C	05/21/14 16:09 / eli-c		SUB-C186784 : 18		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:52 / cm		FIA203-HE_140519A : 64		R97227
Nitrogen, Nitrate+Nitrite as N	0.20	mg/L		0.05		E353.2	05/16/14 10:19 / cm		FIA203-HE_140516B : 76		R97143
Nitrogen, Total	0.85	mg/L		0.05		A4500 N-C	05/20/14 16:54 / cm	05/16/14 09:46	FIA203-HE_140520H : 41		24572
Phosphorus, Total as P	0.035	mg/L		0.005		E365.1	05/19/14 16:31 / cm	05/19/14 13:11	FIA202-HE_140519B : 60		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.014	mg/L		0.001		E200.8	05/23/14 01:38 / dck		ICPMS204-B_140521A : 249		R97311
Cadmium	0.00005	mg/L		0.00003		E200.8	05/23/14 01:38 / dck		ICPMS204-B_140521A : 249		R97311
Copper	0.006	mg/L		0.001		E200.8	05/23/14 01:38 / dck		ICPMS204-B_140521A : 249		R97311
Lead	0.0004	mg/L		0.0003		E200.8	05/23/14 01:38 / dck		ICPMS204-B_140521A : 249		R97311
Zinc	0.010	mg/L		0.008		E200.8	05/23/14 01:38 / dck		ICPMS204-B_140521A : 249		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.014	mg/L		0.001		E200.8	05/23/14 01:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 250		24565
Cadmium	0.00009	mg/L		0.00003		E200.8	05/28/14 18:55 / dck	05/27/14 13:15	ICPMS204-B_140528B : 42		24696
Calcium	51	mg/L		1		E200.7	05/19/14 12:48 / sld	05/16/14 08:16	ICP2-HE_140519A : 48		24565
Copper	0.008	mg/L		0.001		E200.8	05/23/14 01:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 250		24565
Lead	0.0011	mg/L		0.0003		E200.8	05/23/14 01:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 250		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** SBC P2

**Lab ID:** H14050278-012

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/14/14 15:30

**DateReceived:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	10	mg/L		1		E200.7	05/19/14 12:48 / sld	05/16/14 08:16	ICP2-HE_140519A : 48		24565
Zinc	0.017	mg/L		0.008		E200.8	05/28/14 18:55 / dck	05/27/14 13:15	ICPMS204-B_140528B : 42		24696

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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 888-680-2218

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14050278-013  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 16:00 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	05/16/14 11:41 / blm		I24 (14410200)_140516A : 21		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	05/19/14 11:36 / SR		PHSC_101-H_140519A : 36		R97213
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	05/19/14 11:36 / SR		PHSC_101-H_140519A : 36		R97213
Chloride	ND	mg/L		1		E300.0	05/16/14 19:10 / SR		IC102-H_140516A : 35		R97231
Sulfate	ND	mg/L		1		E300.0	05/16/14 19:10 / SR		IC102-H_140516A : 35		R97231
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	05/19/14 12:52 / abb		CALC_140522A : 190		R97309
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.5	mg/L		0.1		A5310 C	05/21/14 16:18 / eli-c		SUB-C186784 : 19		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 15:53 / cm		FIA203-HE_140519A : 65		R97227
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:20 / cm		FIA203-HE_140516B : 77		R97143
Nitrogen, Total	0.08	mg/L		0.05		A4500 N-C	05/20/14 16:56 / cm	05/16/14 09:46	FIA203-HE_140520H : 42		24572
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	05/19/14 16:32 / cm	05/19/14 13:11	FIA202-HE_140519B : 61		24599
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	05/23/14 01:47 / dck		ICPMS204-B_140521A : 251		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 01:47 / dck		ICPMS204-B_140521A : 251		R97311
Copper	ND	mg/L		0.001		E200.8	05/23/14 01:47 / dck		ICPMS204-B_140521A : 251		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 01:47 / dck		ICPMS204-B_140521A : 251		R97311
Zinc	0.011	mg/L		0.008		E200.8	05/23/14 01:47 / dck		ICPMS204-B_140521A : 251		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	05/23/14 01:52 / dck	05/16/14 08:16	ICPMS204-B_140521A : 252		24565
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 01:52 / dck	05/16/14 08:16	ICPMS204-B_140521A : 252		24565
Calcium	ND	mg/L		1		E200.7	05/19/14 12:52 / sld	05/16/14 08:16	ICP2-HE_140519A : 49		24565
Copper	ND	mg/L		0.001		E200.8	05/23/14 01:52 / dck	05/16/14 08:16	ICPMS204-B_140521A : 252		24565
Lead	ND	mg/L		0.0003		E200.8	05/23/14 01:52 / dck	05/16/14 08:16	ICPMS204-B_140521A : 252		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #2

**Lab ID:** H14050278-013

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/14/14 16:00

**DateReceived:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	05/19/14 12:52 / sld	05/16/14 08:16	ICP2-HE_140519A : 49		24565
Zinc	ND	mg/L		0.008		E200.8	05/23/14 01:52 / dck	05/16/14 08:16	ICPMS204-B_140521A : 252		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14050278-014  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 16:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	05/16/14 11:42 / blm		I24 (14410200)_140516A : 22		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	56	mg/L		4		A2320 B	05/19/14 11:40 / SR		PHSC_101-H_140519A : 38		R97213
Bicarbonate as HCO <sub>3</sub>	67	mg/L		4		A2320 B	05/19/14 11:40 / SR		PHSC_101-H_140519A : 38		R97213
Chloride	ND	mg/L		1		E300.0	05/16/14 19:21 / SR		IC102-H_140516A : 36		R97231
Sulfate	12	mg/L		1		E300.0	05/16/14 19:21 / SR		IC102-H_140516A : 36		R97231
Hardness as CaCO <sub>3</sub>	59	mg/L		1		A2340 B	05/19/14 12:56 / abb		CALC_140528A : 36		R97464
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.9	mg/L		0.1		A5310 C	05/21/14 16:29 / eli-c		SUB-C186784 : 20		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 16:43 / cm		FIA203-HE_140519B : 12		R97232
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:21 / cm		FIA203-HE_140516B : 78		R97143
Nitrogen, Total	0.24	mg/L		0.05		A4500 N-C	05/20/14 16:59 / cm	05/16/14 09:46	FIA203-HE_140520H : 45		24572
Phosphorus, Total as P	0.032	mg/L		0.005		E365.1	05/19/14 16:33 / cm	05/19/14 13:11	FIA202-HE_140519B : 62		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.025	mg/L		0.001		E200.8	05/23/14 01:56 / dck		ICPMS204-B_140521A : 253		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 01:56 / dck		ICPMS204-B_140521A : 253		R97311
Copper	0.005	mg/L		0.001		E200.8	05/23/14 01:56 / dck		ICPMS204-B_140521A : 253		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 01:56 / dck		ICPMS204-B_140521A : 253		R97311
Zinc	ND	mg/L		0.008		E200.8	05/23/14 01:56 / dck		ICPMS204-B_140521A : 253		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.027	mg/L		0.001		E200.8	05/23/14 02:01 / dck	05/16/14 08:16	ICPMS204-B_140521A : 254		24565
Cadmium	0.00009	mg/L		0.00003		E200.8	05/28/14 19:25 / dck	05/27/14 13:15	ICPMS204-B_140528B : 49		24696
Calcium	17	mg/L		1		E200.7	05/19/14 12:56 / sld	05/16/14 08:16	ICP2-HE_140519A : 50		24565
Copper	0.008	mg/L		0.001		E200.8	05/23/14 02:01 / dck	05/16/14 08:16	ICPMS204-B_140521A : 254		24565
Lead	0.0012	mg/L		0.0003		E200.8	05/23/14 02:01 / dck	05/16/14 08:16	ICPMS204-B_140521A : 254		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14050278-014  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 16:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	4	mg/L		1		E200.7	05/19/14 12:56 / sld	05/16/14 08:16	ICP2-HE_140519A : 50		24565
Zinc	ND	mg/L		0.008		E200.8	05/28/14 19:25 / dck	05/27/14 13:15	ICPMS204-B_140528B : 49		24696

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14050278-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 16:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	05/16/14 11:43 / blm		I24 (14410200)_140516A : 23		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	55	mg/L		4		A2320 B	05/19/14 11:45 / SR		PHSC_101-H_140519A : 40		R97213
Bicarbonate as HCO <sub>3</sub>	67	mg/L		4		A2320 B	05/19/14 11:45 / SR		PHSC_101-H_140519A : 40		R97213
Chloride	ND	mg/L		1		E300.0	05/16/14 19:32 / SR		IC102-H_140516A : 37		R97231
Sulfate	12	mg/L		1		E300.0	05/16/14 19:32 / SR		IC102-H_140516A : 37		R97231
Hardness as CaCO <sub>3</sub>	58	mg/L		1		A2340 B	05/19/14 13:00 / abb		CALC_140528A : 47		R97464
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.0	mg/L		0.1		A5310 C	05/21/14 16:40 / eli-c		SUB-C186784 : 21		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 16:47 / cm		FIA203-HE_140519B : 15		R97232
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:23 / cm		FIA203-HE_140516B : 79		R97143
Nitrogen, Total	0.26	mg/L		0.05		A4500 N-C	05/20/14 17:03 / cm	05/16/14 09:46	FIA203-HE_140520H : 48		24572
Phosphorus, Total as P	0.031	mg/L		0.005		E365.1	05/19/14 16:34 / cm	05/19/14 13:11	FIA202-HE_140519B : 63		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.025	mg/L		0.001		E200.8	05/23/14 02:19 / dck		ICPMS204-B_140521A : 258		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 02:19 / dck		ICPMS204-B_140521A : 258		R97311
Copper	0.005	mg/L		0.001		E200.8	05/23/14 02:19 / dck		ICPMS204-B_140521A : 258		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 02:19 / dck		ICPMS204-B_140521A : 258		R97311
Zinc	0.012	mg/L		0.008		E200.8	05/23/14 02:19 / dck		ICPMS204-B_140521A : 258		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.027	mg/L		0.001		E200.8	05/23/14 02:23 / dck	05/16/14 08:16	ICPMS204-B_140521A : 259		24565
Cadmium	0.00008	mg/L		0.00003		E200.8	05/28/14 19:29 / dck	05/27/14 13:15	ICPMS204-B_140528B : 50		24696
Calcium	17	mg/L		1		E200.7	05/19/14 13:00 / sld	05/16/14 08:16	ICP2-HE_140519A : 51		24565
Copper	0.008	mg/L		0.001		E200.8	05/23/14 02:23 / dck	05/16/14 08:16	ICPMS204-B_140521A : 259		24565
Lead	0.0012	mg/L		0.0003		E200.8	05/23/14 02:23 / dck	05/16/14 08:16	ICPMS204-B_140521A : 259		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14050278-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/14/14 16:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	4	mg/L		1		E200.7	05/19/14 13:00 / sld	05/16/14 08:16	ICP2-HE_140519A : 51		24565
Zinc	0.008	mg/L		0.008		E200.8	05/28/14 19:29 / dck	05/27/14 13:15	ICPMS204-B_140528B : 50		24696

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-84F  
**Lab ID:** H14050278-016  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 12:00 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	30	mg/L		1		A2540 D	05/16/14 11:45 / blm		I24 (14410200)_140516A : 26		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	05/19/14 11:49 / SR		PHSC_101-H_140519A : 42		R97213
Bicarbonate as HCO <sub>3</sub>	130	mg/L		4		A2320 B	05/19/14 11:49 / SR		PHSC_101-H_140519A : 42		R97213
Chloride	4	mg/L		1		E300.0	05/16/14 19:43 / SR		IC102-H_140516A : 38		R97231
Sulfate	38	mg/L		1		E300.0	05/16/14 19:43 / SR		IC102-H_140516A : 38		R97231
Hardness as CaCO <sub>3</sub>	142	mg/L		1		A2340 B	05/19/14 13:03 / abb		CALC_140520A : 168		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.2	mg/L		0.1		A5310 C	05/21/14 16:51 / eli-c		SUB-C186784 : 22		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 16:48 / cm		FIA203-HE_140519B : 16		R97232
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:24 / cm		FIA203-HE_140516B : 80		R97143
Nitrogen, Total	0.31	mg/L		0.05		A4500 N-C	05/20/14 17:04 / cm	05/16/14 09:46	FIA203-HE_140520H : 49		24572
Phosphorus, Total as P	0.043	mg/L		0.005		E365.1	05/19/14 16:35 / cm	05/19/14 13:11	FIA202-HE_140519B : 64		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.009	mg/L		0.001		E200.8	05/23/14 02:28 / dck		ICPMS204-B_140521A : 260		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 02:28 / dck		ICPMS204-B_140521A : 260		R97311
Copper	0.006	mg/L		0.001		E200.8	05/23/14 02:28 / dck		ICPMS204-B_140521A : 260		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 02:28 / dck		ICPMS204-B_140521A : 260		R97311
Zinc	0.012	mg/L		0.008		E200.8	05/23/14 02:28 / dck		ICPMS204-B_140521A : 260		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	05/23/14 02:32 / dck	05/16/14 08:16	ICPMS204-B_140521A : 261		24565
Cadmium	0.00017	mg/L		0.00003		E200.8	05/28/14 19:33 / dck	05/27/14 13:15	ICPMS204-B_140528B : 51		24696
Calcium	42	mg/L		1		E200.7	05/19/14 13:03 / sld	05/16/14 08:16	ICP2-HE_140519A : 52		24565
Copper	0.028	mg/L		0.001		E200.8	05/23/14 02:32 / dck	05/16/14 08:16	ICPMS204-B_140521A : 261		24565
Lead	0.0045	mg/L		0.0003		E200.8	05/23/14 02:32 / dck	05/16/14 08:16	ICPMS204-B_140521A : 261		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-84F

**Lab ID:** H14050278-016

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/13/14 12:00

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	05/19/14 13:03 / sld	05/16/14 08:16	ICP2-HE_140519A : 52		24565
Mercury	0.000050	mg/L		5E-06		E245.1	05/20/14 12:53 / sbk	05/19/14 08:36	HGCV202-H_140520A : 17		24588
Zinc	0.038	mg/L		0.008		E200.8	05/28/14 19:33 / dck	05/27/14 13:15	ICPMS204-B_140528B : 51		24696

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14050278-017  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 13:15 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	05/16/14 11:46 / blm		I24 (14410200)_140516A : 28		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	05/19/14 11:55 / SR		PHSC_101-H_140519A : 44		R97213
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	05/19/14 11:55 / SR		PHSC_101-H_140519A : 44		R97213
Chloride	ND	mg/L		1		E300.0	05/16/14 19:54 / SR		IC102-H_140516A : 39		R97231
Sulfate	ND	mg/L		1		E300.0	05/16/14 19:54 / SR		IC102-H_140516A : 39		R97231
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.4	mg/L		0.1		A5310 C	05/21/14 18:17 / eli-c		SUB-C186784 : 27		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 16:49 / cm		FIA203-HE_140519B : 17		R97232
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:25 / cm		FIA203-HE_140516B : 81		R97143
Nitrogen, Total	0.07	mg/L		0.05		A4500 N-C	05/20/14 17:05 / cm	05/16/14 09:46	FIA203-HE_140520H : 50		24572
Nitrogen, Total	ND	mg/L	H	0.05		A4500 N-C	06/11/14 16:10 / cm	06/11/14 12:51	FIA203-HE_140612A : 13		24900
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	05/19/14 16:36 / cm	05/19/14 13:11	FIA202-HE_140519B : 65		24599
-The Total Nitrogen was re-analyzed to confirm the analytical result. Both results are reported.											
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	05/23/14 02:37 / dck		ICPMS204-B_140521A : 262		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 02:37 / dck		ICPMS204-B_140521A : 262		R97311
Copper	ND	mg/L		0.001		E200.8	05/23/14 02:37 / dck		ICPMS204-B_140521A : 262		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 02:37 / dck		ICPMS204-B_140521A : 262		R97311
Zinc	0.019	mg/L		0.008		E200.8	05/23/14 02:37 / dck		ICPMS204-B_140521A : 262		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	05/23/14 02:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 263		24565
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 02:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 263		24565
Calcium	ND	mg/L		1		E200.7	05/19/14 13:07 / sld	05/16/14 08:16	ICP2-HE_140519A : 53		24565
Copper	ND	mg/L		0.001		E200.8	05/23/14 02:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 263		24565
Lead	ND	mg/L		0.0003		E200.8	05/23/14 02:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 263		24565

**Report** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

**Definitions:** H - Analysis performed past recommended holding time.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14050278-017  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 13:15 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	05/19/14 13:07 / sld	05/16/14 08:16	ICP2-HE_140519A : 53		24565
Mercury	ND	mg/L		5E-06		E245.1	05/20/14 12:57 / sbk	05/19/14 08:36	HGCV202-H_140520A : 18		24588
Zinc	ND	mg/L		0.008		E200.8	05/23/14 02:42 / dck	05/16/14 08:16	ICPMS204-B_140521A : 263		24565

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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 888-680-2218

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14050278-018  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 13:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	16	mg/L		1		A2540 D	05/16/14 11:46 / blm		I24 (14410200)_140516A : 29		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	100	mg/L		4		A2320 B	05/19/14 11:59 / SR		PHSC_101-H_140519A : 46		R97213
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	05/19/14 11:59 / SR		PHSC_101-H_140519A : 46		R97213
Chloride	3	mg/L		1		E300.0	05/16/14 20:05 / SR		IC102-H_140516A : 40		R97231
Sulfate	9	mg/L		1		E300.0	05/16/14 20:05 / SR		IC102-H_140516A : 40		R97231
Hardness as CaCO <sub>3</sub>	103	mg/L		1		A2340 B	05/19/14 13:11 / abb		CALC_140520A : 190		R97241
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.8	mg/L		0.1		A5310 C	05/21/14 18:28 / eli-c		SUB-C186784 : 28		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 16:50 / cm		FIA203-HE_140519B : 18		R97232
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:29 / cm		FIA203-HE_140516B : 84		R97143
Nitrogen, Total	0.39	mg/L		0.05		A4500 N-C	05/20/14 17:06 / cm	05/16/14 09:46	FIA203-HE_140520H : 51		24572
Phosphorus, Total as P	0.045	mg/L		0.005		E365.1	05/19/14 16:37 / cm	05/19/14 13:11	FIA202-HE_140519B : 66		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	05/23/14 02:46 / dck		ICPMS204-B_140521A : 264		R97311
Cadmium	0.00004	mg/L		0.00003		E200.8	05/23/14 02:46 / dck		ICPMS204-B_140521A : 264		R97311
Copper	0.003	mg/L		0.001		E200.8	05/23/14 02:46 / dck		ICPMS204-B_140521A : 264		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 02:46 / dck		ICPMS204-B_140521A : 264		R97311
Zinc	0.019	mg/L		0.008		E200.8	05/23/14 02:46 / dck		ICPMS204-B_140521A : 264		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.009	mg/L		0.001		E200.8	05/23/14 02:51 / dck	05/16/14 08:16	ICPMS204-B_140521A : 265		24565
Cadmium	0.00006	mg/L		0.00003		E200.8	05/28/14 19:38 / dck	05/27/14 13:15	ICPMS204-B_140528B : 52		24696
Calcium	28	mg/L		1		E200.7	05/19/14 13:11 / sld	05/16/14 08:16	ICP2-HE_140519A : 54		24565
Copper	0.005	mg/L		0.001		E200.8	05/23/14 02:51 / dck	05/16/14 08:16	ICPMS204-B_140521A : 265		24565
Lead	0.0042	mg/L		0.0003		E200.8	05/23/14 02:51 / dck	05/16/14 08:16	ICPMS204-B_140521A : 265		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** FC-CFR

**Lab ID:** H14050278-018

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 05/13/14 13:45

**Date Received:** 05/15/14

**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	05/19/14 13:11 / sld	05/16/14 08:16	ICP2-HE_140519A : 54		24565
Mercury	0.00023	mg/L		5E-06		E245.1	05/20/14 13:01 / sbk	05/19/14 08:36	HGCV202-H_140520A : 19		24588
Zinc	0.016	mg/L		0.008		E200.8	05/28/14 19:38 / dck	05/27/14 13:15	ICPMS204-B_140528B : 52		24696

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14050278-019  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 13:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	16	mg/L		1		A2540 D	05/16/14 11:46 / blm		I24 (14410200)_140516A : 30		TSS140516A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	100	mg/L		4		A2320 B	05/19/14 12:04 / SR		PHSC_101-H_140519A : 48		R97213
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	05/19/14 12:04 / SR		PHSC_101-H_140519A : 48		R97213
Chloride	3	mg/L		1		E300.0	05/16/14 20:16 / SR		IC102-H_140516A : 41		R97231
Sulfate	9	mg/L		1		E300.0	05/16/14 20:16 / SR		IC102-H_140516A : 41		R97231
Hardness as CaCO <sub>3</sub>	115	mg/L		1		A2340 B	05/19/14 13:22 / abb		CALC_140528A : 641		R97464
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.9	mg/L		0.1		A5310 C	05/21/14 18:38 / eli-c		SUB-C186784 : 29		C_R186784
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/19/14 16:51 / cm		FIA203-HE_140519B : 19		R97232
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	05/16/14 10:32 / cm		FIA203-HE_140516B : 87		R97143
Nitrogen, Total	0.46	mg/L		0.05		A4500 N-C	05/20/14 17:08 / cm	05/16/14 09:46	FIA203-HE_140520H : 52		24572
Phosphorus, Total as P	0.044	mg/L		0.005		E365.1	05/19/14 16:38 / cm	05/19/14 13:11	FIA202-HE_140519B : 67		24599
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	05/23/14 02:55 / dck		ICPMS204-B_140521A : 266		R97311
Cadmium	ND	mg/L		0.00003		E200.8	05/23/14 02:55 / dck		ICPMS204-B_140521A : 266		R97311
Copper	0.003	mg/L		0.001		E200.8	05/23/14 02:55 / dck		ICPMS204-B_140521A : 266		R97311
Lead	ND	mg/L		0.0003		E200.8	05/23/14 02:55 / dck		ICPMS204-B_140521A : 266		R97311
Zinc	0.013	mg/L		0.008		E200.8	05/23/14 02:55 / dck		ICPMS204-B_140521A : 266		R97311
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.009	mg/L		0.001		E200.8	05/23/14 03:22 / dck	05/16/14 08:16	ICPMS204-B_140521A : 272		24565
Cadmium	0.00006	mg/L		0.00003		E200.8	05/28/14 19:42 / dck	05/27/14 13:15	ICPMS204-B_140528B : 53		24696
Calcium	31	mg/L		1		E200.7	05/19/14 13:22 / sld	05/16/14 08:16	ICP2-HE_140519A : 57		24565
Copper	0.006	mg/L		0.001		E200.8	05/23/14 03:22 / dck	05/16/14 08:16	ICPMS204-B_140521A : 272		24565
Lead	0.0042	mg/L		0.0003		E200.8	05/23/14 03:22 / dck	05/16/14 08:16	ICPMS204-B_140521A : 272		24565

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14050278-019  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 13:45 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	05/19/14 13:22 / sld	05/16/14 08:16	ICP2-HE_140519A : 57		24565
Mercury	0.00040	mg/L		5E-06		E245.1	05/20/14 13:10 / sbk	05/19/14 08:36	HGCV202-H_140520A : 20		24588
Zinc	0.015	mg/L		0.008		E200.8	05/28/14 19:42 / dck	05/27/14 13:15	ICPMS204-B_140528B : 53		24696

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Trip Blank  
**Lab ID:** H14050278-020  
**Matrix:** Trip Blank

**Project:** CFR Monitoring-474374  
**Collection Date:** 05/13/14 09:30 **DateReceived:** 05/15/14  
**Report Date:** 06/12/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
----------	--------	-------	------------	----	-----	--------	--------------------	-----------	-------	-----------	---------

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



Client: MT DEQ-Federal Superfund  
Work Order: H14050278

## ANALYTICAL QC SUMMARY REPORT

Date: 12-Jun-14

Project: CFR Monitoring-474374

BatchID: 140520wa

Run ID :Run Order: HGCV202-H_140520A: 1			SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E245.1		
Analysis Date: 05/20/14 11:12		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	
Mercury	0.00019	0.00010	0.0002		94	90	110					

Associated samples: H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: HGCV202-H_140520A: 7			SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E245.1		
Analysis Date: 05/20/14 12:09		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	
Mercury	0.00019	0.00010	0.0002		93	90	110					

Associated samples: H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: HGCV202-H_140520A: 8			SampType: Continuing Calibration Verification Standar				Lab ID: CCV1		Method: E245.1		
Analysis Date: 05/20/14 12:13		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002		99	95	105				

Associated samples: H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** 24565

Run ID :Run Order: ICP2-HE_140519A: 25	SampType: Method Blank				Lab ID: MB-24565				Method: E200.7		
Analysis Date: 05/19/14 11:23	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.05	0.03									
Magnesium	ND	0.01									

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 26	SampType: Laboratory Control Sample				Lab ID: LCS-24565				Method: E200.7		
Analysis Date: 05/19/14 11:27	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.3	1.0	25	0.05392	97	85	115				
Magnesium	24.2	1.0	25		97	85	115				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 28	SampType: Serial Dilution				Lab ID: H14050278-001CDIL				Method: E200.7		
Analysis Date: 05/19/14 11:34	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.8	1.0				0	0	25.76	0.3	10	
Magnesium	6.84	1.0				0	0	6.692	2.1	10	

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 29	SampType: Sample Matrix Spike				Lab ID: H14050278-001CMS3				Method: E200.7		
Analysis Date: 05/19/14 11:38	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	50.3	1.0	25	25.76	98	70	130				
Magnesium	31.5	1.0	25	6.692	99	70	130				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24565**

**Date:** 12-Jun-14

Run ID :Run Order: ICP2-HE_140519A: 30	SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-001CMSD3				Method: E200.7		
Analysis Date: 05/19/14 11:41	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	48.7	1.0	25	25.76	92	70	130	50.26	3.1	20	
Magnesium	29.8	1.0	25	6.692	93	70	130	31.46	5.3	20	

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 45	SampType: Serial Dilution				Lab ID: H14050278-011CDIL				Method: E200.7		
Analysis Date: 05/19/14 12:37	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	31.8	1.0				0	0	32.79	2.9	10	
Magnesium	6.77	1.0				0	0	6.973	3.0	10	

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 46	SampType: Sample Matrix Spike				Lab ID: H14050278-011CMS3				Method: E200.7		
Analysis Date: 05/19/14 12:41	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	57.0	1.0	25	32.79	97	70	130				
Magnesium	30.3	1.0	25	6.973	93	70	130				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 47	SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-011CMSD3				Method: E200.7		
Analysis Date: 05/19/14 12:45	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	57.3	1.0	25	32.79	98	70	130	57.02	0.5	20	
Magnesium	30.5	1.0	25	6.973	94	70	130	30.32	0.7	20	

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24565**

**Date:** 12-Jun-14

Run ID :Run Order: ICPMS204-B_140521A: 207	SampType: Method Blank				Lab ID: MB-24565				Method: E200.8		
Analysis Date: 05/22/14 22:29	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	6E-05									
Cadmium	5E-05	3E-05									
Copper	0.0008	0.0003									
Lead	4E-05	3E-05									
Zinc	0.005	0.001									

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 208	SampType: Laboratory Control Sample				Lab ID: LCS-24565				Method: E200.8		
Analysis Date: 05/22/14 22:33	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.0010	0.5		103	85	115				
Cadmium	0.253	0.0010	0.25	0.0000542	101	85	115				
Copper	0.512	0.0050	0.5	0.0008224	102	85	115				
Lead	0.521	0.0010	0.5	0.0000423	104	85	115				
Zinc	0.513	0.010	0.5	0.004589	102	85	115				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 211	SampType: Sample Matrix Spike				Lab ID: H14050278-001CMS3				Method: E200.8		
Analysis Date: 05/22/14 22:47	Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.526	0.0010	0.5	0.006453	104	70	130				
Cadmium	0.251	0.0010	0.25	0.0001239	100	70	130				
Copper	0.522	0.0050	0.5	0.01699	101	70	130				
Lead	0.532	0.0010	0.5	0.002809	106	70	130				
Zinc	0.528	0.010	0.5	0.02819	100	70	130				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 24565**

**Date:** 12-Jun-14

Run ID :Run Order: ICPMS204-B_140521A: 212				SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-001CMSD3				Method: E200.8	
Analysis Date: 05/22/14 22:51				Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: E200.2	
Analytes 5		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic		0.518	0.0010	0.5	0.006453	102	70	130	0.526	1.6	20		
Cadmium		0.250	0.0010	0.25	0.0001239	100	70	130	0.251	0.6	20		
Copper		0.519	0.0050	0.5	0.01699	100	70	130	0.5217	0.6	20		
Lead		0.520	0.0010	0.5	0.002809	103	70	130	0.5315	2.2	20		
Zinc		0.522	0.010	0.5	0.02819	99	70	130	0.5283	1.1	20		

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 246			SampType: Sample Matrix Spike			Lab ID: H14050278-011CMS3			Method: E200.8		
Analysis Date: 05/23/14 01:25		Units: mg/L		Prep Info:			Prep Date: 5/16/2014		Prep Method: E200.2		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.552	0.0010	0.5	0.02735	105	70	130				
Cadmium	0.254	0.0010	0.25	0.0000806	102	70	130				
Copper	0.515	0.0050	0.5	0.007306	102	70	130				
Lead	0.526	0.0010	0.5	0.001058	105	70	130				
Zinc	0.516	0.010	0.5	0.01229	101	70	130				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 247				SampType: Sample Matrix Spike Duplicate			Lab ID: H14050278-011CMSD3			Method: E200.8		
Analysis Date: 05/23/14 01:29		Units: mg/L			Prep Info:		Prep Date: 5/16/2014		Prep Method: E200.2			
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.553	0.0010	0.5	0.02735	105	70	130	0.5521	0.3	20		
Cadmium	0.254	0.0010	0.25	0.0000806	102	70	130	0.2539	0.1	20		
Copper	0.515	0.0050	0.5	0.007306	102	70	130	0.5151	0.1	20		
Lead	0.526	0.0010	0.5	0.001058	105	70	130	0.5258	0.0	20		
Zinc	0.518	0.010	0.5	0.01229	101	70	130	0.5165	0.3	20		

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 12-Jun-14

**BatchID:** 24571

Run ID :Run Order: <b>FIA203-HE_140520H: 11</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24571</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>05/20/14 16:19</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/16/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	18.8	0.30	18.7	0.05751	<b>100</b>	90	110					

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A**

Run ID :Run Order: <b>FIA203-HE_140520H: 12</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-24571</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>05/20/14 16:20</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/16/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	0.06	0.02										

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A**

Run ID :Run Order: <b>FIA203-HE_140520H: 15</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14050226-007AMS</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>05/20/14 16:23</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/16/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.18	0.10	1	0.1734	<b>100</b>	90	110					

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A**

Run ID :Run Order: <b>FIA203-HE_140520H: 16</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14050226-007AMSD</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>05/20/14 16:25</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/16/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.15	0.10	1	0.1734	<b>98</b>	90	110	1.178	<b>2.3</b>	20		

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 24572**

**Date:** 12-Jun-14

Run ID :Run Order: FIA203-HE_140520H: 26		SampType: Laboratory Control Sample				Lab ID: LCS-24572				Method: A4500 N-C		
Analysis Date: 05/20/14 16:36		Units: mg/L				Prep Info: Prep Date: 5/16/2014				Prep Method: A4500 N-C		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	19.4	0.30	18.7	0.06509	103	90	110					
Associated samples: H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A												

Run ID :Run Order: FIA203-HE_140520H: 27			SampType: Method Blank			Lab ID: MB-24572			Method: A4500 N-C				
Analysis Date: 05/20/14 16:38			Units: mg/L			Prep Info: Prep Date: 5/16/2014			Prep Method: A4500 N-C				
Analytes 1			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total			0.07	0.02									
Associated samples: H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A													

Run ID :Run Order: FIA203-HE_140520H: 32		SampType: Sample Matrix Spike				Lab ID: H14050278-004AMS				Method: A4500 N-C	
Analysis Date: 05/20/14 16:44		Units: mg/L		Prep Info:			Prep Date: 5/16/2014		Prep Method: A4500 N-C		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	1.41	0.10	1	0.4079	100	90	110				
Associated samples: H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A											

Run ID :Run Order: FIA203-HE_140520H: 33			SampType: Sample Matrix Spike Duplicate			Lab ID: H14050278-004AMSD			Method: A4500 N-C		
Analysis Date: 05/20/14 16:45			Units: mg/L		Prep Info: Prep Date: 5/16/2014			Prep Method: A4500 N-C			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	1.41	0.10	1	0.4079	100	90	110	1.41	0.3	20	
Associated samples: H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A											

Run ID :Run Order: FIA203-HE_140520H: 46		SampType: Sample Matrix Spike				Lab ID: H14050278-014AMS				Method: A4500 N-C		
Analysis Date: 05/20/14 17:00		Units: mg/L				Prep Info: Prep Date: 5/16/2014		Prep Method: A4500 N-C				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.31	0.10	1	0.2442	106	90	110					
Associated samples: H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A												

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** 24572

Run ID :Run Order: FIA203-HE_140520H: 47				SampType: Sample Matrix Spike Duplicate			Lab ID: H14050278-014AMSD			Method: A4500 N-C		
Analysis Date: 05/20/14 17:02				Units: mg/L		Prep Info: Prep Date: 5/16/2014			Prep Method: A4500 N-C			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total		1.29	0.10	1	0.2442	105	90	110	1.309	1.2	20	

Associated samples: H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

**Project:** CFR Monitoring-474374

**BatchID:** 24588

Run ID :Run Order: <b>HGCV202-H_140520A: 10</b>				SampType: <b>Method Blank</b>		Lab ID: <b>MB-24588</b>				Method: <b>E245.1</b>		
Analysis Date: <b>05/20/14 12:22</b>				Units: <b>mg/L</b>		<b>Prep Info:</b> Prep Date: <b>5/19/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	1E-06									

Associated samples: **H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>HGCV202-H_140520A: 12</b>				SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24588</b>				Method: <b>E245.1</b>	
Analysis Date: <b>05/20/14 12:32</b>				Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>5/19/2014</b>				Prep Method: <b>E245.1</b>	
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00015	0.00010	0.00015		100	90	110					

Associated samples: **H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>HGCV202-H_140520A: 15</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14050246-011AMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>05/20/14 12:44</b>		Units: <b>mg/L</b>				<b>Prep Info:</b>		Prep Date: <b>5/19/2014</b>		Prep Method: <b>E245.1</b>		
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00014	0.00010	0.00015		92	70	130				

Associated samples: **H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>HGCV202-H_140520A: 16</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14050246-011AMSD</b>				Method: <b>E245.1</b>	
Analysis Date: <b>05/20/14 12:49</b>				Units: <b>mg/L</b>				<b>Prep Info:</b>		Prep Date: <b>5/19/2014</b>		Prep Method: <b>E245.1</b>	
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00014	0.00010	0.00015		91	70	130	0.0001377	1.2	20		

Associated samples: **H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 24599**

**Date:** 12-Jun-14

Run ID :Run Order: FIA202-HE_140519B: 39				SampType: Laboratory Control Sample		Lab ID: LCS-24599				Method: E365.1		
Analysis Date: 05/19/14 16:09		Units: mg/L		Prep Info: Prep Date: 5/19/2014				Prep Method: E365.1				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P		0.379	0.010	0.4		95	90	110				

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 40				SampType: Method Blank				Lab ID: MB-24599				Method: E365.1			
Analysis Date: 05/19/14 16:10				Units: mg/L				Prep Info: Prep Date: 5/19/2014				Prep Method: E365.1			
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P				ND	0.001										

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 44				SampType: Sample Matrix Spike		Lab ID: H14050278-001DMS				Method: E365.1		
Analysis Date: 05/19/14 16:14		Units: mg/L				Prep Info: Prep Date: 5/19/2014		Prep Method: E365.1				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.214	0.010	0.2	0.03598	89	90	110				S	

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 45				SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-001DMSD				Method: E365.1	
Analysis Date: 05/19/14 16:15				Units: mg/L		Prep Info: Prep Date: 5/19/2014				Prep Method: E365.1			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P		0.222	0.010	0.2	0.03598	93	90	110	0.2141	3.8	20		

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 58				SampType: Sample Matrix Spike		Lab ID: H14050278-011DMS				Method: E365.1		
Analysis Date: 05/19/14 16:28		Units: mg/L		Prep Info: Prep Date: 5/19/2014				Prep Method: E365.1				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.209	0.010	0.2	0.03028	89	90	110				S	

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** 24599

Run ID :Run Order: FIA202-HE_140519B: 58	SampType: Sample Matrix Spike	Lab ID: H14050278-011DMS	Method: E365.1								
Analysis Date: 05/19/14 16:28	Units: mg/L	Prep Info: Prep Date: 5/19/2014	Prep Method: E365.1								
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 59	SampType: Sample Matrix Spike Duplicate	Lab ID: H14050278-011DMSD	Method: E365.1								
Analysis Date: 05/19/14 16:30	Units: mg/L	Prep Info: Prep Date: 5/19/2014	Prep Method: E365.1								
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.208	0.010	0.2	0.03028	89	90	110	0.2092	0.6	20	S

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24696**

**Date:** 12-Jun-14

Run ID :Run Order: <b>ICPMS204-B_140528B: 20</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-24696</b>				Method: <b>E200.8</b>			
Analysis Date: <b>05/28/14 17:20</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/27/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium	ND	3E-05										
Zinc	ND	0.001										

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>ICPMS204-B_140528B: 21</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24696</b>				Method: <b>E200.8</b>			
Analysis Date: <b>05/28/14 17:24</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/27/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium	0.265	0.0010	0.25		<b>106</b>	85	115					
Zinc	0.510	0.010	0.5		<b>102</b>	85	115					

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>ICPMS204-B_140528B: 43</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14050278-012CMS3</b>				Method: <b>E200.8</b>			
Analysis Date: <b>05/28/14 18:59</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/27/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium	0.262	0.0010	0.25	0.00008599	<b>105</b>	70	130					
Zinc	0.509	0.010	0.5	0.01736	<b>98</b>	70	130					

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>ICPMS204-B_140528B: 44</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14050278-012CMSD3</b>				Method: <b>E200.8</b>			
Analysis Date: <b>05/28/14 19:03</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>5/27/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium	0.264	0.0010	0.25	0.00008599	<b>106</b>	70	130	0.2621	<b>0.9</b>	20		
Zinc	0.518	0.010	0.5	0.01736	<b>100</b>	70	130	0.5088	<b>1.7</b>	20		

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

**Project:** CFR Monitoring-474374

**BatchID:** 24721

Run ID :Run Order: ICPMS204-B_140530B: 20			SampType: Method Blank			Lab ID: MB-24721			Method: E200.8				
Analysis Date: 05/31/14 05:11			Units: mg/L			Prep Info: Prep Date: 5/29/2014			Prep Method: E200.2				
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium			ND	3E-05									
Zinc			0.001	0.001									

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C

Run ID :Run Order: ICPMS204-B_140530B: 21				SampType: Laboratory Control Sample				Lab ID: LCS-24721				Method: E200.8			
Analysis Date: 05/31/14 05:15				Units: mg/L				Prep Info: Prep Date: 5/29/2014				Prep Method: E200.2			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium				0.258	0.0010	0.25		103	85	115					
Zinc				0.478	0.010	0.5	0.001418	95	85	115					

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C

Run ID :Run Order: ICPMS204-B_140530B: 28				SampType: Sample Matrix Spike				Lab ID: H14050278-004CMS3				Method: E200.8	
Analysis Date: 05/31/14 05:46				Units: mg/L				Prep Info: Prep Date: 5/29/2014				Prep Method: E200.2	
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium		0.520	0.0010	0.5	0.000177	104	70	130					
Zinc		0.984	0.010	1	0.03398	95	70	130					

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C

Run ID :Run Order: ICPMS204-B_140530B: 29				SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-004CMSD3				Method: E200.8	
Analysis Date: 05/31/14 05:50				Units: mg/L				Prep Info: Prep Date: 5/29/2014				Prep Method: E200.2	
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium		0.528	0.0010	0.5	0.000177	106	70	130	0.5202	1.6	20		
Zinc		0.986	0.010	1	0.03398	95	70	130	0.9844	0.1	20		

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: 24779**

**Date:** 12-Jun-14

Run ID :Run Order: ICPMS204-B_140609A: 123				SampType: Method Blank				Lab ID: MB-24779				Method: E200.8			
Analysis Date: 06/09/14 20:56				Units: mg/L				Prep Info: Prep Date: 6/3/2014				Prep Method: E200.2			
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium				ND	3E-05										

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140609A: 124				SampType: Laboratory Control Sample				Lab ID: LCS-24779				Method: E200.8	
Analysis Date: 06/09/14 21:01				Units: mg/L				Prep Info:		Prep Date: 6/3/2014		Prep Method: E200.2	
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium		0.261	0.0010	0.25		104	85	115					

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140609A: 128				SampType: Sample Matrix Spike				Lab ID: H14060005-001AMS3				Method: E200.8	
Analysis Date: 06/09/14 21:18				Units: mg/L		Prep Info: Prep Date: 6/3/2014				Prep Method: E200.2			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium		0.241	0.0010	0.25	0.0000963	96	70	130					

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140609A: 129				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060005-001AMSD3				Method: E200.8	
Analysis Date: 06/09/14 21:22				Units: mg/L		Prep Info: Prep Date: 6/3/2014				Prep Method: E200.2			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Cadmium		0.229	0.0010	0.25	0.0000963	92	70	130	0.241	5.1	20		

Associated samples: H14050278-008C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 24900**

**Date:** 12-Jun-14

Run ID :Run Order: <b>FIA203-HE_140612A: 11</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24900</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>06/11/14 16:08</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/11/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	17.9	0.30	18.7		<b>96</b>	90	110					

Associated samples: **H14050278-017A**

Run ID :Run Order: <b>FIA203-HE_140612A: 12</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-24900</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>06/11/14 16:09</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/11/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	ND	0.02										

Associated samples: **H14050278-017A**

Run ID :Run Order: <b>FIA203-HE_140612A: 14</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14050278-017Adup</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>06/11/14 16:12</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	ND	0.10									20	

Associated samples: **H14050278-017A**

Run ID :Run Order: <b>FIA203-HE_140612A: 16</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060106-006AMS</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>06/11/14 16:14</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/11/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	7.22	0.15	5	2.46	<b>95</b>	90	110					

Associated samples: **H14050278-017A**

Run ID :Run Order: <b>FIA203-HE_140612A: 17</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060106-006AMSD</b>				Method: <b>A4500 N-C</b>			
Analysis Date: <b>06/11/14 16:15</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/11/2014</b>				Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	7.63	0.15	5	2.46	<b>103</b>	90	110	7.225	<b>5.5</b>	20		

Associated samples: **H14050278-017A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

Client: MT DEQ-Federal Superfund  
Work Order: H14050278  
Project: CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Date: 12-Jun-14

Prepared by Helena, MT Branch

BatchID: C\_R186784

Run ID :Run Order: SUB-C186784: 1	SampType: Initial Calibration Verification Standard				Lab ID: ICV-7684				Method: A5310 C			
Analysis Date: 05/21/14 11:28	Units: mg/L				Prep Info: Prep Date: 12/9/2013				Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Organic Carbon, Dissolved (DOC)	9.95	0.50	10		99	90	110					

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 3	SampType: Method Blank				Lab ID: MBLK				Method: A5310 C			
Analysis Date: 05/21/14 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	
Organic Carbon, Dissolved (DOC)	ND	0.07										

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 10	SampType: Sample Matrix Spike				Lab ID: C14050621-017DMS				Method: A5310 C			
Analysis Date: 05/21/14 14:10	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	
Organic Carbon, Dissolved (DOC)	10.9	0.50	5	5.758	103	85	115					

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 11	SampType: Sample Matrix Spike Duplicate				Lab ID: C14050621-017DMSD				Method: A5310 C			
Analysis Date: 05/21/14 14:22	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	
Organic Carbon, Dissolved (DOC)	10.9	0.50	5	5.758	103	85	115	10.93	0.0	10		

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 23	SampType: Sample Matrix Spike				Lab ID: H14050278-007E				Method: A5310 C			
Analysis Date: 05/21/14 17:02	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	
Organic Carbon, Dissolved (DOC)	8.95	0.50	5	3.795	103	85	115					

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: C\_R186784**

**Date:** 12-Jun-14

Run ID :Run Order: SUB-C186784: 23	SampType: Sample Matrix Spike	Lab ID: H14050278-007E	Method: A5310 C
Analysis Date: 05/21/14 17:02	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

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 24	SampType: Sample Matrix Spike Duplicate	Lab ID: H14050278-007E	Method: A5310 C
Analysis Date: 05/21/14 17:13	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Organic Carbon, Dissolved (DOC) 8.95 0.50 5 3.795 103 85 115 8.946 0.0 10

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 25	SampType: Laboratory Control Sample	Lab ID: LCS-7684	Method: A5310 C
Analysis Date: 05/21/14 17:25	Units: mg/L	Prep Info: Prep Date: 12/9/2013	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Organic Carbon, Dissolved (DOC) 10.0 0.50 10 100 90 110

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 30	SampType: Sample Matrix Spike	Lab ID: H14050278-017E	Method: A5310 C
Analysis Date: 05/21/14 18:49	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

Organic Carbon, Dissolved (DOC) 5.47 0.50 5 0.4127 101 85 115

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

Run ID :Run Order: SUB-C186784: 31	SampType: Sample Matrix Spike Duplicate	Lab ID: H14050278-017E	Method: A5310 C
Analysis Date: 05/21/14 19:00	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

Organic Carbon, Dissolved (DOC) 5.52 0.50 5 0.4127 102 85 115 5.474 0.9 10

Associated samples: H14050278-001E, H14050278-002E, H14050278-003E, H14050278-004E, H14050278-005E, H14050278-006E, H14050278-007E, H14050278-008E, H14050278-009E, H14050278-010E, H14050278-011E, H14050278-012E, H14050278-013E, H14050278-014E, H14050278-015E, H14050278-016E, H14050278-017E, H14050278-018E, H14050278-019E

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97143

Run ID :Run Order: FIA203-HE_140516B: 8	SampType: Initial Calibration Verification Standard	Lab ID: ICV	Method: E353.2
Analysis Date: 05/16/14 08:58	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.957 0.010 1	96 90 110	
Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D			
Run ID :Run Order: FIA203-HE_140516B: 9	SampType: Laboratory Fortified Blank	Lab ID: LFB	Method: E353.2
Analysis Date: 05/16/14 08:59	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
Nitrogen, Nitrate+Nitrite as N	0.951 0.011 1	95 90 110	
Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D			
Run ID :Run Order: FIA203-HE_140516B: 11	SampType: Initial Calibration Blank, Instrument Blank	Lab ID: ICB	Method: E353.2
Analysis Date: 05/16/14 09:02	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
Nitrogen, Nitrate+Nitrite as N	0.00267 0.010	0 0	
Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D			
Run ID :Run Order: FIA203-HE_140516B: 13	SampType: Method Blank	Lab ID: MBLK	Method: E353.2
Analysis Date: 05/16/14 09:04	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
Nitrogen, Nitrate+Nitrite as N	ND 0.001		
Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D			
Run ID :Run Order: FIA203-HE_140516B: 55	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E353.2
Analysis Date: 05/16/14 09:54	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.464 0.010 0.5	93 90 110	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R97143**

**Date:** 12-Jun-14

Run ID :Run Order: FIA203-HE_140516B: 55	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E353.2
Analysis Date: 05/16/14 09:54	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA203-HE_140516B: 57	SampType: Sample Matrix Spike	Lab ID: H14050269-002DMS	Method: E353.2
Analysis Date: 05/16/14 09:56	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

Nitrogen, Nitrate+Nitrite as N	0.925	0.011	1	92	90	110			
--------------------------------	-------	-------	---	----	----	-----	--	--	--

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA203-HE_140516B: 58	SampType: Sample Matrix Spike Duplicate	Lab ID: H14050269-002DMSD	Method: E353.2
Analysis Date: 05/16/14 09:58	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

Nitrogen, Nitrate+Nitrite as N	0.919	0.011	1	92	90	110	0.9249	0.7	20
--------------------------------	-------	-------	---	----	----	-----	--------	-----	----

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA203-HE_140516B: 69	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E353.2
Analysis Date: 05/16/14 10:11	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

Nitrogen, Nitrate+Nitrite as N	0.464	0.010	0.5	93	90	110			
--------------------------------	-------	-------	-----	----	----	-----	--	--	--

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA203-HE_140516B: 71	SampType: Sample Matrix Spike	Lab ID: H14050278-008DMS	Method: E353.2
Analysis Date: 05/16/14 10:13	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Nitrogen, Nitrate+Nitrite as N	0.983	0.011	1	0.0654	92	90	110		
--------------------------------	-------	-------	---	--------	----	----	-----	--	--

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 12-Jun-14

**BatchID:** R97143

Run ID :Run Order: FIA203-HE_140516B: 72				SampType: Sample Matrix Spike Duplicate			Lab ID: H14050278-008DMSD			Method: E353.2		
Analysis Date: 05/16/14 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
Nitrogen, Nitrate+Nitrite as N		0.978	0.011	1	0.0654	91	90	110	0.9826	0.5	20	

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA203-HE_140516B: 83				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E353.2		
Analysis Date: 05/16/14 10:27		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	
Nitrogen, Nitrate+Nitrite as N	0.454	0.010	0.5		91	90	110					

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA203-HE_140516B: 85				SampType: Sample Matrix Spike		Lab ID: H14050278-018DMS				Method: E353.2		
Analysis Date: 05/16/14 10:30		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
Nitrogen, Nitrate+Nitrite as N		0.932	0.011	1	0.01301	92	90	110				

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA203-HE_140516B: 86				SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-018DMSD				Method: E353.2	
Analysis Date: 05/16/14 10:31				Units: mg/L		Prep Info: Prep Date:				Prep Method:			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Nitrate+Nitrite as N		0.929	0.011	1	0.01301	92	90	110	0.9322	0.3	20		

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 12-Jun-14

**BatchID:** R97213

Run ID :Run Order: <b>PHSC_101-H_140519A: 6</b>				SampType: <b>Method Blank</b>		Lab ID: <b>MB</b>			Method: <b>A2320 B</b>		
Analysis Date: <b>05/19/14 09:53</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
<hr/>											
Alkalinity, Total as CaCO3	3	0.9									

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: <b>PHSC_101-H_140519A: 8</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS</b>			Method: <b>A2320 B</b>		
Analysis Date: <b>05/19/14 09:58</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	590	4.0	600	2.75	98	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: PHSC_101-H_140519A: 11				SampType: Sample Duplicate		Lab ID: H14050278-001ADUP				Method: A2320 B	
Analysis Date: 05/19/14 10:16		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
Alkalinity, Total as CaCO3	78	4.0						77.45	1.0	10	
Bicarbonate as HCO3	95	4.0						93.88	1.0	10	

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: PHSC_101-H_140519A: 15					SampType: Sample Matrix Spike		Lab ID: H14050278-002AMS			Method: A2320 B		
Analysis Date: 05/19/14 10:26		Units: mg/L					Prep Info: Prep Date:		Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	720	4.0	600	139.3	97	80	120					

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: PHSC_101-H_140519A: 52				SampType: Sample Duplicate				Lab ID: H14050289-001ADUP				Method: A2320 B	
Analysis Date: 05/19/14 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	
Alkalinity, Total as CaCO3		280	4.0						282.8	0.1	10		

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97213

Run ID :Run Order: PHSC_101-H_140519A: 52				SampType: Sample Duplicate		Lab ID: H14050289-001ADUP				Method: A2320 B		
Analysis Date: 05/19/14 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	
Bicarbonate as HCO3	340	4.0						344.3	0.1	10		

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R97226**

**Date:** 12-Jun-14

Run ID :Run Order: ICP2-HE_140519A: 6		SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E200.7		
Analysis Date: 05/19/14 10:11		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
Calcium	39.2	1.0	40		98	95	105				
Magnesium	39.7	1.0	40		99	95	105				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 7			SampType: Continuing Calibration Verification Standar				Lab ID: CCV-1		Method: E200.7		
Analysis Date: 05/19/14 10:15		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
Calcium	24.6	1.0	25		99	95	105				
Magnesium	24.6	1.0	25		98	95	105				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 10		SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.7		
Analysis Date: 05/19/14 10:26		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
Calcium	444	1.0	500		89	80	120				
Magnesium	492	1.0	500		98	80	120				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 11			SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7		
Analysis Date: 05/19/14 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	
Calcium	440	1.0	500		88	80	120					
Magnesium	485	1.0	500		97	80	120					

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 12-Jun-14

**BatchID:** R97226

Run ID :Run Order: ICP2-HE_140519A: 19				SampType: Continuing Calibration Verification Standar			Lab ID: CCV		Method: E200.7		
Analysis Date: 05/19/14 11:00		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.3	1.0	25		97	90	110				
Magnesium	24.2	1.0	25		97	90	110				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 31				SampType: Continuing Calibration Verification Standar			Lab ID: CCV		Method: E200.7		
Analysis Date: 05/19/14 11:45		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.3	1.0	25		97	90	110				
Magnesium	24.1	1.0	25		96	90	110				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 43		SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E200.7			
Analysis Date: 05/19/14 12:30		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
Calcium	24.9	1.0	25		100	90	110				
Magnesium	23.3	1.0	25		93	90	110				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

Run ID :Run Order: ICP2-HE_140519A: 55		SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E200.7			
Analysis Date: 05/19/14 13:15		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
Calcium	26.7	1.0	25		107	90	110				
Magnesium	25.2	1.0	25		101	90	110				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C, H14050278-011C, H14050278-012C, H14050278-013C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-017C, H14050278-018C, H14050278-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: R97227**

**Date:** 12-Jun-14

Run ID :Run Order: <b>FIA203-HE_140519A: 7</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 14:44</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	14.4	0.50	15.2		<b>95</b>	90	110				
Associated samples: <b>H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D</b>											

Run ID :Run Order: <b>FIA203-HE_140519A: 8</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 14:45</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	1.08	0.055	1		<b>108</b>	90	110				
Associated samples: <b>H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D</b>											

Run ID :Run Order: <b>FIA203-HE_140519A: 11</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 14:48</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.0655	0.050				0	0				
Associated samples: <b>H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D</b>											

Run ID :Run Order: <b>FIA203-HE_140519A: 38</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 15:21</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.458	0.050	0.5		<b>92</b>	90	110				
Associated samples: <b>H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D</b>											

Run ID :Run Order: <b>FIA203-HE_140519A: 52</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 15:37</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.451	0.050	0.5		<b>90</b>	90	110				
Associated samples: <b>H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D</b>											

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97227

Run ID :Run Order: FIA203-HE_140519A: 55	SampType: Sample Matrix Spike				Lab ID: H14050278-004DMS				Method: E350.1		
Analysis Date: 05/19/14 15:41	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
Nitrogen, Ammonia as N	1.02	0.055	1		102	80	120				

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D

Run ID :Run Order: FIA203-HE_140519A: 56	SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-004DMSD				Method: E350.1		
Analysis Date: 05/19/14 15:42	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
Nitrogen, Ammonia as N	1.04	0.055	1		104	80	120	1.018	2.4	10	

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: R97231**

**Date:** 12-Jun-14

Run ID :Run Order: IC102-H_140516A: 12			SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E300.0			
Analysis Date: 05/16/14 14:54			Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride			110	1.0	100		105	90	110				
Sulfate			430	1.0	400		106	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 13			SampType: Method Blank			Lab ID: ICB			Method: E300.0		
Analysis Date: 05/16/14 15:05		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	0.02	0.008									
Sulfate	0.1	0.08									

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 14				SampType: Laboratory Fortified Blank				Lab ID: LFB				Method: E300.0			
Analysis Date: 05/16/14 15:17				Units: mg/L				Prep Info:		Prep Date:		Prep Method:			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Chloride		49	1.0	50	0.022	98	90	110							
Sulfate		200	1.0	200	0.123	101	90	110							

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 15			SampType: Continuing Calibration Verification Standar				Lab ID: CCV051614-1			Method: E300.0		
Analysis Date: 05/16/14 15:28		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	100	1.0	100		104	90	110					
Sulfate	430	1.0	400		106	90	110					

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R97231**

**Date:** 12-Jun-14

Run ID :Run Order: IC102-H_140516A: 18		SampType: Sample Matrix Spike			Lab ID: H14050278-001AMS				Method: E300.0		
Analysis Date: 05/16/14 16:01		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50	2.383	100	90	110				
Sulfate	230	1.0	200	19.54	105	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 19				SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-001AMSD				Method: E300.0	
Analysis Date: 05/16/14 16:12				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		53	1.0	50	2.383	100	90	110	52.47	0.2	20		
Sulfate		230	1.0	200	19.54	105	90	110	228.8	0.6	20		

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 29				SampType: Continuing Calibration Verification Standar				Lab ID: CCV051614-2		Method: E300.0		
Analysis Date: 05/16/14 18:03		Units: mg/L		Prep Info:				Prep Date:		Prep Method:		
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		100	1.0	100		104	90	110				
Sulfate		430	1.0	400		107	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 32		SampType: Sample Matrix Spike				Lab ID: H14050278-011AMS				Method: E300.0	
Analysis Date: 05/16/14 18:36		Units: mg/L				Prep Info: Prep Date:		Prep Method:			
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50	1.888	100	90	110				
Sulfate	260	1.0	200	50.84	107	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97231

Run ID :Run Order: IC102-H_140516A: 33	SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-011AMSD				Method: E300.0		
Analysis Date: 05/16/14 18:47	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50	1.888	100	90	110	51.83	0.5	20	
Sulfate	270	1.0	200	50.84	108	90	110	264.9	0.4	20	

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 46	SampType: Sample Matrix Spike				Lab ID: H14050289-001AMS				Method: E300.0		
Analysis Date: 05/16/14 21:12	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	65	1.0	50	12.62	105	90	110				
Sulfate	340	1.0	200	125.8	109	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: IC102-H_140516A: 47	SampType: Sample Matrix Spike Duplicate				Lab ID: H14050289-001AMSD				Method: E300.0		
Analysis Date: 05/16/14 21:23	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	65	1.0	50	12.62	105	90	110	64.91	0.0	20	
Sulfate	350	1.0	200	125.8	110	90	110	343.4	0.7	20	

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 12-Jun-14

**BatchID:** R97232

Run ID :Run Order: <b>FIA203-HE_140519B: 7</b>			SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 16:37</b>			Units: <b>mg/L</b>		Prep Info: Prep Date:			Prep Method:					
Analytes <b>1</b>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N			14.3	0.50	15.2		94	90	110				

Associated samples: **H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D**

Run ID :Run Order: <b>FIA203-HE_140519B: 8</b>				SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>				Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 16:38</b>				Units: <b>mg/L</b>				Prep Info:		Prep Date:		Prep Method:			
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia as N				1.04	0.055	1		<b>104</b>	90	110					

Associated samples: **H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D**

Run ID :Run Order: <b>FIA203-HE_140519B: 9</b>			SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>		Method: <b>E350.1</b>		
Analysis Date: <b>05/19/14 16:40</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.457	0.050	0.5		<b>91</b>	90	110				

Associated samples: **H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D**

Run ID :Run Order: <b>FIA203-HE_140519B: 11</b>			SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>		Method: <b>E350.1</b>			
Analysis Date: <b>05/19/14 16:42</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N		0.0519	0.050				0	0				

Associated samples: **H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D**

Run ID :Run Order: <b>FIA203-HE_140519B: 13</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14050278-014DMS</b>				Method: <b>E350.1</b>		
Analysis Date: <b>05/19/14 16:44</b>		Units: <b>mg/L</b>		Prep Info: Prep Date:			Prep Method:					
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N		1.01	0.055	1		<b>101</b>	80	120				

Associated samples: **H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D**

Run ID :Run Order: <b>FIA203-HE_140519B: 14</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14050278-014DMSD</b>				Method: <b>E350.1</b>		
Analysis Date: <b>05/19/14 16:46</b>				Units: <b>mg/L</b>		Prep Info: Prep Date:			Prep Method:					
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrogen, Ammonia as N		1.02	0.055	1		<b>102</b>	80	120	1.006	<b>1.3</b>	10			

Associated samples: **H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D**

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97233

Run ID :Run Order: FIA202-HE_140519B: 8			SampType: Initial Calibration Verification Standard				Lab ID: ICV		Method: E365.1		
Analysis Date: 05/19/14 15:37		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
Phosphorus, Total as P	0.238	0.010	0.25		95	90	110				

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 10			SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB			Method: E365.1		
Analysis Date: 05/19/14 15:39		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	
Phosphorus, Total as P	0.00140	0.010				0	0					

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 42			SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E365.1		
Analysis Date: 05/19/14 16:12		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
Phosphorus, Total as P	0.107	0.010	0.1		107	90	110				

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

Run ID :Run Order: FIA202-HE_140519B: 56				SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E365.1		
Analysis Date: 05/19/14 16:26		Units: mg/L		Prep Info:			Prep Date:		Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Phosphorus, Total as P	0.107	0.010	0.1		107	90	110						

Associated samples: H14050278-001D, H14050278-002D, H14050278-003D, H14050278-004D, H14050278-005D, H14050278-006D, H14050278-007D, H14050278-008D, H14050278-009D, H14050278-010D, H14050278-011D, H14050278-012D, H14050278-013D, H14050278-014D, H14050278-015D, H14050278-016D, H14050278-017D, H14050278-018D, H14050278-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97272

Run ID :Run Order: FIA203-HE_140520H: 9				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: A4500 N-C		
Analysis Date: 05/20/14 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
Nitrogen, Total		0.492	0.10	0.5		98	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: FIA203-HE_140520H: 10				SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB		Method: A4500 N-C		
Analysis Date: 05/20/14 16:17		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	
Nitrogen, Total	-0.0369	0.10				0	0					

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: FIA203-HE_140520H: 29				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: A4500 N-C		
Analysis Date: 05/20/14 16:40		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
Nitrogen, Total		0.474	0.10	0.5		95	90	110				

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

Run ID :Run Order: FIA203-HE_140520H: 44				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: A4500 N-C		
Analysis Date: 05/20/14 16:58		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	
Nitrogen, Total	0.474	0.10	0.5		95	90	110					

Associated samples: H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: R97311**

**Date:** 12-Jun-14

Run ID :Run Order: ICPMS204-B_140521A: 11			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 05/22/14 00:45		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0607	0.0050	0.06		101	90	110				
Cadmium	0.0313	0.0010	0.03		104	90	110				
Copper	0.0629	0.010	0.06		105	90	110				
Lead	0.0614	0.010	0.06		102	90	110				
Zinc	0.0626	0.010	0.06		104	90	110				

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 12			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 05/22/14 00:50			Units: mg/L		Prep Info:			Prep Date:		Prep Method:	
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000205	0.0050									
Cadmium	0.000459	0.0010									
Copper	0.000375	0.010									
Lead	0.000262	0.010									
Zinc	0.00157	0.010									

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 13			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 05/22/14 00:54		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0108	0.0050	0.01		108	70	130				
Cadmium	0.00964	0.0010	0.01		96	70	130				
Copper	0.0210	0.010	0.02		105	70	130				
Lead	0.000354	0.010				0	0				
Zinc	0.0119	0.010	0.01		119	70	130				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: R97311**

**Date:** 12-Jun-14

Run ID :Run Order: ICPMS204-B_140521A: 13	SampType: Interference Check Sample AB	Lab ID: ICSAB	Method: E200.8
Analysis Date: 05/22/14 00:54	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <u>5</u>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 119	SampType: Laboratory Fortified Blank	Lab ID: LFB	Method: E200.8
Analysis Date: 05/22/14 08:44	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <u>5</u>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.0483 0.0050 0.05	97 85 115	
Cadmium	0.0470 0.0010 0.05	94 85 115	
Copper	0.0519 0.010 0.05 0.003869	96 85 115	
Lead	0.0486 0.010 0.05 0.0000087	97 85 115	
Zinc	0.0507 0.010 0.05 0.001293	99 85 115	

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

Run ID :Run Order: ICPMS204-B_140521A: 168	SampType: Method Blank	Lab ID: ICB	Method: E200.8
Analysis Date: 05/22/14 13:24	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <u>5</u>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	ND 3E-05		
Cadmium	ND 6E-06		
Copper	0.0001 3E-05		
Lead	3E-05 8E-06		
Zinc	0.0008 0.0003		

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

Run ID :Run Order: ICPMS204-B_140521A: 193	SampType: Initial Calibration Verification Standard	Lab ID: ICV STD	Method: E200.8
Analysis Date: 05/22/14 21:25	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <u>5</u>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.0600 0.0050 0.06	100 90 110	
Cadmium	0.0315 0.0010 0.03	105 90 110	

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R97311**

**Date:** 12-Jun-14

Run ID :Run Order: ICPMS204-B_140521A: 193			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 05/22/14 21:25		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0615	0.010	0.06		103	90	110				
Lead	0.0602	0.010	0.06		100	90	110				
Zinc	0.0630	0.010	0.06		105	90	110				

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 194			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 05/22/14 21:30			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
Arsenic	0.000227	0.0050									
Cadmium	0.000369	0.0010									
Copper	0.000350	0.010									
Lead	0.000232	0.010									
Zinc	0.00148	0.010									

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 195			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 05/22/14 21:34		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0103	0.0050	0.01		103	70	130				
Cadmium	0.00958	0.0010	0.01		96	70	130				
Copper	0.0200	0.010	0.02		100	70	130				
Lead	0.000325	0.010				0	0				
Zinc	0.0112	0.010	0.01		112	70	130				

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R97311**

**Date:** 12-Jun-14

Run ID :Run Order: ICPMS204-B_140521A: 201		SampType: Sample Matrix Spike			Lab ID: H14050275-001BMS				Method: E200.8		
Analysis Date: 05/22/14 22:01		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
Arsenic	0.0546	0.0010	0.05	0.0001745	109	70	130				
Cadmium	0.0482	0.0010	0.05	0.0000108	96	70	130				
Copper	0.0506	0.0050	0.05	0.0008594	99	70	130				
Lead	0.0516	0.0010	0.05	0.0000346	103	70	130				
Zinc	0.0578	0.010	0.05	0.009205	97	70	130				

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

Run ID :Run Order: ICPMS204-B_140521A: 202			SampType: Sample Matrix Spike Duplicate			Lab ID: H14050275-001BMSD			Method: E200.8		
Analysis Date: 05/22/14 22:06			Units: mg/L		Prep Info: Prep Date:			Prep Method:			
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0531	0.0010	0.05	0.0001745	106	70	130	0.05462	2.8	20	
Cadmium	0.0468	0.0010	0.05	0.0000108	94	70	130	0.04819	2.9	20	
Copper	0.0494	0.0050	0.05	0.0008594	97	70	130	0.0506	2.4	20	
Lead	0.0499	0.0010	0.05	0.0000346	100	70	130	0.05159	3.3	20	
Zinc	0.0568	0.010	0.05	0.009205	95	70	130	0.05784	1.7	20	

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

Run ID :Run Order: ICPMS204-B_140521A: 235			SampType: Sample Matrix Spike			Lab ID: H14050278-009BMS			Method: E200.8		
Analysis Date: 05/23/14 00:35		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0577	0.0010	0.05	0.00598	104	70	130				
Cadmium	0.0502	0.0010	0.05	0.0000279	100	70	130				
Copper	0.0548	0.0050	0.05	0.003856	102	70	130				
Lead	0.0504	0.0010	0.05	0.0000427	101	70	130				
Zinc	0.0565	0.010	0.05	0.006184	101	70	130				

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97311

Run ID :Run Order: ICPMS204-B_140521A: 236	SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-009BMSD				Method: E200.8		
Analysis Date: 05/23/14 00:39	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0570	0.0010	0.05	0.00598	102	70	130	0.05774	1.4	20	
Cadmium	0.0492	0.0010	0.05	0.0000279	98	70	130	0.05022	2.2	20	
Copper	0.0539	0.0050	0.05	0.003856	100	70	130	0.0548	1.7	20	
Lead	0.0496	0.0010	0.05	0.0000427	99	70	130	0.05037	1.5	20	
Zinc	0.0570	0.010	0.05	0.006184	102	70	130	0.05648	0.9	20	

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

Run ID :Run Order: ICPMS204-B_140521A: 267	SampType: Sample Matrix Spike				Lab ID: H14050278-019BMS				Method: E200.8		
Analysis Date: 05/23/14 03:00	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0588	0.0010	0.05	0.006409	105	70	130				
Cadmium	0.0510	0.0010	0.05		102	70	130				
Copper	0.0541	0.0050	0.05	0.003003	102	70	130				
Lead	0.0501	0.0010	0.05	0.0002444	100	70	130				
Zinc	0.0658	0.010	0.05	0.0127	106	70	130				

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

Run ID :Run Order: ICPMS204-B_140521A: 268	SampType: Sample Matrix Spike Duplicate				Lab ID: H14050278-019BMSD				Method: E200.8		
Analysis Date: 05/23/14 03:04	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
Arsenic	0.0590	0.0010	0.05	0.006409	105	70	130	0.05877	0.3	20	
Cadmium	0.0500	0.0010	0.05		100	70	130	0.051	1.9	20	
Copper	0.0545	0.0050	0.05	0.003003	103	70	130	0.05411	0.8	20	
Lead	0.0493	0.0010	0.05	0.0002444	98	70	130	0.05007	1.5	20	
Zinc	0.0649	0.010	0.05	0.0127	104	70	130	0.06585	1.4	20	

Associated samples: H14050278-001B, H14050278-002B, H14050278-003B, H14050278-004B, H14050278-005B, H14050278-006B, H14050278-007B, H14050278-008B, H14050278-009B, H14050278-010B, H14050278-011B, H14050278-012B, H14050278-013B, H14050278-014B, H14050278-015B, H14050278-016B, H14050278-017B, H14050278-018B, H14050278-019B

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97311

Run ID :Run Order: ICPMS204-B_140521A: 389			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 05/23/14 12:07			Units: mg/L		Prep Info: Prep Date:			Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000184	0.0050									
Cadmium	0.000270	0.0010									
Copper	0.000383	0.010									
Lead	0.000224	0.010									
Zinc	0.00141	0.010									

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

Run ID :Run Order: ICPMS204-B_140521A: 390			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 05/23/14 12:11		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0105	0.0050	0.01		105	70	130				
Cadmium	0.00928	0.0010	0.01		93	70	130				
Copper	0.0202	0.010	0.02		101	70	130				
Lead	0.000317	0.010				0	0				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: H14050278-001B, H14050278-001C, H14050278-002B, H14050278-002C, H14050278-003B, H14050278-003C, H14050278-004B, H14050278-004C, H14050278-005B, H14050278-005C, H14050278-006B, H14050278-006C, H14050278-007B, H14050278-007C, H14050278-008B, H14050278-008C, H14050278-009B, H14050278-009C, H14050278-010B, H14050278-010C, H14050278-011B, H14050278-011C, H14050278-012B, H14050278-012C, H14050278-013B, H14050278-013C, H14050278-014B, H14050278-014C, H14050278-015B, H14050278-015C, H14050278-016B, H14050278-016C, H14050278-017B, H14050278-017C, H14050278-018B, H14050278-018C, H14050278-019B, H14050278-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97518

Run ID :Run Order: <b>ICPMS204-B_140528B: 10</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV STD</b>			Method: <b>E200.8</b>			
Analysis Date: <b>05/28/14 16:36</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0321	0.0010	0.03		<b>107</b>	90	110				
Zinc	0.0624	0.010	0.06		<b>104</b>	90	110				

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>ICPMS204-B_140528B: 11</b>	SampType: <b>Interference Check Sample A</b>				Lab ID: <b>ICSA</b>			Method: <b>E200.8</b>			
Analysis Date: <b>05/28/14 16:40</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000310	0.0010									
Zinc	0.00159	0.010									

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>ICPMS204-B_140528B: 12</b>	SampType: <b>Interference Check Sample AB</b>				Lab ID: <b>ICSAB</b>			Method: <b>E200.8</b>			
Analysis Date: <b>05/28/14 16:44</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0100	0.0010	0.01		<b>101</b>	70	130				
Zinc	0.0121	0.010	0.01		<b>121</b>	70	130				

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>ICPMS204-B_140528B: 129</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV STD</b>			Method: <b>E200.8</b>			
Analysis Date: <b>05/29/14 01:16</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0319	0.0010	0.03		<b>106</b>	90	110				
Zinc	0.0633	0.010	0.06		<b>106</b>	90	110				

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

Run ID :Run Order: <b>ICPMS204-B_140528B: 130</b>	SampType: <b>Interference Check Sample A</b>				Lab ID: <b>ICSA</b>			Method: <b>E200.8</b>			
Analysis Date: <b>05/29/14 01:21</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000210	0.0010									
Zinc	0.00171	0.010									

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

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





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 12-Jun-14

**BatchID:** R97518

Run ID :Run Order: <b>ICPMS204-B_140528B: 131</b>			SampType: <b>Interference Check Sample AB</b>			Lab ID: <b>ICSAB</b>			Method: <b>E200.8</b>		
Analysis Date: <b>05/29/14 01:25</b>			Units: <b>mg/L</b>		Prep Info: Prep Date:			Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0100	0.0010	0.01		100	70	130				
Zinc	0.0117	0.010	0.01		117	70	130				

Associated samples: **H14050278-002C, H14050278-011C, H14050278-012C, H14050278-014C, H14050278-015C, H14050278-016C, H14050278-018C, H14050278-019C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 12-Jun-14

**BatchID:** R97637

Run ID :Run Order: ICPMS204-B_140530B: 9	SampType: Initial Calibration Verification Standard				Lab ID: ICV STD			Method: E200.8			
Analysis Date: 05/31/14 04:22	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
Cadmium	0.0323	0.0010	0.03		108	90	110				
Zinc	0.0627	0.010	0.06		105	90	110				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C

Run ID :Run Order: ICPMS204-B_140530B: 10	SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.8			
Analysis Date: 05/31/14 04:26	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
Cadmium	0.000270	0.0010									
Zinc	0.00167	0.010									

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C

Run ID :Run Order: ICPMS204-B_140530B: 11	SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.8			
Analysis Date: 05/31/14 04:31	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
Cadmium	0.00990	0.0010	0.01		99	70	130				
Zinc	0.0117	0.010	0.01		117	70	130				

Associated samples: H14050278-001C, H14050278-002C, H14050278-003C, H14050278-004C, H14050278-005C, H14050278-006C, H14050278-007C, H14050278-008C, H14050278-009C, H14050278-010C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** R97776

Run ID :Run Order: ICPMS204-B_140605A: 10	SampType: Initial Calibration Verification Standard	Lab ID: ICV STD	Method: E200.8
Analysis Date: 06/05/14 12:42	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	0.0317 0.0010 0.03	106 90 110	

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140605A: 11	SampType: Interference Check Sample A	Lab ID: ICSA	Method: E200.8
Analysis Date: 06/05/14 12:47	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
Cadmium	0.000270 0.0010		

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140605A: 12	SampType: Interference Check Sample AB	Lab ID: ICSAB	Method: E200.8
Analysis Date: 06/05/14 12:51	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
Cadmium	0.00931 0.0010 0.01	93 70 130	

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140605A: 126	SampType: Initial Calibration Verification Standard	Lab ID: ICV STD	Method: E200.8
Analysis Date: 06/05/14 21:47	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
Cadmium	0.0319 0.0010 0.03	106 90 110	

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140605A: 127	SampType: Interference Check Sample A	Lab ID: ICSA	Method: E200.8
Analysis Date: 06/05/14 21:52	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
Cadmium	0.000287 0.0010		

Associated samples: H14050278-008C

Run ID :Run Order: ICPMS204-B_140605A: 128	SampType: Interference Check Sample AB	Lab ID: ICSAB	Method: E200.8
Analysis Date: 06/05/14 21:56	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
Cadmium	0.00938 0.0010 0.01	94 70 130	

Associated samples: H14050278-008C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R97938**

**Date:** 12-Jun-14

Run ID :Run Order: <b>FIA203-HE_140612A: 9</b>			SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>		Method: <b>A4500 N-C</b>		
Analysis Date: <b>06/11/14 16:06</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.476	0.10	0.5		<b>95</b>	90	110				

Associated samples: **H14050278-017A**

Run ID :Run Order: <b>FIA203-HE_140612A: 10</b>			SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>A4500 N-C</b>		
Analysis Date: <b>06/11/14 16:07</b>			Units: <b>mg/L</b>		<b>Prep Info:</b>		Prep Date:		Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	-0.0496	0.10				0	0					

Associated samples: **H14050278-017A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: TSS140516A**

**Date:** 12-Jun-14

Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 1</b>					SampType: <b>Method Blank</b>		Lab ID: <b>MB-1_140516A</b>			Method: <b>A2540 D</b>		
Analysis Date: <b>05/16/14 11:31</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:			
Analytes <b>1</b>		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: **H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 2</b>					SampType: <b>Laboratory Control Sample</b>	Lab ID: <b>LCS-2_140516A</b>				Method: <b>A2540 D</b>		
Analysis Date: <b>05/16/14 11:31</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C		90.0	10	100		90	80	120				

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 4</b>					SampType: <b>Sample Duplicate</b>		Lab ID: <b>H14050268-001B DUP</b>			Method: <b>A2540 D</b>		
Analysis Date: <b>05/16/14 11:32</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C		74.0	10						68	<b>8.5</b>	5	R

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 1</b>					SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14050278-006A DUP</b>				Method: <b>A2540 D</b>	
Analysis Date: <b>05/16/14 11:38</b>					Units: <b>mg/L</b>		Prep Info: Prep Date:			Prep Method:				
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Solids, Total Suspended TSS @ 105 C		10.0	10						8		5			

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 2</b>					SampType: <b>Method Blank</b>		Lab ID: <b>MB-25_140516A</b>			Method: <b>A2540 D</b>		
Analysis Date: <b>05/16/14 11:44</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C		ND	1									

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14050278  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 12-Jun-14

Prepared by Helena, MT Branch

**BatchID:** TSS140516A

Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 2</b>	SampType: <b>Method Blank</b>	Lab ID: <b>MB-25_140516A</b>	Method: <b>A2540 D</b>								
Analysis Date: <b>05/16/14 11:44</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:								
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A**

Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 2</b>	SampType: <b>Laboratory Control Sample</b>	Lab ID: <b>LCS-26_140516A</b>	Method: <b>A2540 D</b>								
Analysis Date: <b>05/16/14 11:44</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:								
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	83.0	10	100		<b>83</b>	80	120				

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A**

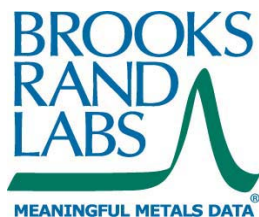
Run ID :Run Order: <b>ACCU-124 (14410200)_140516A: 2</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14050278-016A DUP</b>	Method: <b>A2540 D</b>								
Analysis Date: <b>05/16/14 11:45</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:								
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	32.0	10						30	<b>6.5</b>	5	R

Associated samples: **H14050278-001A, H14050278-002A, H14050278-003A, H14050278-004A, H14050278-005A, H14050278-006A, H14050278-007A, H14050278-008A, H14050278-009A, H14050278-010A, H14050278-011A, H14050278-012A, H14050278-013A, H14050278-014A, H14050278-015A, H14050278-016A, H14050278-017A, H14050278-018A, H14050278-019A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



June 02, 2014

Energy Laboratories, Inc.  
ATTN: Jonathan Dee Hager  
PO Box 5688  
Helena MT 59604  
jhager@energylab.com

RE: Project ENL-HL1201

Client Project: Silver Bow / Clark Fork

Dear Jonathan Dee Hager,

This report contains results for the 5 samples received by Brooks Rand Labs (BRL) on May 21, 2014. The samples were logged-in for the contracted analyses according to the chain-of-custody form(s). The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were method blank corrected as described in the calculations section of the relevant BRL SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details. All data is reported without qualification (with the exception of concentration qualifiers), and all associated quality control sample results meet the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Lydia Greaves  
Project Manager  
Lydia@brooksrands.com



## Report Information

### Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <<http://www.brooksrand.com/default.asp?contentID=586>>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BLK</b>	method blank	<b>MS</b>	matrix spike
<b>BRL</b>	Brooks Rand Labs	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>CRM</b>	certified reference material	<b>RPD</b>	relative percent difference
<b>D</b>	dissolved fraction	<b>RSD</b>	relative standard deviation
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>ICV</b>	initial calibration verification	<b>SOP</b>	standard operating procedure
<b>MDL</b>	method detection limit	<b>SRM</b>	standard reference material
<b>MRL</b>	method reporting limit	<b>T</b>	total recoverable fraction
<b>IBL</b>	instrument blank		

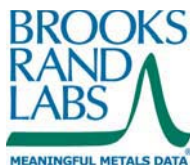
### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.



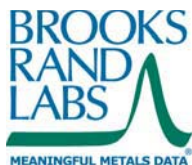


## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H14050278-016F	1421019-01	Water	Sample	05/13/2014	05/21/2014
H14050278-017F	1421019-02	Water	Sample	05/13/2014	05/21/2014
H14050278-018F	1421019-03	Water	Sample	05/13/2014	05/21/2014
H14050278-019F	1421019-04	Water	Sample	05/13/2014	05/21/2014
H14050278-020F	1421019-05	DIW	Trip Blank	05/13/2014	05/21/2014

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	05/27/2014	05/29/2014	B140925	1400468



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>H14050278-016F</b>										
1421019-01	MeHg	Water	T	0.343		0.020	0.049	ng/L	B140925	1400468
<b>H14050278-017F</b>										
1421019-02	MeHg	Water	T	0.020	U	0.020	0.050	ng/L	B140925	1400468
<b>H14050278-018F</b>										
1421019-03	MeHg	Water	T	0.807		0.020	0.050	ng/L	B140925	1400468
<b>H14050278-019F</b>										
1421019-04	MeHg	Water	T	0.839		0.020	0.050	ng/L	B140925	1400468
<b>H14050278-020F</b>										
1421019-05	MeHg	DIW	T	0.020	U	0.020	0.050	ng/L	B140925	1400468

## Accuracy & Precision Summary

Batch: B140925  
Lab Matrix: Water  
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B140925-BS1	Laboratory Fortified Blank (1421026) MeHg		1.000	0.802	ng/L	80% 67-133	
B140925-BS2	Laboratory Fortified Blank (1421026) MeHg		1.000	0.896	ng/L	90% 67-133	
B140925-MS2	Matrix Spike (1421019-01) MeHg	0.343	5.000	5.721	ng/L	108% 65-135	
B140925-MSD2	Matrix Spike Duplicate (1421019-01) MeHg	0.343	5.000	5.878	ng/L	111% 65-135	3% 35

## Method Blanks & Reporting Limits

Batch: B140925  
Matrix: Water  
Method: EPA 1630  
Analyte: MeHg

Sample	Result	Units
B140925-BLK1	0.006	ng/L
B140925-BLK2	0.009	ng/L
B140925-BLK3	0.008	ng/L
B140925-BLK4	0.003	ng/L
Average: 0.007		Standard Deviation: 0.003
Limit: 0.045		Limit: 0.015
		MDL: 0.020
		MRL: 0.050

**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1421019  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12929

## Sample Containers

**Lab ID:** 1421019-01  
**Sample:** H14050278-016F

**Report Matrix:** Water  
**Sample Type:** Sample

**Collected:** 05/13/2014  
**Received:** 05/21/2014

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCl (PP)	1417008	<2	Cooler

**Lab ID:** 1421019-02  
**Sample:** H14050278-017F

**Report Matrix:** Water  
**Sample Type:** Sample

**Collected:** 05/13/2014  
**Received:** 05/21/2014

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCl (PP)	1417008	<2	Cooler

**Lab ID:** 1421019-03  
**Sample:** H14050278-018F

**Report Matrix:** Water  
**Sample Type:** Sample

**Collected:** 05/13/2014  
**Received:** 05/21/2014

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCl (PP)	1417008	<2	Cooler

**Lab ID:** 1421019-04  
**Sample:** H14050278-019F

**Report Matrix:** Water  
**Sample Type:** Sample

**Collected:** 05/13/2014  
**Received:** 05/21/2014

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250mL	14-0034	2mL 6N HCl (PP)	1417008	<2	Cooler

**Lab ID:** 1421019-05  
**Sample:** H14050278-020F

**Report Matrix:** DIW  
**Sample Type:** Trip Blank

**Collected:** 05/13/2014  
**Received:** 05/21/2014

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250mL	14-0034	0.4% HCl (BRL)	1416015	<2	Cooler

## Shipping Containers

### Cooler

**Received:** May 21, 2014 9:03  
**Tracking No:** 1Z37EW970352259288 via UPS  
**Coolant Type:** Ice  
**Temperature:** 2.4 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No

**Custody seals present?** Yes  
**Custody seals intact?** Yes  
**COC present?** Yes

Energy Laboratories Inc  
3161 East Lyndale Avenue  
Helena, MT 59601  
(406) 442-0711



H14050278

# CHAIN-OF-CUSTODY RECORD

BRL Report 1421019  
Page 1 of 1  
15-May-14

Custody Seal: Y N  
Intact: Y N  
Signature Match: Y N

Shipped By: \_\_\_\_\_  
Receipt Temp: \_\_\_\_\_

Subcontractor:

Brooks Rand Labs  
3958 6th Ave NW  
Seattle, WA 98106  
TEL: (206) 632-6206 FAX: (206) 632-6017  
Acct #:

Subcontractor's Client:

Rush	Sample ID	Matrix	Collection Date	Bottle Type
<input type="checkbox"/>	H14050278-016F	Aqueous	05/13/14 12:00 P	1-CLIENT-SLD
<input type="checkbox"/>	H14050278-017F	Aqueous	05/13/14 01:15 P	1-CLIENT-SLD
<input type="checkbox"/>	H14050278-018F	Aqueous	05/13/14 01:45 P	1-CLIENT-SLD
<input type="checkbox"/>	H14050278-019F	Aqueous	05/13/14 01:45 P	1-CLIENT-SLD
<input type="checkbox"/>	H14050278-020A	Trip Blank	05/13/14 09:30 A	1-TRIP BLANK

Requested Tests														
SUB-BROOKSRAND														
1														
1														
1														
1														
1														

Earliest Due Date: 5/30/2014

Comments: PO# H12929

QC Level:

STD

Date/Time

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

5/15/14 17:16  
5/21/14 0903

# Workorder Receipt Checklist

MT DEQ-Federal Superfund

H14050278

Login completed by: Tracy L. Lorash

Date Received: 5/15/2014

Reviewed by: BL2000\sdull

Received by: TLL

Reviewed Date: 5/23/2014

Carrier Hand Del  
name:

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

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Collection time on COC for CSC is 10:30 - bottles have time of 10:45. Logged in with time from bottles per Erich.  
Collection time on COC for CFR-116A is 9:30 - bottles have time of 9:00. Logged in with time from COC per Erich.  
Cooler 1 was received at 0.9°C, Cooler 2 at 0.2°C. Samples were received on wet ice. TI 5/15/14



## Chain of Custody and Analytical Request Record

**PLEASE PRINT** (Provide as much information as possible.)

Page 1 of 3[illegible]

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.energovlab.com](http://www.energovlab.com) for additional information.



# Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (RESPEC)</b>	Project Name, PWS, Permit, Etc. <b>CFROW Monitoring</b>	Sample Origin State: <b>MT</b>	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>
Report Mail Address (Required): <b>See page 1</b>	Contact Name: <b>See page 1</b>	Cell:	Sampler: (Please Print) <b>See page 1</b>
<input type="checkbox"/> No Hard Copy Email:	Invoice Contact & Phone: <b>See page 1</b>	Purchase Order:	Quote/Bottle Order: <b>4958</b>

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	ANALYSIS REQUESTED										Standard Turnaround (TAT)	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Shipped by: <b>Hand</b>	
				Number of Containers	Air Type: A W S V B O DW	DW - Drinking Water	Vegetation Bioassay Other	TRAC, Cd, Cu, Pb, Zn	DIS, As, Cd, Cu, Pb, Zn	TDN	NH <sub>3</sub> , NO <sub>3</sub> -N, TP	TSS	Tot Alk, SO <sub>4</sub> , Cl <sup>-</sup>				Hardness (TRAC & Mg)
1. MWB-SBC	5-14-2014	1430	SW														
2. SBC P2	5-14-2014	1530	SW														
3. Field Blank #2	5-14-2014	1600	SW														
4. MCWC - MWB	5-14-2014	1630	SW														
5. MCWC-MWB Duplicate	5-14-2014	1630	SW														
6. CFR-84F	5-13-2014	1200	GW														
7. Field Blank #1	5-13-2014	1315	GW														
8. FC-CFR	5-13-2014	1345	GW														
9. FC-CFR Duplicate	5-13-2014	1345	GW														
10.																	

Custody Record MUST be Signed	Relinquished by (print): <b>Erin Weber</b>	Date/Time: <b>5-15-2014 / 1300</b>	Signature: <i>[Signature]</i>
	Relinquished by (print):	Date/Time:	Signature:
	Relinquished by (print):	Date/Time:	Signature:
Sample Disposal:	Return to Client:	Lab Disposal:	Signature: <i>[Signature]</i>

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: <b>MT-DEQ (RESPEC)</b>		Project Name, PWS, Permit, Etc. <b>CFROW Monitoring</b>		Sample Origin State: <b>MT</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>See page 1</b>		Contact Name: <b>See page 1</b>		Phone/Fax: <b>See page 1</b>		Sampler: (Please Print) <b>See page 1</b>	
Invoice Address (Required): <b>See page 1</b>		Invoice Contact & Phone: <b>See page 1</b>		Purchase Order: <b>H958/</b>		Quote/Bottle Order: <b>H958/</b>	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> Format: <input type="checkbox"/> State: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: <input type="checkbox"/> NELAC		Number of Containers Sample Type: <input type="checkbox"/> Air <input type="checkbox"/> Water <input type="checkbox"/> Soils <input type="checkbox"/> Other Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other DW - Drinking Water		ANALYSIS REQUESTED SEE ATTACHED		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page Comments: <b>Tot Hg (uug) analyzed from TR metals sample (see page 2)</b>	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Standard Turnaround (TAT) <b>R U S H</b>					
1. Field Blank #1 2. FC-CFR 3. FC-CFR Duplicate 4. CFR-84F 5. 6. 7. 8. 9. 10.		COLLECTION TIME 1315 1345 1345 1200     		MATRIX LW LW LW LW     		Date/Time 5-13-2014 5-13-2014 5-13-2014 5-13-2014     	
Relinquished by (print): <b>Erin Weber</b>		Relinquished by (print): <b>See page 1</b>		Received by (print): <b>See page 1</b>		Signature: <b>See page 1</b>	
Date/Time: <b>5-15-2014 / 1300</b>		Date/Time: <b>See page 1</b>		Date/Time: <b>See page 1</b>		Signature: <b>See page 1</b>	
Relinquished by (print): <b>Erin Weber</b>		Relinquished by (print): <b>See page 1</b>		Received by (print): <b>See page 1</b>		Signature: <b>See page 1</b>	
Date/Time: <b>5-15-2014 / 1300</b>		Date/Time: <b>See page 1</b>		Date/Time: <b>See page 1</b>		Signature: <b>See page 1</b>	

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.

## ANALYTICAL SUMMARY REPORT

July 07, 2014

MT DEQ-Federal Superfund  
PO Box 200901  
Helena, MT 59620-0901

Work Order: H14060255 Quote ID: H958 - CFR Monitoring-474374

Project Name: CFR OU Monitoring

Energy Laboratories Inc Helena MT received the following 19 samples for MT DEQ-Federal Superfund on 6/12/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14060255-001	CFR-116A	06/10/14 9:15	06/12/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14060255-002	CSC	06/10/14 10:30	06/12/14	Aqueous	Same As Above
H14060255-003	LBR-CFR-02	06/10/14 15:30	06/12/14	Aqueous	Same As Above
H14060255-004	CFR-42G	06/10/14 17:00	06/12/14	Aqueous	Same As Above
H14060255-005	CFR-27H	06/10/14 18:00	06/12/14	Aqueous	Same As Above
H14060255-006	CFR-11F	06/11/14 9:00	06/12/14	Aqueous	Same As Above
H14060255-007	CFR-07D	06/11/14 10:00	06/12/14	Aqueous	Same As Above
H14060255-008	CFR-03A	06/11/14 11:00	06/12/14	Aqueous	Same As Above
H14060255-009	WSC-SBC	06/11/14 11:30	06/12/14	Aqueous	Same As Above
H14060255-010	SS-25	06/11/14 13:00	06/12/14	Aqueous	Same As Above
H14060255-011	MWB-SBC	06/11/14 13:45	06/12/14	Aqueous	Same As Above
H14060255-012	SBC P2	06/11/14 14:30	06/12/14	Aqueous	Same As Above
H14060255-013	Field Blank #2	06/11/14 15:00	06/12/14	Aqueous	Same As Above
H14060255-014	MCWC-MWB	06/11/14 15:30	06/12/14	Aqueous	Same As Above
H14060255-015	MCWC-MWB Duplicate	06/11/14 15:30	06/12/14	Aqueous	Same As Above

## ANALYTICAL SUMMARY REPORT

H14060255-016	CFR-84F	06/10/14 12:00 06/12/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Mercury, Total Recoverable Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H14060255-017	Field Blank #1	06/10/14 13:00 06/12/14	Aqueous	Same As Above
H14060255-018	FC-CFR	06/10/14 13:30 06/12/14	Aqueous	Same As Above
H14060255-019	FC-CFR Duplicate	06/10/14 13:30 06/12/14	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

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

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

Report Approved By:



**CLIENT:** MT DEQ-Federal Superfund  
**Project:** CFR OU Monitoring  
**Work Order:** H14060255

**Report Date:** 07/07/14

## **CASE NARRATIVE**

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Samples for Methyl Mercury were submitted to BrooksRand Labs, attached is the report.

For this workorder, there were several samples, where at least one Dissolved metal was higher than the corresponding Total / Total Recoverable metal. These results were all confirmed by re-analysis or duplicate analysis. Wj 7/7/14



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A  
**Lab ID:** H14060255-001  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 09:15 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	22	mg/L		1		A2540 D	06/13/14 09:08 / cm		I24 (14410200)_140613A : 18		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	69	mg/L		4		A2320 B	06/13/14 15:08 / SR		PHSC_101-H_140613A : 127		R97974
Bicarbonate as HCO <sub>3</sub>	83	mg/L		4		A2320 B	06/13/14 15:08 / SR		PHSC_101-H_140613A : 127		R97974
Chloride	1	mg/L		1		E300.0	06/13/14 19:07 / cm		IC102-H_140613A : 25		R98024
Sulfate	13	mg/L		1		E300.0	06/13/14 19:07 / cm		IC102-H_140613A : 25		R98024
Hardness as CaCO <sub>3</sub>	75	mg/L		1		A2340 B	06/17/14 17:24 / abb		CALC_140618A : 104		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.6	mg/L		0.1		A5310 C	06/13/14 15:15 / eli-c		SUB-C187552 : 17		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 14:59 / cm		FIA203-HE_140613C : 28		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:34 / cm		FIA203-HE_140613A : 15		R97982
Nitrogen, Total	0.20	mg/L		0.05		A4500 N-C	06/17/14 11:36 / cm	06/16/14 13:51	FIA203-HE_140617A : 14		24952
Phosphorus, Total as P	0.037	mg/L		0.005		E365.1	06/18/14 08:50 / cm	06/16/14 15:23	FIA202-HE_140618A : 23		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.005	mg/L		0.001		E200.8	06/18/14 13:54 / dck		ICPMS204-B_140619A : 34		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 13:54 / dck		ICPMS204-B_140619A : 34		R98112
Copper	0.004	mg/L		0.001		E200.8	06/18/14 13:54 / dck		ICPMS204-B_140619A : 34		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 13:54 / dck		ICPMS204-B_140619A : 34		R98112
Zinc	0.008	mg/L		0.008		E200.8	06/18/14 13:54 / dck		ICPMS204-B_140619A : 34		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.006	mg/L		0.001		E200.8	06/18/14 14:12 / dck	06/13/14 16:38	ICPMS204-B_140619A : 38		24931
Cadmium	0.00009	mg/L		0.00003		E200.8	06/18/14 14:12 / dck	06/13/14 16:38	ICPMS204-B_140619A : 38		24931
Calcium	21	mg/L		1		E200.7	06/17/14 17:24 / sld	06/13/14 16:38	ICP2-HE_140617B : 49		24931
Copper	0.013	mg/L		0.001		E200.8	06/18/14 14:12 / dck	06/13/14 16:38	ICPMS204-B_140619A : 38		24931
Lead	0.0018	mg/L		0.0003		E200.8	06/18/14 14:12 / dck	06/13/14 16:38	ICPMS204-B_140619A : 38		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-116A

**Lab ID:** H14060255-001

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/10/14 09:15

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	5	mg/L		1		E200.7	06/17/14 17:24 / sld	06/13/14 16:38	ICP2-HE_140617B : 49		24931
Zinc	0.019	mg/L		0.008		E200.8	06/18/14 14:12 / dck	06/13/14 16:38	ICPMS204-B_140619A : 38		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CSC  
**Lab ID:** H14060255-002  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 10:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	06/13/14 09:09 / cm		I24 (14410200)_140613A : 19		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	06/13/14 15:13 / SR		PHSC_101-H_140613A : 129		R97974
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	06/13/14 15:13 / SR		PHSC_101-H_140613A : 129		R97974
Chloride	3	mg/L		1		E300.0	06/13/14 19:18 / cm		IC102-H_140613A : 26		R98024
Sulfate	28	mg/L		1		E300.0	06/13/14 19:18 / cm		IC102-H_140613A : 26		R98024
Hardness as CaCO <sub>3</sub>	151	mg/L		1		A2340 B	06/17/14 17:28 / abb		CALC_140618A : 115		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.9	mg/L		0.1		A5310 C	06/13/14 15:25 / eli-c		SUB-C187552 : 18		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:03 / cm		FIA203-HE_140613C : 31		R97999
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.05		E353.2	06/13/14 09:37 / cm		FIA203-HE_140613A : 18		R97982
Nitrogen, Total	0.29	mg/L		0.05		A4500 N-C	06/17/14 11:40 / cm	06/16/14 13:51	FIA203-HE_140617A : 17		24952
Phosphorus, Total as P	0.014	mg/L		0.005		E365.1	06/18/14 08:51 / cm	06/16/14 15:23	FIA202-HE_140618A : 24		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.002	mg/L		0.001		E200.8	06/18/14 14:16 / dck		ICPMS204-B_140619A : 39		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 14:16 / dck		ICPMS204-B_140619A : 39		R98112
Copper	ND	mg/L		0.001		E200.8	06/18/14 14:16 / dck		ICPMS204-B_140619A : 39		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 14:16 / dck		ICPMS204-B_140619A : 39		R98112
Zinc	0.016	mg/L		0.008		E200.8	06/18/14 14:16 / dck		ICPMS204-B_140619A : 39		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.002	mg/L		0.001		E200.8	06/18/14 14:20 / dck	06/13/14 16:38	ICPMS204-B_140619A : 40		24931
Cadmium	0.00005	mg/L		0.00003		E200.8	06/18/14 14:20 / dck	06/13/14 16:38	ICPMS204-B_140619A : 40		24931
Calcium	44	mg/L		1		E200.7	06/17/14 17:28 / sld	06/13/14 16:38	ICP2-HE_140617B : 50		24931
Copper	0.001	mg/L		0.001		E200.8	06/18/14 14:20 / dck	06/13/14 16:38	ICPMS204-B_140619A : 40		24931
Lead	ND	mg/L		0.0003		E200.8	06/18/14 14:20 / dck	06/13/14 16:38	ICPMS204-B_140619A : 40		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CSC

**Lab ID:** H14060255-002

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/10/14 10:30

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	10	mg/L		1		E200.7	06/17/14 17:28 / sld	06/13/14 16:38	ICP2-HE_140617B : 50		24931
Zinc	0.011	mg/L		0.008		E200.8	06/18/14 14:20 / dck	06/13/14 16:38	ICPMS204-B_140619A : 40		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02  
**Lab ID:** H14060255-003  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 15:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	4	mg/L		1		A2540 D	06/13/14 09:10 / cm		I24 (14410200)_140613A : 20		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	97	mg/L		4		A2320 B	06/13/14 15:19 / SR		PHSC_101-H_140613A : 131		R97974
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	06/13/14 15:19 / SR		PHSC_101-H_140613A : 131		R97974
Chloride	2	mg/L		1		E300.0	06/13/14 19:29 / cm		IC102-H_140613A : 27		R98024
Sulfate	8	mg/L		1		E300.0	06/13/14 19:29 / cm		IC102-H_140613A : 27		R98024
Hardness as CaCO <sub>3</sub>	87	mg/L		1		A2340 B	06/17/14 17:32 / abb		CALC_140618A : 126		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.3	mg/L		0.1		A5310 C	06/13/14 15:36 / eli-c		SUB-C187552 : 19		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:04 / cm		FIA203-HE_140613C : 32		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:38 / cm		FIA203-HE_140613A : 19		R97982
Nitrogen, Total	0.21	mg/L		0.05		A4500 N-C	06/17/14 11:41 / cm	06/16/14 13:51	FIA203-HE_140617A : 18		24952
Phosphorus, Total as P	0.033	mg/L		0.005		E365.1	06/18/14 08:52 / cm	06/16/14 15:23	FIA202-HE_140618A : 25		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	06/18/14 14:25 / dck		ICPMS204-B_140619A : 41		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 14:25 / dck		ICPMS204-B_140619A : 41		R98112
Copper	0.001	mg/L		0.001		E200.8	06/18/14 14:25 / dck		ICPMS204-B_140619A : 41		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 14:25 / dck		ICPMS204-B_140619A : 41		R98112
Zinc	ND	mg/L		0.008		E200.8	06/18/14 14:25 / dck		ICPMS204-B_140619A : 41		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.006	mg/L		0.001		E200.8	06/18/14 14:29 / dck	06/13/14 16:38	ICPMS204-B_140619A : 42		24931
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 14:29 / dck	06/13/14 16:38	ICPMS204-B_140619A : 42		24931
Calcium	26	mg/L		1		E200.7	06/17/14 17:32 / sld	06/13/14 16:38	ICP2-HE_140617B : 51		24931
Copper	0.002	mg/L		0.001		E200.8	06/18/14 14:29 / dck	06/13/14 16:38	ICPMS204-B_140619A : 42		24931
Lead	0.0004	mg/L		0.0003		E200.8	06/18/14 14:29 / dck	06/13/14 16:38	ICPMS204-B_140619A : 42		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02  
**Lab ID:** H14060255-003  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 15:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	6	mg/L		1		E200.7	06/17/14 17:32 / sld	06/13/14 16:38	ICP2-HE_140617B : 51		24931
Zinc	ND	mg/L		0.008		E200.8	06/18/14 14:29 / dck	06/13/14 16:38	ICPMS204-B_140619A : 42		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-42G  
**Lab ID:** H14060255-004  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 17:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	30	mg/L		1		A2540 D	06/13/14 09:10 / cm		I24 (14410200)_140613A : 21		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	06/13/14 15:25 / SR		PHSC_101-H_140613A : 133		R97974
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	06/13/14 15:25 / SR		PHSC_101-H_140613A : 133		R97974
Chloride	4	mg/L		1		E300.0	06/13/14 19:40 / cm		IC102-H_140613A : 28		R98024
Sulfate	36	mg/L		1		E300.0	06/13/14 19:40 / cm		IC102-H_140613A : 28		R98024
Hardness as CaCO <sub>3</sub>	133	mg/L		1		A2340 B	06/17/14 17:36 / abb		CALC_140618A : 137		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.0	mg/L		0.1		A5310 C	06/13/14 15:46 / eli-c		SUB-C187552 : 20		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:05 / cm		FIA203-HE_140613C : 33		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:40 / cm		FIA203-HE_140613A : 20		R97982
Nitrogen, Total	0.37	mg/L		0.05		A4500 N-C	06/17/14 11:42 / cm	06/16/14 13:51	FIA203-HE_140617A : 19		24952
Phosphorus, Total as P	0.066	mg/L		0.005		E365.1	06/18/14 08:53 / cm	06/16/14 15:23	FIA202-HE_140618A : 26		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.019	mg/L		0.001		E200.8	06/18/14 14:34 / dck		ICPMS204-B_140619A : 43		R98112
Cadmium	0.00005	mg/L		0.00003		E200.8	06/18/14 14:34 / dck		ICPMS204-B_140619A : 43		R98112
Copper	0.012	mg/L		0.001		E200.8	06/18/14 14:34 / dck		ICPMS204-B_140619A : 43		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 14:34 / dck		ICPMS204-B_140619A : 43		R98112
Zinc	0.012	mg/L		0.008		E200.8	06/18/14 14:34 / dck		ICPMS204-B_140619A : 43		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.024	mg/L		0.001		E200.8	06/18/14 14:38 / dck	06/13/14 16:38	ICPMS204-B_140619A : 44		24931
Cadmium	0.00025	mg/L		0.00003		E200.8	06/18/14 14:38 / dck	06/13/14 16:38	ICPMS204-B_140619A : 44		24931
Calcium	39	mg/L		1		E200.7	06/17/14 17:36 / sld	06/13/14 16:38	ICP2-HE_140617B : 52		24931
Copper	0.063	mg/L		0.001		E200.8	06/18/14 14:38 / dck	06/13/14 16:38	ICPMS204-B_140619A : 44		24931
Lead	0.0074	mg/L		0.0003		E200.8	06/18/14 14:38 / dck	06/13/14 16:38	ICPMS204-B_140619A : 44		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-42G

**Lab ID:** H14060255-004

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/10/14 17:00

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	06/17/14 17:36 / sld	06/13/14 16:38	ICP2-HE_140617B : 52		24931
Zinc	0.049	mg/L		0.008		E200.8	06/18/14 14:38 / dck	06/13/14 16:38	ICPMS204-B_140619A : 44		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H  
**Lab ID:** H14060255-005  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 18:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	25	mg/L		1		A2540 D	06/13/14 09:10 / cm		I24 (14410200)_140613A : 22		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	88	mg/L		4		A2320 B	06/13/14 15:31 / SR		PHSC_101-H_140613A : 135		R97974
Bicarbonate as HCO <sub>3</sub>	110	mg/L		4		A2320 B	06/13/14 15:31 / SR		PHSC_101-H_140613A : 135		R97974
Chloride	3	mg/L		1		E300.0	06/13/14 20:14 / cm		IC102-H_140613A : 31		R98024
Sulfate	33	mg/L		1		E300.0	06/13/14 20:14 / cm		IC102-H_140613A : 31		R98024
Hardness as CaCO <sub>3</sub>	116	mg/L		1		A2340 B	06/17/14 17:58 / abb		CALC_140618A : 148		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.7	mg/L		0.1		A5310 C	06/13/14 15:57 / eli-c		SUB-C187552 : 21		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:06 / cm		FIA203-HE_140613C : 34		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:41 / cm		FIA203-HE_140613A : 21		R97982
Nitrogen, Total	0.32	mg/L		0.05		A4500 N-C	06/17/14 11:43 / cm	06/16/14 13:51	FIA203-HE_140617A : 20		24952
Phosphorus, Total as P	0.045	mg/L		0.005		E365.1	06/18/14 08:54 / cm	06/16/14 15:23	FIA202-HE_140618A : 27		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.018	mg/L		0.001		E200.8	06/18/14 15:03 / dck		ICPMS204-B_140619A : 50		R98112
Cadmium	0.00005	mg/L		0.00003		E200.8	06/18/14 15:03 / dck		ICPMS204-B_140619A : 50		R98112
Copper	0.011	mg/L		0.001		E200.8	06/18/14 15:03 / dck		ICPMS204-B_140619A : 50		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 15:03 / dck		ICPMS204-B_140619A : 50		R98112
Zinc	ND	mg/L		0.008		E200.8	06/18/14 15:03 / dck		ICPMS204-B_140619A : 50		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.023	mg/L		0.001		E200.8	06/18/14 15:08 / dck	06/13/14 16:38	ICPMS204-B_140619A : 51		24931
Cadmium	0.00021	mg/L		0.00003		E200.8	06/18/14 15:08 / dck	06/13/14 16:38	ICPMS204-B_140619A : 51		24931
Calcium	34	mg/L		1		E200.7	06/17/14 17:58 / sld	06/13/14 16:38	ICP2-HE_140617B : 58		24931
Copper	0.056	mg/L		0.001		E200.8	06/18/14 15:08 / dck	06/13/14 16:38	ICPMS204-B_140619A : 51		24931
Lead	0.0061	mg/L		0.0003		E200.8	06/18/14 15:08 / dck	06/13/14 16:38	ICPMS204-B_140619A : 51		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H  
**Lab ID:** H14060255-005  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 18:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	06/17/14 17:58 / sld	06/13/14 16:38	ICP2-HE_140617B : 58		24931
Zinc	0.040	mg/L		0.008		E200.8	06/18/14 15:08 / dck	06/13/14 16:38	ICPMS204-B_140619A : 51		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F  
**Lab ID:** H14060255-006  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 09:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	13	mg/L		1		A2540 D	06/13/14 09:11 / cm		I24 (14410200)_140613A : 23		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	78	mg/L		4		A2320 B	06/13/14 15:36 / SR		PHSC_101-H_140613A : 137		R97974
Bicarbonate as HCO <sub>3</sub>	95	mg/L		4		A2320 B	06/13/14 15:36 / SR		PHSC_101-H_140613A : 137		R97974
Chloride	2	mg/L		1		E300.0	06/13/14 20:47 / cm		IC102-H_140613A : 34		R98024
Sulfate	32	mg/L		1		E300.0	06/13/14 20:47 / cm		IC102-H_140613A : 34		R98024
Hardness as CaCO <sub>3</sub>	107	mg/L		1		A2340 B	06/17/14 18:01 / abb		CALC_140618A : 159		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.3	mg/L		0.1		A5310 C	06/13/14 17:11 / eli-c		SUB-C187552 : 25		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:07 / cm		FIA203-HE_140613C : 35		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:42 / cm		FIA203-HE_140613A : 22		R97982
Nitrogen, Total	0.23	mg/L		0.05		A4500 N-C	06/17/14 11:44 / cm	06/16/14 13:51	FIA203-HE_140617A : 21		24952
Phosphorus, Total as P	0.028	mg/L		0.005		E365.1	06/18/14 08:55 / cm	06/16/14 15:23	FIA202-HE_140618A : 28		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.016	mg/L		0.001		E200.8	06/18/14 15:12 / dck		ICPMS204-B_140619A : 52		R98112
Cadmium	0.00003	mg/L		0.00003		E200.8	06/18/14 15:12 / dck		ICPMS204-B_140619A : 52		R98112
Copper	0.007	mg/L		0.001		E200.8	06/18/14 15:12 / dck		ICPMS204-B_140619A : 52		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 15:12 / dck		ICPMS204-B_140619A : 52		R98112
Zinc	0.013	mg/L		0.008		E200.8	06/18/14 15:12 / dck		ICPMS204-B_140619A : 52		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.018	mg/L		0.001		E200.8	06/18/14 15:17 / dck	06/13/14 16:38	ICPMS204-B_140619A : 53		24931
Cadmium	0.00013	mg/L		0.00003		E200.8	06/18/14 15:17 / dck	06/13/14 16:38	ICPMS204-B_140619A : 53		24931
Calcium	31	mg/L		1		E200.7	06/17/14 18:01 / sld	06/13/14 16:38	ICP2-HE_140617B : 59		24931
Copper	0.027	mg/L		0.001		E200.8	06/18/14 15:17 / dck	06/13/14 16:38	ICPMS204-B_140619A : 53		24931
Lead	0.0027	mg/L		0.0003		E200.8	06/18/14 15:17 / dck	06/13/14 16:38	ICPMS204-B_140619A : 53		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F  
**Lab ID:** H14060255-006  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 09:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	06/17/14 18:01 / sld	06/13/14 16:38	ICP2-HE_140617B : 59		24931
Zinc	0.021	mg/L		0.008		E200.8	06/18/14 15:17 / dck	06/13/14 16:38	ICPMS204-B_140619A : 53		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-07D  
**Lab ID:** H14060255-007  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 10:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	16	mg/L		1		A2540 D	06/13/14 09:11 / cm		I24 (14410200)_140613A : 24		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	74	mg/L		4		A2320 B	06/13/14 15:42 / SR		PHSC_101-H_140613A : 139		R97974
Bicarbonate as HCO <sub>3</sub>	90	mg/L		4		A2320 B	06/13/14 15:42 / SR		PHSC_101-H_140613A : 139		R97974
Chloride	2	mg/L		1		E300.0	06/13/14 20:58 / cm		IC102-H_140613A : 35		R98024
Sulfate	30	mg/L		1		E300.0	06/13/14 20:58 / cm		IC102-H_140613A : 35		R98024
Hardness as CaCO <sub>3</sub>	99	mg/L		1		A2340 B	06/17/14 18:05 / abb		CALC_140618A : 170		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.2	mg/L		0.1		A5310 C	06/13/14 17:22 / eli-c		SUB-C187552 : 26		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:09 / cm		FIA203-HE_140613C : 36		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:43 / cm		FIA203-HE_140613A : 23		R97982
Nitrogen, Total	0.19	mg/L		0.05		A4500 N-C	06/17/14 11:45 / cm	06/16/14 13:51	FIA203-HE_140617A : 22		24952
Phosphorus, Total as P	0.030	mg/L		0.005		E365.1	06/18/14 08:58 / cm	06/16/14 15:23	FIA202-HE_140618A : 31		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.015	mg/L		0.001		E200.8	06/18/14 15:21 / dck		ICPMS204-B_140619A : 54		R98112
Cadmium	0.00003	mg/L		0.00003		E200.8	06/18/14 15:21 / dck		ICPMS204-B_140619A : 54		R98112
Copper	0.006	mg/L		0.001		E200.8	06/18/14 15:21 / dck		ICPMS204-B_140619A : 54		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 15:21 / dck		ICPMS204-B_140619A : 54		R98112
Zinc	0.009	mg/L		0.008		E200.8	06/18/14 15:21 / dck		ICPMS204-B_140619A : 54		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.017	mg/L		0.001		E200.8	06/18/14 15:25 / dck	06/13/14 16:38	ICPMS204-B_140619A : 55		24931
Cadmium	0.00011	mg/L		0.00003		E200.8	06/18/14 15:25 / dck	06/13/14 16:38	ICPMS204-B_140619A : 55		24931
Calcium	29	mg/L		1		E200.7	06/17/14 18:05 / sld	06/13/14 16:38	ICP2-HE_140617B : 60		24931
Copper	0.024	mg/L		0.001		E200.8	06/18/14 15:25 / dck	06/13/14 16:38	ICPMS204-B_140619A : 55		24931
Lead	0.0024	mg/L		0.0003		E200.8	06/18/14 15:25 / dck	06/13/14 16:38	ICPMS204-B_140619A : 55		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-07D

**Lab ID:** H14060255-007

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/11/14 10:00

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	06/17/14 18:05 / sld	06/13/14 16:38	ICP2-HE_140617B : 60		24931
Zinc	0.018	mg/L		0.008		E200.8	06/18/14 15:25 / dck	06/13/14 16:38	ICPMS204-B_140619A : 55		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A  
**Lab ID:** H14060255-008  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 11:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	10	mg/L		1		A2540 D	06/13/14 09:14 / cm		I24 (14410200)_140613A : 29		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	68	mg/L		4		A2320 B	06/13/14 15:47 / SR		PHSC_101-H_140613A : 141		R97974
Bicarbonate as HCO <sub>3</sub>	83	mg/L		4		A2320 B	06/13/14 15:47 / SR		PHSC_101-H_140613A : 141		R97974
Chloride	2	mg/L		1		E300.0	06/13/14 21:09 / cm		IC102-H_140613A : 36		R98024
Sulfate	24	mg/L		1		E300.0	06/13/14 21:09 / cm		IC102-H_140613A : 36		R98024
Hardness as CaCO <sub>3</sub>	92	mg/L		1		A2340 B	06/17/14 18:09 / abb		CALC_140618A : 181		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.1	mg/L		0.1		A5310 C	06/13/14 17:32 / eli-c		SUB-C187552 : 27		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:10 / cm		FIA203-HE_140613C : 37		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:44 / cm		FIA203-HE_140613A : 24		R97982
Nitrogen, Total	0.20	mg/L		0.05		A4500 N-C	06/17/14 11:47 / cm	06/16/14 13:51	FIA203-HE_140617A : 23		24952
Phosphorus, Total as P	0.027	mg/L		0.005		E365.1	06/18/14 08:59 / cm	06/16/14 15:23	FIA202-HE_140618A : 32		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.014	mg/L		0.001		E200.8	06/18/14 15:30 / dck		ICPMS204-B_140619A : 56		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 15:30 / dck		ICPMS204-B_140619A : 56		R98112
Copper	0.005	mg/L		0.001		E200.8	06/18/14 15:30 / dck		ICPMS204-B_140619A : 56		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 15:30 / dck		ICPMS204-B_140619A : 56		R98112
Zinc	ND	mg/L		0.008		E200.8	06/18/14 15:30 / dck		ICPMS204-B_140619A : 56		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.015	mg/L		0.001		E200.8	06/18/14 15:34 / dck	06/13/14 16:38	ICPMS204-B_140619A : 57		24931
Cadmium	0.00008	mg/L		0.00003		E200.8	06/18/14 15:34 / dck	06/13/14 16:38	ICPMS204-B_140619A : 57		24931
Calcium	27	mg/L		1		E200.7	06/17/14 18:09 / sld	06/13/14 16:38	ICP2-HE_140617B : 61		24931
Copper	0.015	mg/L		0.001		E200.8	06/18/14 15:34 / dck	06/13/14 16:38	ICPMS204-B_140619A : 57		24931
Lead	0.0015	mg/L		0.0003		E200.8	06/18/14 15:34 / dck	06/13/14 16:38	ICPMS204-B_140619A : 57		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-03A

**Lab ID:** H14060255-008

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/11/14 11:00

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	6	mg/L		1		E200.7	06/17/14 18:09 / sld	06/13/14 16:38	ICP2-HE_140617B : 61		24931
Zinc	0.011	mg/L		0.008		E200.8	06/18/14 15:34 / dck	06/13/14 16:38	ICPMS204-B_140619A : 57		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14060255-009  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 11:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	11	mg/L		1		A2540 D	06/13/14 09:14 / cm		I24 (14410200)_140613A : 30		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	67	mg/L		4		A2320 B	06/13/14 15:53 / SR		PHSC_101-H_140613A : 143		R97974
Bicarbonate as HCO <sub>3</sub>	81	mg/L		4		A2320 B	06/13/14 15:53 / SR		PHSC_101-H_140613A : 143		R97974
Chloride	ND	mg/L		1		E300.0	06/13/14 21:20 / cm		IC102-H_140613A : 37		R98024
Sulfate	13	mg/L		1		E300.0	06/13/14 21:20 / cm		IC102-H_140613A : 37		R98024
Hardness as CaCO <sub>3</sub>	79	mg/L		1		A2340 B	06/17/14 18:13 / abb		CALC_140618A : 192		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.2	mg/L		0.1		A5310 C	06/13/14 17:42 / eli-c		SUB-C187552 : 28		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:11 / cm		FIA203-HE_140613C : 38		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:46 / cm		FIA203-HE_140613A : 25		R97982
Nitrogen, Total	0.14	mg/L		0.05		A4500 N-C	06/17/14 11:48 / cm	06/16/14 13:51	FIA203-HE_140617A : 24		24952
Phosphorus, Total as P	0.013	mg/L		0.005		E365.1	06/18/14 09:00 / cm	06/16/14 15:23	FIA202-HE_140618A : 33		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.005	mg/L		0.001		E200.8	06/18/14 15:39 / dck		ICPMS204-B_140619A : 58		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 15:39 / dck		ICPMS204-B_140619A : 58		R98112
Copper	0.003	mg/L		0.001		E200.8	06/18/14 15:39 / dck		ICPMS204-B_140619A : 58		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 15:39 / dck		ICPMS204-B_140619A : 58		R98112
Zinc	0.009	mg/L		0.008		E200.8	06/18/14 15:39 / dck		ICPMS204-B_140619A : 58		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.006	mg/L		0.001		E200.8	06/18/14 15:56 / dck	06/13/14 16:38	ICPMS204-B_140619A : 62		24931
Cadmium	0.00007	mg/L		0.00003		E200.8	06/18/14 15:56 / dck	06/13/14 16:38	ICPMS204-B_140619A : 62		24931
Calcium	24	mg/L		1		E200.7	06/17/14 18:13 / sld	06/13/14 16:38	ICP2-HE_140617B : 62		24931
Copper	0.012	mg/L		0.001		E200.8	06/18/14 15:56 / dck	06/13/14 16:38	ICPMS204-B_140619A : 62		24931
Lead	0.0011	mg/L		0.0003		E200.8	06/18/14 15:56 / dck	06/13/14 16:38	ICPMS204-B_140619A : 62		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14060255-009  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 11:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	4	mg/L		1		E200.7	06/17/14 18:13 / sld	06/13/14 16:38	ICP2-HE_140617B : 62		24931
Zinc	ND	mg/L		0.008		E200.8	06/18/14 15:56 / dck	06/13/14 16:38	ICPMS204-B_140619A : 62		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SS-25  
**Lab ID:** H14060255-010  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 13:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	6	mg/L		1		A2540 D	06/13/14 09:15 / cm		I24 (14410200)_140613A : 31		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	61	mg/L		4		A2320 B	06/13/14 15:58 / SR		PHSC_101-H_140613A : 145		R97974
Bicarbonate as HCO <sub>3</sub>	74	mg/L		4		A2320 B	06/13/14 15:58 / SR		PHSC_101-H_140613A : 145		R97974
Chloride	3	mg/L		1		E300.0	06/13/14 21:31 / cm		IC102-H_140613A : 38		R98024
Sulfate	29	mg/L		1		E300.0	06/13/14 21:31 / cm		IC102-H_140613A : 38		R98024
Hardness as CaCO <sub>3</sub>	83	mg/L		1		A2340 B	06/17/14 18:17 / abb		CALC_140618A : 203		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.7	mg/L		0.1		A5310 C	06/13/14 17:53 / eli-c		SUB-C187552 : 29		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:15 / cm		FIA203-HE_140613C : 41		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:49 / cm		FIA203-HE_140613A : 28		R97982
Nitrogen, Total	0.18	mg/L		0.05		A4500 N-C	06/17/14 11:51 / cm	06/16/14 13:51	FIA203-HE_140617A : 27		24952
Phosphorus, Total as P	0.037	mg/L		0.005		E365.1	06/18/14 09:01 / cm	06/16/14 15:23	FIA202-HE_140618A : 34		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.022	mg/L		0.001		E200.8	06/18/14 16:01 / dck		ICPMS204-B_140619A : 63		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 16:01 / dck		ICPMS204-B_140619A : 63		R98112
Copper	0.005	mg/L		0.001		E200.8	06/18/14 16:01 / dck		ICPMS204-B_140619A : 63		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 16:01 / dck		ICPMS204-B_140619A : 63		R98112
Zinc	0.008	mg/L		0.008		E200.8	06/18/14 16:01 / dck		ICPMS204-B_140619A : 63		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.023	mg/L		0.001		E200.8	06/18/14 16:05 / dck	06/13/14 16:38	ICPMS204-B_140619A : 64		24931
Cadmium	0.00008	mg/L		0.00003		E200.8	06/18/14 16:05 / dck	06/13/14 16:38	ICPMS204-B_140619A : 64		24931
Calcium	24	mg/L		1		E200.7	06/17/14 18:17 / sld	06/13/14 16:38	ICP2-HE_140617B : 63		24931
Copper	0.007	mg/L		0.001		E200.8	06/18/14 16:05 / dck	06/13/14 16:38	ICPMS204-B_140619A : 64		24931
Lead	0.0010	mg/L		0.0003		E200.8	06/18/14 16:05 / dck	06/13/14 16:38	ICPMS204-B_140619A : 64		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** SS-25

**Lab ID:** H14060255-010

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/11/14 13:00

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	6	mg/L		1		E200.7	06/17/14 18:17 / sld	06/13/14 16:38	ICP2-HE_140617B : 63		24931
Zinc	0.008	mg/L		0.008		E200.8	06/18/14 16:05 / dck	06/13/14 16:38	ICPMS204-B_140619A : 64		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





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 888-680-2218

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14060255-011  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 13:45 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	06/13/14 09:15 / cm		I24 (14410200)_140613A : 32		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	54	mg/L		4		A2320 B	06/13/14 16:03 / SR		PHSC_101-H_140613A : 147		R97974
Bicarbonate as HCO <sub>3</sub>	65	mg/L		4		A2320 B	06/13/14 16:03 / SR		PHSC_101-H_140613A : 147		R97974
Chloride	1	mg/L		1		E300.0	06/13/14 21:43 / cm		IC102-H_140613A : 39		R98024
Sulfate	23	mg/L		1		E300.0	06/13/14 21:43 / cm		IC102-H_140613A : 39		R98024
Hardness as CaCO <sub>3</sub>	69	mg/L		1		A2340 B	06/17/14 18:20 / abb		CALC_140618A : 214		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.0	mg/L		0.1		A5310 C	06/13/14 18:03 / eli-c		SUB-C187552 : 30		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:18 / cm		FIA203-HE_140613C : 44		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:53 / cm		FIA203-HE_140613A : 31		R97982
Nitrogen, Total	0.13	mg/L		0.05		A4500 N-C	06/17/14 11:53 / cm	06/16/14 13:51	FIA203-HE_140617A : 28		24952
Phosphorus, Total as P	0.025	mg/L		0.005		E365.1	06/18/14 09:02 / cm	06/16/14 15:23	FIA202-HE_140618A : 35		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.020	mg/L		0.001		E200.8	06/18/14 16:10 / dck		ICPMS204-B_140619A : 65		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 16:10 / dck		ICPMS204-B_140619A : 65		R98112
Copper	0.003	mg/L		0.001		E200.8	06/18/14 16:10 / dck		ICPMS204-B_140619A : 65		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 16:10 / dck		ICPMS204-B_140619A : 65		R98112
Zinc	0.010	mg/L		0.008		E200.8	06/18/14 16:10 / dck		ICPMS204-B_140619A : 65		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	06/18/14 16:27 / dck	06/13/14 16:38	ICPMS204-B_140619A : 69		24931
Cadmium	0.00008	mg/L		0.00003		E200.8	06/18/14 16:27 / dck	06/13/14 16:38	ICPMS204-B_140619A : 69		24931
Calcium	20	mg/L		1		E200.7	06/17/14 18:20 / sld	06/13/14 16:38	ICP2-HE_140617B : 64		24931
Copper	0.006	mg/L		0.001		E200.8	06/18/14 16:27 / dck	06/13/14 16:38	ICPMS204-B_140619A : 69		24931
Lead	0.0011	mg/L		0.0003		E200.8	06/18/14 16:27 / dck	06/13/14 16:38	ICPMS204-B_140619A : 69		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14060255-011  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 13:45 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	5	mg/L		1		E200.7	06/17/14 18:20 / sld	06/13/14 16:38	ICP2-HE_140617B : 64		24931
Zinc	ND	mg/L		0.008		E200.8	06/18/14 16:27 / dck	06/13/14 16:38	ICPMS204-B_140619A : 69		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SBC P2  
**Lab ID:** H14060255-012  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 14:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	06/13/14 09:16 / cm		I24 (14410200)_140613A : 33		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	90	mg/L		4		A2320 B	06/13/14 16:09 / SR		PHSC_101-H_140613A : 149		R97974
Bicarbonate as HCO <sub>3</sub>	85	mg/L		4		A2320 B	06/13/14 16:09 / SR		PHSC_101-H_140613A : 149		R97974
Chloride	13	mg/L		1		E300.0	06/13/14 21:54 / cm		IC102-H_140613A : 40		R98024
Sulfate	50	mg/L		1		E300.0	06/13/14 21:54 / cm		IC102-H_140613A : 40		R98024
Hardness as CaCO <sub>3</sub>	124	mg/L		1		A2340 B	06/17/14 18:24 / abb		CALC_140618A : 225		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	7.0	mg/L		0.1		A5310 C	06/13/14 18:14 / eli-c		SUB-C187552 : 31		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:19 / cm		FIA203-HE_140613C : 45		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:54 / cm		FIA203-HE_140613A : 32		R97982
Nitrogen, Total	0.41	mg/L		0.05		A4500 N-C	06/17/14 11:54 / cm	06/16/14 13:51	FIA203-HE_140617A : 29		24952
Phosphorus, Total as P	0.084	mg/L		0.005		E365.1	06/18/14 09:03 / cm	06/16/14 15:23	FIA202-HE_140618A : 36		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.029	mg/L		0.001		E200.8	06/18/14 16:32 / dck		ICPMS204-B_140619A : 70		R98112
Cadmium	0.00006	mg/L		0.00003		E200.8	06/18/14 16:32 / dck		ICPMS204-B_140619A : 70		R98112
Copper	0.010	mg/L		0.001		E200.8	06/18/14 16:32 / dck		ICPMS204-B_140619A : 70		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 16:32 / dck		ICPMS204-B_140619A : 70		R98112
Zinc	ND	mg/L		0.008		E200.8	06/18/14 16:32 / dck		ICPMS204-B_140619A : 70		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.028	mg/L		0.001		E200.8	06/18/14 16:36 / dck	06/13/14 16:38	ICPMS204-B_140619A : 71		24931
Cadmium	0.00009	mg/L		0.00003		E200.8	06/18/14 16:36 / dck	06/13/14 16:38	ICPMS204-B_140619A : 71		24931
Calcium	35	mg/L		1		E200.7	06/17/14 18:24 / sld	06/13/14 16:38	ICP2-HE_140617B : 65		24931
Copper	0.011	mg/L		0.001		E200.8	06/18/14 16:36 / dck	06/13/14 16:38	ICPMS204-B_140619A : 71		24931
Lead	0.0006	mg/L		0.0003		E200.8	06/18/14 16:36 / dck	06/13/14 16:38	ICPMS204-B_140619A : 71		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** SBC P2

**Lab ID:** H14060255-012

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/11/14 14:30

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	06/17/14 18:24 / sld	06/13/14 16:38	ICP2-HE_140617B : 65		24931
Zinc	0.009	mg/L		0.008		E200.8	06/18/14 16:36 / dck	06/13/14 16:38	ICPMS204-B_140619A : 71		24931

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14060255-013  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 15:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	06/13/14 09:17 / cm		I24 (14410200)_140613A : 34		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L	H	4		A2320 B	06/26/14 17:51 / SR		PHSC_101-H_140626A : 134		R98319
Bicarbonate as HCO <sub>3</sub>	ND	mg/L	H	4		A2320 B	06/26/14 17:51 / SR		PHSC_101-H_140626A : 134		R98319
Chloride	ND	mg/L		1		E300.0	06/13/14 22:05 / cm		IC102-H_140613A : 41		R98024
Sulfate	ND	mg/L		1		E300.0	06/13/14 22:05 / cm		IC102-H_140613A : 41		R98024
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	06/17/14 18:28 / abb		CALC_140618A : 236		R98078
-Alkalinity was confirmed by duplicate analysis. The re-analysis is reported.											
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.3	mg/L		0.1		A5310 C	06/13/14 18:24 / eli-c		SUB-C187552 : 32		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:20 / cm		FIA203-HE_140613C : 46		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:55 / cm		FIA203-HE_140613A : 33		R97982
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	06/17/14 11:55 / cm	06/16/14 13:51	FIA203-HE_140617A : 30		24952
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	06/18/14 09:04 / cm	06/16/14 15:23	FIA202-HE_140618A : 37		24956
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	06/18/14 16:40 / dck		ICPMS204-B_140619A : 72		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 16:40 / dck		ICPMS204-B_140619A : 72		R98112
Copper	ND	mg/L		0.001		E200.8	06/18/14 16:40 / dck		ICPMS204-B_140619A : 72		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 16:40 / dck		ICPMS204-B_140619A : 72		R98112
Zinc	ND	mg/L		0.008		E200.8	06/27/14 10:10 / dck		ICPMS204-B_140626A : 80		R98393
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	06/18/14 17:32 / dck	06/13/14 16:38	ICPMS204-B_140619A : 76		24931
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 17:32 / dck	06/13/14 16:38	ICPMS204-B_140619A : 76		24931
Calcium	ND	mg/L		1		E200.7	06/17/14 18:28 / sld	06/13/14 16:38	ICP2-HE_140617B : 66		24931
Copper	ND	mg/L		0.001		E200.8	06/18/14 17:32 / dck	06/13/14 16:38	ICPMS204-B_140619A : 76		24931
Lead	ND	mg/L		0.0003		E200.8	06/18/14 17:32 / dck	06/13/14 16:38	ICPMS204-B_140619A : 76		24931

**Report** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

**Definitions:** H - Analysis performed past recommended holding time.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14060255-013  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 15:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	06/17/14 18:28 / sld	06/13/14 16:38	ICP2-HE_140617B : 66		24931
Zinc	ND	mg/L		0.008		E200.8	06/18/14 17:32 / dck	06/13/14 16:38	ICPMS204-B_140619A : 76		24931

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14060255-014  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 15:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	06/13/14 09:17 / cm		I24 (14410200)_140613A : 35		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	48	mg/L		4		A2320 B	06/13/14 16:21 / SR		PHSC_101-H_140613A : 153		R97974
Bicarbonate as HCO <sub>3</sub>	58	mg/L		4		A2320 B	06/13/14 16:21 / SR		PHSC_101-H_140613A : 153		R97974
Chloride	ND	mg/L		1		E300.0	06/13/14 22:16 / cm		IC102-H_140613A : 42		R98024
Sulfate	5	mg/L		1		E300.0	06/13/14 22:16 / cm		IC102-H_140613A : 42		R98024
Hardness as CaCO <sub>3</sub>	46	mg/L		1		A2340 B	06/18/14 13:36 / abb		CALC_140620A : 234		R98175
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.8	mg/L		0.1		A5310 C	06/13/14 18:34 / eli-c		SUB-C187552 : 33		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:22 / cm		FIA203-HE_140613C : 47		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:56 / cm		FIA203-HE_140613A : 34		R97982
Nitrogen, Total	0.15	mg/L		0.05		A4500 N-C	06/17/14 11:59 / cm	06/16/14 13:51	FIA203-HE_140617A : 33		24952
Phosphorus, Total as P	0.026	mg/L		0.005		E365.1	06/18/14 09:07 / cm	06/16/14 15:23	FIA202-HE_140618A : 40		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.019	mg/L		0.001		E200.8	06/18/14 17:54 / dck		ICPMS204-B_140619A : 77		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 17:54 / dck		ICPMS204-B_140619A : 77		R98112
Copper	0.003	mg/L		0.001		E200.8	06/18/14 17:54 / dck		ICPMS204-B_140619A : 77		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 17:54 / dck		ICPMS204-B_140619A : 77		R98112
Zinc	0.010	mg/L		0.008		E200.8	06/18/14 17:54 / dck		ICPMS204-B_140619A : 77		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	06/18/14 18:21 / dck	06/13/14 16:40	ICPMS204-B_140619A : 83		24932
Cadmium	0.00010	mg/L		0.00003		E200.8	06/18/14 18:21 / dck	06/13/14 16:40	ICPMS204-B_140619A : 83		24932
Calcium	13	mg/L		1		E200.7	06/18/14 13:36 / sld	06/13/14 16:40	ICP2-HE_140618A : 28		24932
Copper	0.007	mg/L		0.001		E200.8	06/18/14 18:21 / dck	06/13/14 16:40	ICPMS204-B_140619A : 83		24932
Lead	0.0014	mg/L		0.0003		E200.8	06/18/14 18:21 / dck	06/13/14 16:40	ICPMS204-B_140619A : 83		24932

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14060255-014  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 15:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	3	mg/L		1		E200.7	06/17/14 19:13 / sld	06/13/14 16:40	ICP2-HE_140617B : 78		24932
Zinc	ND	mg/L		0.008		E200.8	06/18/14 18:21 / dck	06/13/14 16:40	ICPMS204-B_140619A : 83		24932

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14060255-015  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 15:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	06/13/14 09:17 / cm		I24 (14410200)_140613A : 36		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	48	mg/L		4		A2320 B	06/13/14 16:50 / SR		PHSC_101-H_140613A : 160		R97974
Bicarbonate as HCO <sub>3</sub>	57	mg/L		4		A2320 B	06/13/14 16:50 / SR		PHSC_101-H_140613A : 160		R97974
Chloride	ND	mg/L		1		E300.0	06/13/14 22:49 / cm		IC102-H_140613A : 45		R98024
Sulfate	6	mg/L		1		E300.0	06/13/14 22:49 / cm		IC102-H_140613A : 45		R98024
Hardness as CaCO <sub>3</sub>	47	mg/L		1		A2340 B	06/18/14 13:58 / abb		CALC_140620A : 245		R98175
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.9	mg/L		0.1		A5310 C	06/13/14 18:45 / eli-c		SUB-C187552 : 34		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:23 / cm		FIA203-HE_140613C : 48		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:57 / cm		FIA203-HE_140613A : 35		R97982
Nitrogen, Total	0.21	mg/L		0.05		A4500 N-C	06/17/14 12:00 / cm	06/16/14 13:51	FIA203-HE_140617A : 34		24952
Phosphorus, Total as P	0.026	mg/L		0.005		E365.1	06/18/14 09:08 / cm	06/16/14 15:23	FIA202-HE_140618A : 41		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.019	mg/L		0.001		E200.8	06/18/14 18:51 / dck		ICPMS204-B_140619A : 90		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 18:51 / dck		ICPMS204-B_140619A : 90		R98112
Copper	0.003	mg/L		0.001		E200.8	06/18/14 18:51 / dck		ICPMS204-B_140619A : 90		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 18:51 / dck		ICPMS204-B_140619A : 90		R98112
Zinc	0.022	mg/L		0.008		E200.8	06/18/14 18:51 / dck		ICPMS204-B_140619A : 90		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	06/18/14 18:55 / dck	06/13/14 16:40	ICPMS204-B_140619A : 91		24932
Cadmium	0.00010	mg/L		0.00003		E200.8	06/18/14 18:55 / dck	06/13/14 16:40	ICPMS204-B_140619A : 91		24932
Calcium	13	mg/L		1		E200.7	06/18/14 13:58 / sld	06/13/14 16:40	ICP2-HE_140618A : 34		24932
Copper	0.007	mg/L		0.001		E200.8	06/18/14 18:55 / dck	06/13/14 16:40	ICPMS204-B_140619A : 91		24932
Lead	0.0016	mg/L		0.0003		E200.8	06/18/14 18:55 / dck	06/13/14 16:40	ICPMS204-B_140619A : 91		24932

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14060255-015  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/11/14 15:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	3	mg/L		1		E200.7	06/17/14 19:28 / sld	06/13/14 16:40	ICP2-HE_140617B : 82		24932
Zinc	ND	mg/L		0.008		E200.8	06/18/14 18:55 / dck	06/13/14 16:40	ICPMS204-B_140619A : 91		24932

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-84F  
**Lab ID:** H14060255-016  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 12:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	20	mg/L		1		A2540 D	06/13/14 09:18 / cm		I24 (14410200)_140613A : 37		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	120	mg/L		4		A2320 B	06/13/14 17:00 / SR		PHSC_101-H_140613A : 164		R97974
Bicarbonate as HCO <sub>3</sub>	150	mg/L		4		A2320 B	06/13/14 17:00 / SR		PHSC_101-H_140613A : 164		R97974
Chloride	3	mg/L		1		E300.0	06/13/14 23:23 / cm		IC102-H_140613A : 48		R98024
Sulfate	37	mg/L		1		E300.0	06/13/14 23:23 / cm		IC102-H_140613A : 48		R98024
Hardness as CaCO <sub>3</sub>	144	mg/L		1		A2340 B	06/18/14 14:02 / abb		CALC_140620A : 256		R98175
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.6	mg/L		0.1		A5310 C	06/13/14 20:11 / eli-c		SUB-C187552 : 37		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:24 / cm		FIA203-HE_140613C : 49		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 09:59 / cm		FIA203-HE_140613A : 36		R97982
Nitrogen, Total	0.31	mg/L		0.05		A4500 N-C	06/17/14 12:01 / cm	06/16/14 13:51	FIA203-HE_140617A : 35		24952
Phosphorus, Total as P	0.051	mg/L		0.005		E365.1	06/18/14 09:09 / cm	06/16/14 15:23	FIA202-HE_140618A : 42		24956
<b>METALS, DISSOLVED</b>											
Arsenic	0.012	mg/L		0.001		E200.8	06/18/14 19:00 / dck		ICPMS204-B_140619A : 92		R98112
Cadmium	0.00005	mg/L		0.00003		E200.8	06/18/14 19:00 / dck		ICPMS204-B_140619A : 92		R98112
Copper	0.009	mg/L		0.001		E200.8	06/18/14 19:00 / dck		ICPMS204-B_140619A : 92		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 19:00 / dck		ICPMS204-B_140619A : 92		R98112
Zinc	0.009	mg/L		0.008		E200.8	06/18/14 19:00 / dck		ICPMS204-B_140619A : 92		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.015	mg/L		0.001		E200.8	06/18/14 19:04 / dck	06/13/14 16:40	ICPMS204-B_140619A : 93		24932
Cadmium	0.00014	mg/L		0.00003		E200.8	06/18/14 19:04 / dck	06/13/14 16:40	ICPMS204-B_140619A : 93		24932
Calcium	42	mg/L		1		E200.7	06/18/14 14:02 / sld	06/13/14 16:40	ICP2-HE_140618A : 35		24932
Copper	0.030	mg/L		0.001		E200.8	06/18/14 19:04 / dck	06/13/14 16:40	ICPMS204-B_140619A : 93		24932
Lead	0.0038	mg/L		0.0003		E200.8	06/18/14 19:04 / dck	06/13/14 16:40	ICPMS204-B_140619A : 93		24932

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-84F

**Lab ID:** H14060255-016

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/10/14 12:00

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	06/18/14 14:02 / sld	06/13/14 16:40	ICP2-HE_140618A : 35		24932
Mercury	0.000041	mg/L		5E-06		E245.1	06/25/14 10:40 / sbk	06/24/14 10:58	HGCV202-H_140625A : 6		25051
Zinc	0.030	mg/L		0.008		E200.8	06/18/14 19:04 / dck	06/13/14 16:40	ICPMS204-B_140619A : 93		24932

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14060255-017  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 13:00 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	06/13/14 09:19 / cm		I24 (14410200)_140613A : 40		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L	H	4		A2320 B	06/26/14 18:04 / SR		PHSC_101-H_140626A : 138		R98319
Bicarbonate as HCO <sub>3</sub>	ND	mg/L	H	4		A2320 B	06/26/14 18:04 / SR		PHSC_101-H_140626A : 138		R98319
Chloride	ND	mg/L		1		E300.0	06/13/14 23:34 / cm		IC102-H_140613A : 49		R98024
Sulfate	ND	mg/L		1		E300.0	06/13/14 23:34 / cm		IC102-H_140613A : 49		R98024
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	06/18/14 14:06 / abb		CALC_140620A : 267		R98175
-Alkalinity was confirmed by duplicate analysis. The re-analysis is reported.											
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.4	mg/L		0.1		A5310 C	06/13/14 20:20 / eli-c		SUB-C187552 : 38		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:25 / cm		FIA203-HE_140613C : 50		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 10:00 / cm		FIA203-HE_140613A : 37		R97982
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	06/17/14 12:02 / cm	06/16/14 13:51	FIA203-HE_140617A : 36		24952
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	06/18/14 09:15 / cm	06/16/14 15:26	FIA202-HE_140618A : 47		24957
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	06/18/14 19:09 / dck		ICPMS204-B_140619A : 94		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 19:09 / dck		ICPMS204-B_140619A : 94		R98112
Copper	ND	mg/L		0.001		E200.8	06/18/14 19:09 / dck		ICPMS204-B_140619A : 94		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 19:09 / dck		ICPMS204-B_140619A : 94		R98112
Zinc	0.014	mg/L		0.008		E200.8	06/18/14 19:09 / dck		ICPMS204-B_140619A : 94		R98112
-Zinc was confirmed by duplicate analysis.											
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	06/18/14 19:13 / dck	06/13/14 16:40	ICPMS204-B_140619A : 95		24932
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 19:13 / dck	06/13/14 16:40	ICPMS204-B_140619A : 95		24932
Calcium	ND	mg/L		1		E200.7	06/18/14 14:06 / sld	06/13/14 16:40	ICP2-HE_140618A : 36		24932
Copper	ND	mg/L		0.001		E200.8	06/18/14 19:13 / dck	06/13/14 16:40	ICPMS204-B_140619A : 95		24932
Lead	ND	mg/L		0.0003		E200.8	06/18/14 19:13 / dck	06/13/14 16:40	ICPMS204-B_140619A : 95		24932

**Report** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

**Definitions:** H - Analysis performed past recommended holding time.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #1

**Lab ID:** H14060255-017

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/10/14 13:00

**DateReceived:** 06/12/14

**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	06/18/14 14:06 / sld	06/13/14 16:40	ICP2-HE_140618A : 36		24932
Mercury	ND	mg/L		5E-06		E245.1	06/25/14 10:45 / sbk	06/24/14 10:58	HGCV202-H_140625A : 7		25051
Zinc	ND	mg/L		0.008		E200.8	06/18/14 19:13 / dck	06/13/14 16:40	ICPMS204-B_140619A : 95		24932

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14060255-018  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 13:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	18	mg/L		1		A2540 D	06/13/14 09:19 / cm		I24 (14410200)_140613A : 41		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	06/13/14 17:27 / SR		PHSC_101-H_140613A : 169		R97974
Bicarbonate as HCO <sub>3</sub>	130	mg/L		4		A2320 B	06/13/14 17:27 / SR		PHSC_101-H_140613A : 169		R97974
Chloride	2	mg/L		1		E300.0	06/13/14 23:45 / cm		IC102-H_140613A : 50		R98024
Sulfate	7	mg/L		1		E300.0	06/13/14 23:45 / cm		IC102-H_140613A : 50		R98024
Hardness as CaCO <sub>3</sub>	104	mg/L		1		A2340 B	06/18/14 14:10 / abb		CALC_140620A : 278		R98175
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.9	mg/L		0.1		A5310 C	06/13/14 20:31 / eli-c		SUB-C187552 : 39		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:26 / cm		FIA203-HE_140613C : 51		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 10:01 / cm		FIA203-HE_140613A : 38		R97982
Nitrogen, Total	0.35	mg/L		0.05		A4500 N-C	06/17/14 12:03 / cm	06/16/14 13:51	FIA203-HE_140617A : 37		24952
Phosphorus, Total as P	0.046	mg/L		0.005		E365.1	06/18/14 09:18 / cm	06/16/14 15:26	FIA202-HE_140618A : 50		24957
<b>METALS, DISSOLVED</b>											
Arsenic	0.008	mg/L		0.001		E200.8	06/18/14 19:17 / dck		ICPMS204-B_140619A : 96		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 19:17 / dck		ICPMS204-B_140619A : 96		R98112
Copper	0.001	mg/L		0.001		E200.8	06/18/14 19:17 / dck		ICPMS204-B_140619A : 96		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 19:17 / dck		ICPMS204-B_140619A : 96		R98112
Zinc	0.011	mg/L		0.008		E200.8	06/18/14 19:17 / dck		ICPMS204-B_140619A : 96		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	06/18/14 19:22 / dck	06/13/14 16:40	ICPMS204-B_140619A : 97		24932
Cadmium	0.00006	mg/L		0.00003		E200.8	06/18/14 19:22 / dck	06/13/14 16:40	ICPMS204-B_140619A : 97		24932
Calcium	29	mg/L		1		E200.7	06/18/14 14:10 / sld	06/13/14 16:40	ICP2-HE_140618A : 37		24932
Copper	0.003	mg/L		0.001		E200.8	06/18/14 19:22 / dck	06/13/14 16:40	ICPMS204-B_140619A : 97		24932
Lead	0.0051	mg/L		0.0003		E200.8	06/18/14 19:22 / dck	06/13/14 16:40	ICPMS204-B_140619A : 97		24932

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14060255-018  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 13:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	06/18/14 14:10 / sld	06/13/14 16:40	ICP2-HE_140618A : 37		24932
Mercury	0.00036	mg/L		5E-06		E245.1	06/25/14 10:49 / sbk	06/24/14 10:58	HGCV202-H_140625A : 8		25051
Zinc	0.017	mg/L		0.008		E200.8	06/18/14 19:22 / dck	06/13/14 16:40	ICPMS204-B_140619A : 97		24932

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14060255-019  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 13:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	15	mg/L		1		A2540 D	06/13/14 09:20 / cm		I24 (14410200)_140613A : 42		TSS140613A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	06/13/14 17:32 / SR		PHSC_101-H_140613A : 171		R97974
Bicarbonate as HCO <sub>3</sub>	130	mg/L		4		A2320 B	06/13/14 17:32 / SR		PHSC_101-H_140613A : 171		R97974
Chloride	2	mg/L		1		E300.0	06/13/14 23:56 / cm		IC102-H_140613A : 51		R98024
Sulfate	7	mg/L		1		E300.0	06/13/14 23:56 / cm		IC102-H_140613A : 51		R98024
Hardness as CaCO <sub>3</sub>	108	mg/L		1		A2340 B	06/17/14 19:50 / abb		CALC_140618A : 247		R98078
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.9	mg/L		0.1		A5310 C	06/13/14 20:41 / eli-c		SUB-C187552 : 40		C_41673
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/13/14 15:28 / cm		FIA203-HE_140613C : 52		R97999
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/13/14 10:02 / cm		FIA203-HE_140613A : 39		R97982
Nitrogen, Total	0.48	mg/L		0.05		A4500 N-C	06/17/14 12:05 / cm	06/16/14 13:51	FIA203-HE_140617A : 38		24952
Phosphorus, Total as P	0.045	mg/L		0.005		E365.1	06/18/14 09:19 / cm	06/16/14 15:26	FIA202-HE_140618A : 51		24957
<b>METALS, DISSOLVED</b>											
Arsenic	0.008	mg/L		0.001		E200.8	06/18/14 19:26 / dck		ICPMS204-B_140619A : 98		R98112
Cadmium	ND	mg/L		0.00003		E200.8	06/18/14 19:26 / dck		ICPMS204-B_140619A : 98		R98112
Copper	0.001	mg/L		0.001		E200.8	06/18/14 19:26 / dck		ICPMS204-B_140619A : 98		R98112
Lead	ND	mg/L		0.0003		E200.8	06/18/14 19:26 / dck		ICPMS204-B_140619A : 98		R98112
Zinc	0.010	mg/L		0.008		E200.8	06/18/14 19:26 / dck		ICPMS204-B_140619A : 98		R98112
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.011	mg/L		0.001		E200.8	06/18/14 19:44 / dck	06/13/14 16:40	ICPMS204-B_140619A : 102		24932
Cadmium	0.00006	mg/L		0.00003		E200.8	06/18/14 19:44 / dck	06/13/14 16:40	ICPMS204-B_140619A : 102		24932
Calcium	31	mg/L		1		E200.7	06/17/14 19:50 / sld	06/13/14 16:40	ICP2-HE_140617B : 88		24932
Copper	0.003	mg/L		0.001		E200.8	06/18/14 19:44 / dck	06/13/14 16:40	ICPMS204-B_140619A : 102		24932
Lead	0.0052	mg/L		0.0003		E200.8	06/18/14 19:44 / dck	06/13/14 16:40	ICPMS204-B_140619A : 102		24932

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14060255-019  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/10/14 13:30 **DateReceived:** 06/12/14  
**Report Date:** 07/07/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	06/17/14 19:50 / sld	06/13/14 16:40	ICP2-HE_140617B : 88		24932
Mercury	0.00030	mg/L		5E-06		E245.1	06/25/14 10:53 / sbk	06/24/14 10:58	HGCV202-H_140625A : 9		25051
Zinc	0.016	mg/L		0.008		E200.8	06/18/14 19:44 / dck	06/13/14 16:40	ICPMS204-B_140619A : 102		24932

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** 140625wa

Run ID :Run Order: <b>HGCV202-H_140625A: 1</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>06/25/14 10:19</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002		<b>100</b>	90	110				

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>HGCV202-H_140625A: 2</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>			
Analysis Date: <b>06/25/14 10:24</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00021	0.00010	0.0002		<b>103</b>	95	105				

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>HGCV202-H_140625A: 34</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>06/25/14 13:18</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002		<b>98</b>	90	110				

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** 140625wa

Run ID :Run Order: <b>HGCV202-H_140625A: 69</b>			SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>SW7470A</b>		
Analysis Date: <b>06/25/14 16:45</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	0.000195	0.00010	0.0002		<b>97</b>	90	110					

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 24931**

**Date:** 07-Jul-14

Run ID :Run Order: ICP2-HE_140617B: 35				SampType: Method Blank				Lab ID: MB-24931				Method: E200.7	
Analysis Date: 06/17/14 16:32				Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2	
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium		0.04	0.03										
Magnesium		ND	0.03										

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICP2-HE_140617B: 36				SampType: Laboratory Control Sample		Lab ID: LCS-24931			Method: E200.7		
Analysis Date: 06/17/14 16:36		Units: mg/L		Prep Info:			Prep Date: 6/13/2014		Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.6	1.0	25	0.03815	94	85	115				
Magnesium	23.3	1.0	25		93	85	115				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICP2-HE_140617B: 38				SampType: Serial Dilution		Lab ID: H14060243-001CDIL				Method: E200.7		
Analysis Date: 06/17/14 16:43		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:				
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium		79.4	1.0				0	0	75.07	5.6	10	
Magnesium		51.5	1.0				0	0	48.71	5.6	10	

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICP2-HE_140617B: 39		SampType: Sample Matrix Spike			Lab ID: H14060243-001CMS3				Method: E200.7		
Analysis Date: 06/17/14 16:47		Units: mg/L			Prep Info:		Prep Date: 6/13/2014		Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	122	1.0	50	75.07	93	70	130				
Magnesium	97.8	1.0	50	48.71	98	70	130				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICP2-HE_140617B: 40				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060243-001CMSD3				Method: E200.7	
Analysis Date: 06/17/14 16:51				Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2			
Analytes <u>2</u>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium		117	1.0	50	75.07	84	70	130	121.7	4.0	20		
Magnesium		93.9	1.0	50	48.71	90	70	130	97.76	4.1	20		

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** 24931

Run ID :Run Order: ICP2-HE_140617B: 40				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060243-001CMSD3				Method: E200.7		
Analysis Date: 06/17/14 16:51				Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2		
Analytes <u>2</u>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICP2-HE_140617B: 53		SampType: Serial Dilution			Lab ID: H14060255-004CDIL				Method: E200.7		
Analysis Date: 06/17/14 17:39		Units: mg/L			Prep Info: Prep Date: 6/13/2014				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	41.9	1.0				0	0	39.33	<u>6.4</u>	10	
Magnesium	9.24	1.0				0	0	8.552	<u>7.7</u>	10	

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICP2-HE_140617B: 54				SampType: Sample Matrix Spike		Lab ID: H14060255-004CMS3			Method: E200.7		
Analysis Date: 06/17/14 17:43		Units: mg/L		Prep Info: Prep Date: 6/13/2014			Prep Method: E200.2				
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	63.4	1.0	25	39.33	96	70	130				
Magnesium	32.4	1.0	25	8.552	96	70	130				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICP2-HE_140617B: 57		SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-004CMSD3			Method: E200.7		
Analysis Date: 06/17/14 17:54		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	64.7	1.0	25	39.33	101	70	130	63.44	1.9	20	
Magnesium	34.7	1.0	25	8.552	105	70	130	32.44	6.8	20	

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24931**

**Date:** 07-Jul-14

Run ID :Run Order: ICPMS204-B_140619A: 24			SampType: Method Blank			Lab ID: MB-24931			Method: E200.8				
Analysis Date: 06/18/14 13:11			Units: mg/L			Prep Info: Prep Date: 6/13/2014			Prep Method: E200.2				
Analytes 5			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic			6E-05	6E-05									
Cadmium			ND	3E-05									
Copper			ND	0.0003									
Lead			ND	3E-05									
Zinc			0.002	0.001									

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICPMS204-B_140619A: 25		SampType: Laboratory Control Sample			Lab ID: LCS-24931			Method: E200.8			
Analysis Date: 06/18/14 13:16		Units: mg/L		Prep Info: Prep Date: 6/13/2014			Prep Method: E200.2				
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.490	0.0010	0.5	0.0000594	98	85	115				
Cadmium	0.245	0.0010	0.25		98	85	115				
Copper	0.473	0.0050	0.5		95	85	115				
Lead	0.484	0.0010	0.5		97	85	115				
Zinc	0.483	0.010	0.5	0.002039	96	85	115				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICPMS204-B_140619A: 29				SampType: Sample Matrix Spike		Lab ID: H14060243-001CMS3				Method: E200.8		
Analysis Date: 06/18/14 13:33		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2				
Analytes <span style="color: red;">5</span>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.978	0.0010	1	0.004798	97	70	130				
Cadmium		0.448	0.0010	0.5	0.0000986	90	70	130				
Copper		0.950	0.0050	1	0.008862	94	70	130				
Lead		0.933	0.0010	1	0.00505	93	70	130				
Zinc		0.958	0.010	1	0.03258	93	70	130				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICPMS204-B_140619A: 30				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060243-001CMSD3				Method: E200.8		
Analysis Date: 06/18/14 13:37				Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2		
Analytes 5				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic				0.970	0.0010	1	0.004798	97	70	130	0.9776	0.8	20	

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24931**

**Date:** 07-Jul-14

Run ID :Run Order: ICPMS204-B_140619A: 30	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060243-001CMSD3				Method: E200.8		
Analysis Date: 06/18/14 13:37	Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.448	0.0010	0.5	0.0000986	90	70	130	0.4482	0.0	20	
Copper	0.935	0.0050	1	0.008862	93	70	130	0.9496	1.5	20	
Lead	0.940	0.0010	1	0.00505	94	70	130	0.9328	0.8	20	
Zinc	0.946	0.010	1	0.03258	91	70	130	0.958	1.3	20	

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICPMS204-B_140619A: 45	SampType: Sample Matrix Spike				Lab ID: H14060255-004CMS3				Method: E200.8		
Analysis Date: 06/18/14 14:42	Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.514	0.0010	0.5	0.02437	98	70	130				
Cadmium	0.234	0.0010	0.25	0.0002469	94	70	130				
Copper	0.531	0.0050	0.5	0.06324	94	70	130				
Lead	0.473	0.0010	0.5	0.007436	93	70	130				
Zinc	0.508	0.010	0.5	0.04925	92	70	130				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

Run ID :Run Order: ICPMS204-B_140619A: 46	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-004CMSD3				Method: E200.8		
Analysis Date: 06/18/14 14:46	Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.515	0.0010	0.5	0.02437	98	70	130	0.5142	0.2	20	
Cadmium	0.240	0.0010	0.25	0.0002469	96	70	130	0.2343	2.5	20	
Copper	0.538	0.0050	0.5	0.06324	95	70	130	0.5311	1.3	20	
Lead	0.492	0.0010	0.5	0.007436	97	70	130	0.4734	3.9	20	
Zinc	0.516	0.010	0.5	0.04925	93	70	130	0.5083	1.5	20	

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C

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





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24932**

**Date:** 07-Jul-14

Run ID :Run Order: ICP2-HE_140617B: 76			SampType: Method Blank			Lab ID: MB-24932			Method: E200.7				
Analysis Date: 06/17/14 19:05			Units: mg/L			Prep Info: Prep Date: 6/13/2014			Prep Method: E200.2				
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium			0.04	0.03									
Magnesium			ND	0.01									

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 77				SampType: Laboratory Control Sample		Lab ID: LCS-24932			Method: E200.7		
Analysis Date: 06/17/14 19:09		Units: mg/L		Prep Info: Prep Date: 6/13/2014			Prep Method: E200.2				
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.1	1.0	25	0.03989	96	85	115				
Magnesium	26.0	1.0	25		104	85	115				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 79				SampType: Serial Dilution				Lab ID: H14060255-014CDIL				Method: E200.7	
Analysis Date: 06/17/14 19:17				Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium		13.9	1.0				0	0	13.53	3.0	10		
Magnesium		3.30	1.0				0	0	3.239	1.9	10		

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 80		SampType: Sample Matrix Spike				Lab ID: H14060255-014CMS3				Method: E200.7	
Analysis Date: 06/17/14 19:20		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	37.5	1.0	25	13.53	96	70	130				
Magnesium	29.8	1.0	25	3.239	106	70	130				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 81		SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-014CMSD3			Method: E200.7		
Analysis Date: 06/17/14 19:24		Units: mg/L		Prep Info:			Prep Date: 6/13/2014		Prep Method: E200.2		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	36.2	1.0	25	13.53	91	70	130	37.53	3.6	20	
Magnesium	28.8	1.0	25	3.239	102	70	130	29.77	3.2	20	

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 24932**

**Date:** 07-Jul-14

Run ID :Run Order: ICP2-HE_140617B: 89				SampType: Serial Dilution				Lab ID: H14060255-019CDIL				Method: E200.7		
Analysis Date: 06/17/14 19:54				Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method:		
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium				32.9	1.0				0	0	30.52	7.6	10	
Magnesium				8.46	1.0				0	0	7.707	9.4	10	

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 90		SampType: Sample Matrix Spike				Lab ID: H14060255-019CMS3				Method: E200.7	
Analysis Date: 06/17/14 19:58		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	55.7	1.0	25	30.52	101	70	130				
Magnesium	32.3	1.0	25	7.707	99	70	130				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 91		SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-019CMSD3			Method: E200.7		
Analysis Date: 06/17/14 20:01		Units: mg/L		Prep Info:			Prep Date: 6/13/2014		Prep Method: E200.2		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	55.1	1.0	25	30.52	98	70	130	55.74	1.2	20	
Magnesium	32.1	1.0	25	7.707	97	70	130	32.34	0.9	20	

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 97				SampType: Serial Dilution		Lab ID: H14060256-019CDIL				Method: E200.7		
Analysis Date: 06/17/14 20:24		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:				
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium		39.0	1.0				0	0	38.6	1.1	10	
Magnesium		9.15	1.0				0	0	9.074	0.9	10	

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140618A: 26			SampType: Method Blank			Lab ID: MB-24932			Method: E200.7				
Analysis Date: 06/18/14 13:29			Units: mg/L			Prep Info: Prep Date: 6/13/2014			Prep Method: E200.2				
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium			0.04	0.03									
Magnesium			ND	0.01									

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** 24932

Run ID :Run Order: ICP2-HE_140618A: 27	SampType: Laboratory Control Sample				Lab ID: LCS-24932				Method: E200.7			
Analysis Date: 06/18/14 13:32	Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium	24.0	1.0	25	0.03842	96	85	115					
Magnesium	23.9	1.0	25		96	85	115					

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140618A: 29	SampType: Serial Dilution				Lab ID: H14060255-014CDIL				Method: E200.7			
Analysis Date: 06/18/14 13:40	Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium	13.5	1.0				0	0	12.87	4.4	10		
Magnesium	2.72	1.0				0	0	2.701	0.8	10		

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140618A: 30	SampType: Sample Matrix Spike				Lab ID: H14060255-014CMS3				Method: E200.7			
Analysis Date: 06/18/14 13:44	Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium	37.2	1.0	25	12.87	97	70	130					
Magnesium	26.6	1.0	25	2.701	95	70	130					

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

Run ID :Run Order: ICP2-HE_140618A: 33	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-014CMSD3				Method: E200.7			
Analysis Date: 06/18/14 13:55	Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium	35.2	1.0	25	12.87	89	70	130	37.21	5.6	20		
Magnesium	24.6	1.0	25	2.701	88	70	130	26.56	7.5	20		

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24932**

**Date:** 07-Jul-14

Run ID :Run Order: <b>ICPMS204-B_140619A: 79</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-24932</b>				Method: <b>E200.8</b>			
Analysis Date: <b>06/18/14 18:03</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/13/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	ND	6E-05										
Cadmium	ND	3E-05										
Copper	ND	0.0003										
Lead	ND	3E-05										
Zinc	ND	0.001										

Associated samples: **H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>ICPMS204-B_140619A: 80</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24932</b>				Method: <b>E200.8</b>			
Analysis Date: <b>06/18/14 18:08</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/13/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.488	0.0010	0.5		<b>98</b>	85	115					
Cadmium	0.243	0.0010	0.25		<b>97</b>	85	115					
Copper	0.489	0.0050	0.5		<b>98</b>	85	115					
Lead	0.477	0.0010	0.5		<b>95</b>	85	115					
Zinc	0.485	0.010	0.5		<b>97</b>	85	115					

Associated samples: **H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>ICPMS204-B_140619A: 84</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060255-014CMS3</b>				Method: <b>E200.8</b>			
Analysis Date: <b>06/18/14 18:25</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/13/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.511	0.0010	0.5	0.02059	<b>98</b>	70	130					
Cadmium	0.239	0.0010	0.25	0.0000997	<b>96</b>	70	130					
Copper	0.495	0.0050	0.5	0.006981	<b>98</b>	70	130					
Lead	0.482	0.0010	0.5	0.001446	<b>96</b>	70	130					
Zinc	0.482	0.010	0.5	0.00743	<b>95</b>	70	130					

Associated samples: **H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>ICPMS204-B_140619A: 85</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060255-014CMSD3</b>				Method: <b>E200.8</b>			
Analysis Date: <b>06/18/14 18:29</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/13/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.502	0.0010	0.5	0.02059	<b>96</b>	70	130	0.5113	<b>1.9</b>	20		
Cadmium	0.236	0.0010	0.25	0.0000997	<b>94</b>	70	130	0.2389	<b>1.3</b>	20		
Copper	0.493	0.0050	0.5	0.006981	<b>97</b>	70	130	0.4947	<b>0.3</b>	20		

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24932**

**Date:** 07-Jul-14

Run ID :Run Order: <b>ICPMS204-B_140619A: 85</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060255-014CMSD3</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/18/14 18:29</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/13/2014</b>				Prep Method: <b>E200.2</b>		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.474	0.0010	0.5	0.001446	94	70	130	0.4819	1.7	20	
Zinc	0.479	0.010	0.5	0.00743	94	70	130	0.4822	0.6	20	

Associated samples: **H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>ICPMS204-B_140619A: 103</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060255-019CMS3</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/18/14 19:48</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/13/2014</b>				Prep Method: <b>E200.2</b>		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.498	0.0010	0.5	0.01137	97	70	130				
Cadmium	0.236	0.0010	0.25	0.0000591	94	70	130				
Copper	0.490	0.0050	0.5	0.003238	97	70	130				
Lead	0.482	0.0010	0.5	0.005227	95	70	130				
Zinc	0.487	0.010	0.5	0.01631	94	70	130				

Associated samples: **H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>ICPMS204-B_140619A: 104</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060255-019CMSD3</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/18/14 19:52</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/13/2014</b>				Prep Method: <b>E200.2</b>		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.497	0.0010	0.5	0.01137	97	70	130	0.4977	0.1	20	
Cadmium	0.237	0.0010	0.25	0.0000591	95	70	130	0.236	0.5	20	
Copper	0.485	0.0050	0.5	0.003238	96	70	130	0.4896	0.9	20	
Lead	0.480	0.0010	0.5	0.005227	95	70	130	0.4818	0.3	20	
Zinc	0.482	0.010	0.5	0.01631	93	70	130	0.4871	1.0	20	

Associated samples: **H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 24952**

**Date:** 07-Jul-14

Run ID :Run Order: FIA203-HE_140617A: 11				SampType: Laboratory Control Sample		Lab ID: LCS-24952				Method: A4500 N-C		
Analysis Date: 06/17/14 11:32		Units: mg/L		Prep Info: Prep Date: 6/16/2014				Prep Method: A4500 N-C				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	18.2	0.30	18.7		97	90	110					

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: FIA203-HE_140617A: 12				SampType: Method Blank				Lab ID: MB-24952				Method: A4500 N-C			
Analysis Date: 06/17/14 11:34				Units: mg/L				Prep Info: Prep Date: 6/16/2014				Prep Method: A4500 N-C			
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total				ND	0.02										

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: FIA203-HE_140617A: 15				SampType: Sample Matrix Spike				Lab ID: H14060255-001Ams				Method: A4500 N-C	
Analysis Date: 06/17/14 11:37				Units: mg/L		Prep Info: Prep Date: 6/16/2014				Prep Method: A4500 N-C			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total		1.12	0.10	1	0.2021	91	90	110					

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: FIA203-HE_140617A: 16				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-001Amsd				Method: A4500 N-C	
Analysis Date: 06/17/14 11:38				Units: mg/L		Prep Info: Prep Date: 6/16/2014				Prep Method: A4500 N-C			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total		1.08	0.10	1	0.2021	88	90	110	1.116	3.5	20	S	

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: FIA203-HE_140617A: 31				SampType: Sample Matrix Spike		Lab ID: H14060255-013Ams				Method: A4500 N-C		
Analysis Date: 06/17/14 11:56		Units: mg/L		Prep Info: Prep Date: 6/16/2014				Prep Method: A4500 N-C				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.03	0.10	1		103	90	110					

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** 24952

Run ID :Run Order: FIA203-HE_140617A: 31	SampType: Sample Matrix Spike	Lab ID: H14060255-013Ams	Method: A4500 N-C								
Analysis Date: 06/17/14 11:56	Units: mg/L	Prep Info: Prep Date: 6/16/2014	Prep Method: A4500 N-C								
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: FIA203-HE_140617A: 32	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060255-013Amsd	Method: A4500 N-C								
Analysis Date: 06/17/14 11:57	Units: mg/L	Prep Info: Prep Date: 6/16/2014	Prep Method: A4500 N-C								
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.976	0.10	1		98	90	110	1.032	5.6	20	

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 24956**

**Date:** 07-Jul-14

Run ID :Run Order: <b>FIA202-HE_140618A: 13</b>		SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24956</b>				Method: <b>E365.1</b>		
Analysis Date: <b>06/18/14 08:40</b>		Units: <b>mg/L</b>				Prep Info:		Prep Date: <b>6/16/2014</b>		Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.405	0.010	0.4	0.00281	100	90	110					
Associated samples: <b>H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D</b>												

Run ID :Run Order: <b>FIA202-HE_140618A: 14</b>		SampType: <b>Method Blank</b>			Lab ID: <b>MB-24956</b>				Method: <b>E365.1</b>		
Analysis Date: <b>06/18/14 08:41</b>		Units: <b>mg/L</b>			Prep Info: Prep Date: <b>6/16/2014</b>				Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.003	0.001									
Associated samples: <b>H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D</b>											

Run ID :Run Order: <b>FIA202-HE_140618A: 18</b>		SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060215-001Bms</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/18/14 08:45</b>		Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/16/2014</b>		Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.256	0.010	0.2	0.06737	94	90	110				
Associated samples: <b>H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D</b>											

Run ID :Run Order: <b>FIA202-HE_140618A: 19</b>		SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060215-001Bmsd</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/18/14 08:46</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/16/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.256	0.010	0.2	0.06737	94	90	110	0.2558	0.1	20	
Associated samples: <b>H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D</b>											

Run ID :Run Order: <b>FIA202-HE_140618A: 38</b>		SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060255-013Dms</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/18/14 09:05</b>		Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/16/2014</b>		Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.195	0.010	0.2	0.00228	97	90	110				
Associated samples: <b>H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D</b>											

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** 24956

Run ID :Run Order: <b>FIA202-HE_140618A: 39</b>				SampType: <b>Sample Matrix Spike Duplicate</b>		Lab ID: <b>H14060255-013Dmsd</b>				Method: <b>E365.1</b>		
Analysis Date: <b>06/18/14 09:06</b>		Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/16/2014</b>		Prep Method: <b>E365.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.196	0.010	0.2	0.00228	97	90	110	0.1954	0.1	20		

Associated samples: **H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** 24957

Run ID :Run Order: <b>FIA202-HE_140618A: 43</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-24957</b>				Method: <b>E365.1</b>			
Analysis Date: <b>06/18/14 09:10</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/16/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.392	0.010	0.4	0.00368	<b>97</b>	90	110					

Associated samples: **H14060255-017D, H14060255-018D, H14060255-019D**

Run ID :Run Order: <b>FIA202-HE_140618A: 44</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-24957</b>				Method: <b>E365.1</b>			
Analysis Date: <b>06/18/14 09:11</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/16/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.004	0.001										

Associated samples: **H14060255-017D, H14060255-018D, H14060255-019D**

Run ID :Run Order: <b>FIA202-HE_140618A: 48</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060255-017Dms</b>				Method: <b>E365.1</b>			
Analysis Date: <b>06/18/14 09:16</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/16/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.199	0.010	0.2	0.00131	<b>99</b>	90	110					

Associated samples: **H14060255-017D, H14060255-018D, H14060255-019D**

Run ID :Run Order: <b>FIA202-HE_140618A: 49</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060255-017Dmsd</b>				Method: <b>E365.1</b>			
Analysis Date: <b>06/18/14 09:17</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/16/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.200	0.010	0.2	0.00131	<b>99</b>	90	110	0.1994	<b>0.2</b>	20		

Associated samples: **H14060255-017D, H14060255-018D, H14060255-019D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** 25051

Run ID :Run Order: <b>HGCV202-H_140625A: 4</b>				SampType: <b>Method Blank</b>		Lab ID: <b>MB-25051</b>				Method: <b>E245.1</b>		
Analysis Date: <b>06/25/14 10:32</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/24/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		1E-06	1E-06									

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>HGCV202-H_140625A: 5</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS-25051</b>			Method: <b>E245.1</b>			
Analysis Date: <b>06/25/14 10:36</b>				Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/24/2014</b>			Prep Method: <b>E245.1</b>			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00016	0.00010	0.00015	0.00000107	109	90	110				

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>HGCV202-H_140625A: 13</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14060256-003BMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>06/25/14 11:10</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/24/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	0.00013	0.00010	0.00015		90	70	130					

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>HGCV202-H_140625A: 14</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060256-003BMSD</b>				Method: <b>E245.1</b>	
Analysis Date: <b>06/25/14 11:14</b>				Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/24/2014</b>				Prep Method: <b>E245.1</b>			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00014	0.00010	0.00015		93	70	130	0.0001348	3.7	20		

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>HGCV202-H_140625A: 25</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14060256-011BMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>06/25/14 12:01</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/24/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	0.00016	0.00010	0.00015	0.00000089	105	70	130					

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

Run ID :Run Order: <b>HGCV202-H_140625A: 26</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060256-011BMSD</b>				Method: <b>E245.1</b>		
Analysis Date: <b>06/25/14 12:05</b>				Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/24/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury				0.00015	0.00010	0.00015	0.00000089	99	70	130	0.000159	5.8	20	

Associated samples: **H14060255-016C, H14060255-017C, H14060255-018C, H14060255-019C**

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** C\_41673

Run ID :Run Order: SUB-C187552: 9				SampType: Method Blank				Lab ID: MB-41673				Method: A5310 C			
Analysis Date: 06/13/14 14:03				Units: mg/L				Prep Info: Prep Date: 6/13/2014				Prep Method:			
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Organic Carbon, Dissolved (DOC)				ND	0.07										

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 10		SampType: Initial Calibration Verification Standard				Lab ID: ICV-41673			Method: A5310 C		
Analysis Date: 06/13/14 14:14		Units: mg/L		Prep Info:			Prep Date: 6/13/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.2	0.50	10		102	90	110				

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 11		SampType: Laboratory Control Sample				Lab ID: LCS-41673				Method: A5310 C		
Analysis Date: 06/13/14 19:18		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Organic Carbon, Dissolved (DOC)	9.71	0.50	10		97	90	110					

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 12		SampType: Continuing Calibration Verification Standar				Lab ID: CCV-41673			Method: A5310 C		
Analysis Date: 06/13/14 19:30		Units: mg/L		Prep Info:			Prep Date: 6/13/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.1	0.50	10		101	90	110				

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 15		SampType: Sample Matrix Spike			Lab ID: H14060216-003I				Method: A5310 C		
Analysis Date: 06/13/14 21:12		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	14.6	0.50	10	4.526	100	85	115				

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: C\_41673**

**Date:** 07-Jul-14

Run ID :Run Order: SUB-C187552: 15				SampType: Sample Matrix Spike				Lab ID: H14060216-003I				Method: A5310 C	
Analysis Date: 06/13/14 21:12				Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 16		SampType: Sample Matrix Spike Duplicate				Lab ID: H14060216-003I				Method: A5310 C	
Analysis Date: 06/13/14 21:23		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	14.6	0.50	10	4.526	101	85	115	14.57	0.2	10	

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 22		SampType: Sample Matrix Spike				Lab ID: C14060486-001AMS				Method: A5310 C		
Analysis Date: 06/13/14 16:08		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Organic Carbon, Dissolved (DOC)	8.34	0.50	5	3.257	102	85	115					

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 23		SampType: Sample Matrix Spike Duplicate				Lab ID: C14060486-001AMSD				Method: A5310 C	
Analysis Date: 06/13/14 16:19		Units: mg/L		Prep Info: Prep Date: 6/13/2014				Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	8.40	0.50	5	3.257	103	85	115	8.34	0.8	10	

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 24		SampType: Continuing Calibration Verification Standar				Lab ID: CCV-41673			Method: A5310 C		
Analysis Date: 06/13/14 16:30		Units: mg/L		Prep Info:			Prep Date: 6/13/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.1	0.50	10		101	90	110				

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** C\_41673

Run ID :Run Order: SUB-C187552: 35	SampType: Sample Matrix Spike				Lab ID: H14060255-006E				Method: A5310 C			
Analysis Date: 06/13/14 18:56	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	
Organic Carbon, Dissolved (DOC)	8.31	0.50	5	3.305	100	85	115					

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

Run ID :Run Order: SUB-C187552: 36	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-006E				Method: A5310 C			
Analysis Date: 06/13/14 19:07	Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Organic Carbon, Dissolved (DOC)	8.36	0.50	5	3.305	101	85	115	8.31	0.6	10		

Associated samples: H14060255-001E, H14060255-002E, H14060255-003E, H14060255-004E, H14060255-005E, H14060255-006E, H14060255-007E, H14060255-008E, H14060255-009E, H14060255-010E, H14060255-011E, H14060255-012E, H14060255-013E, H14060255-014E, H14060255-015E, H14060255-016E, H14060255-017E, H14060255-018E, H14060255-019E

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R97974

Run ID :Run Order: PHSC_101-H_140613A: 109				SampType: Method Blank				Lab ID: MB				Method: A2320 B			
Analysis Date: 06/13/14 13:24				Units: mg/L				Prep Info:		Prep Date:		Prep Method:			
Analytes 1				Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3				2		0.9									
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A															

Run ID :Run Order: PHSC_101-H_140613A: 111				SampType: Laboratory Control Sample				Lab ID: LCS				Method: A2320 B			
Analysis Date: 06/13/14 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			
Alkalinity, Total as CaCO3		590	4.0	600	2.5	98	90	110							
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A															

Run ID :Run Order: PHSC_101-H_140613A: 114		SampType: Sample Duplicate			Lab ID: H14060243-003ADUP				Method: A2320 B		
Analysis Date: 06/13/14 13:52		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	340	4.0						337.5	2.2	10	
Bicarbonate as HCO3	420	4.0						411.1	2.2	10	
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A											

Run ID :Run Order: PHSC_101-H_140613A: 118				SampType: Sample Matrix Spike				Lab ID: H14060243-004AMS				Method: A2320 B	
Analysis Date: 06/13/14 14:10		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		
Alkalinity, Total as CaCO3	840	4.0	600	280.4	94	80	120						
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A													

Run ID :Run Order: PHSC_101-H_140613A: 155		SampType: Sample Duplicate			Lab ID: H14060255-014ADUP				Method: A2320 B		
Analysis Date: 06/13/14 16:26		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
Alkalinity, Total as CaCO3	47	4.0						47.85	1.5	10	
Bicarbonate as HCO3	57	4.0						57.77	1.5	10	
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A											

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R97974

Run ID :Run Order: PHSC_101-H_140613A: 157			SampType: Method Blank			Lab ID: MB			Method: A2320 B				
Analysis Date: 06/13/14 16:31			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
Alkalinity, Total as CaCO3			2	0.9									
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A													

Run ID :Run Order: PHSC_101-H_140613A: 159				SampType: Laboratory Control Sample		Lab ID: LCS			Method: A2320 B		
Analysis Date: 06/13/14 16:35		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
Alkalinity, Total as CaCO3	590	4.0	600	2.3	98	90	110				
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A											

Run ID :Run Order: PHSC_101-H_140613A: 162		SampType: Sample Duplicate			Lab ID: H14060255-015ADUP				Method: A2320 B		
Analysis Date: 06/13/14 16:55		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
Alkalinity, Total as CaCO3	48	4.0						47.55	0.2	10	
Bicarbonate as HCO3	58	4.0						57.4	0.2	10	
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A											

Run ID :Run Order: PHSC_101-H_140613A: 166				SampType: Sample Matrix Spike		Lab ID: H14060255-016AMS				Method: A2320 B		
Analysis Date: 06/13/14 17:05		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	670	4.0	600	124.2	91	80	120					
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A												

Run ID :Run Order: PHSC_101-H_140613A: 203		SampType: Sample Duplicate			Lab ID: H14060256-015ADUP				Method: A2320 B		
Analysis Date: 06/13/14 19:13		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
Alkalinity, Total as CaCO3	210	4.0						202.8	1.3	10	
Bicarbonate as HCO3	250	4.0						241.6	1.6	10	
Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-018A, H14060255-019A											

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R97982

Run ID :Run Order: FIA203-HE_140613A: 8				SampType: Initial Calibration Verification Standard				Lab ID: ICV		Method: E353.2		
Analysis Date: 06/13/14 09:25				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
Nitrogen, Nitrate+Nitrite as N		0.974	0.010	1		97	90	110				
Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D												
Run ID :Run Order: FIA203-HE_140613A: 9				SampType: Laboratory Fortified Blank				Lab ID: LFB		Method: E353.2		
Analysis Date: 06/13/14 09:26				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
Nitrogen, Nitrate+Nitrite as N		0.938	0.011	1		94	90	110				
Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D												
Run ID :Run Order: FIA203-HE_140613A: 10				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E353.2		
Analysis Date: 06/13/14 09:28				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
Nitrogen, Nitrate+Nitrite as N		0.479	0.010	0.5		96	90	110				
Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D												
Run ID :Run Order: FIA203-HE_140613A: 11				SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB		Method: E353.2		
Analysis Date: 06/13/14 09:29				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
Nitrogen, Nitrate+Nitrite as N		-0.0105	0.010				0	0				
Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D												
Run ID :Run Order: FIA203-HE_140613A: 13				SampType: Method Blank				Lab ID: MBLK		Method: E353.2		
Analysis Date: 06/13/14 09:31				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
Nitrogen, Nitrate+Nitrite as N		ND	0.001									

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R97982

Run ID :Run Order: FIA203-HE_140613A: 13				SampType: Method Blank				Lab ID: MBLK				Method: E353.2			
Analysis Date: 06/13/14 09:31				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	

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613A: 16				SampType: Sample Matrix Spike		Lab ID: H14060255-001DMS				Method: E353.2		
Analysis Date: 06/13/14 09:35		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	
Nitrogen, Nitrate+Nitrite as N												
	0.938	0.011	1	0.006447	93	90	110					

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613A: 17				SampType: Sample Matrix Spike Duplicate			Lab ID: H14060255-001DMSD			Method: E353.2		
Analysis Date: 06/13/14 09:36		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
Nitrogen, Nitrate+Nitrite as N		0.946	0.011	1	0.006447	94	90	110	0.9384	0.8	20	

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613A: 27				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E353.2		
Analysis Date: 06/13/14 09:48		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
Nitrogen, Nitrate+Nitrite as N		0.475	0.010	0.5		95	90	110				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613A: 29				SampType: Sample Matrix Spike		Lab ID: H14060255-010DMS				Method: E353.2		
Analysis Date: 06/13/14 09:50		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	
Nitrogen, Nitrate+Nitrite as N	0.923	0.011	1		92	90	110					

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R97982

Run ID :Run Order: FIA203-HE_140613A: 30	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-010DMSD				Method: E353.2		
Analysis Date: 06/13/14 09:52	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
Nitrogen, Nitrate+Nitrite as N	0.939	0.011	1		94	90	110	0.9228	1.7	20	

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613A: 43	SampType: Sample Matrix Spike				Lab ID: H14060256-001CMS				Method: E353.2		
Analysis Date: 06/13/14 10:07	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
Nitrogen, Nitrate+Nitrite as N	1.08	0.011	1	0.1478	93	90	110				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613A: 44	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060256-001CMSD				Method: E353.2		
Analysis Date: 06/13/14 10:08	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
Nitrogen, Nitrate+Nitrite as N	1.06	0.011	1	0.1478	91	90	110	1.077	1.5	20	

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R97999

Run ID :Run Order: FIA203-HE_140613C: 7			SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E350.1		
Analysis Date: 06/13/14 14:34		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	
Nitrogen, Ammonia as N	15.5	0.50	15.2		102	90	110					

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 8		SampType: Laboratory Fortified Blank				Lab ID: LFB			Method: E350.1		
Analysis Date: 06/13/14 14:35		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
Nitrogen, Ammonia as N	1.05	0.055	1		105	90	110				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 10			SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB			Method: E350.1		
Analysis Date: 06/13/14 14:38		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	
Nitrogen, Ammonia as N	-0.0546	0.050				0	0					

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 25			SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E350.1		
Analysis Date: 06/13/14 14:55		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
Nitrogen, Ammonia as N	0.467	0.050	0.5		93	90	110				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 29			SampType: Sample Matrix Spike			Lab ID: H14060255-001DMS			Method: E350.1		
Analysis Date: 06/13/14 15:00		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.928	0.055	1		93	80	120				

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R97999**

**Date:** 07-Jul-14

Run ID :Run Order: FIA203-HE_140613C: 29				SampType: Sample Matrix Spike				Lab ID: H14060255-001DMS				Method: E350.1		
Analysis Date: 06/13/14 15:00				Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 30				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-001DMSD				Method: E350.1	
Analysis Date: 06/13/14 15:01				Units: mg/L		Prep Info: Prep Date:				Prep Method:			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia as N		0.936	0.055	1		94	80	120	0.9276	0.9	10		

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 39				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E350.1		
Analysis Date: 06/13/14 15:12		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Ammonia as N	0.458	0.050	0.5		92	90	110					

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 42				SampType: Sample Matrix Spike				Lab ID: H14060255-010DMS				Method: E350.1	
Analysis Date: 06/13/14 15:16				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	
Nitrogen, Ammonia as N		0.942	0.055	1		94	80	120					

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA203-HE_140613C: 43				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-010DMSD				Method: E350.1	
Analysis Date: 06/13/14 15:17				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	
Nitrogen, Ammonia as N		0.934	0.055	1		93	80	120	0.942	0.8	10		

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98024

Run ID :Run Order: IC102-H_140613A: 12		SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E300.0		
Analysis Date: 06/13/14 16:43		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		103	90	110				
Sulfate	420	1.0	400		105	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 13				SampType: Method Blank				Lab ID: ICB				Method: E300.0			
Analysis Date: 06/13/14 16:54				Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride				0.04	0.008										
Sulfate				0.2	0.08										

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 14				SampType: Laboratory Fortified Blank				Lab ID: LFB			Method: E300.0		
Analysis Date: 06/13/14 17:05				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		46	1.0	50	0.038	91	90	110					
Sulfate		190	1.0	200	0.174	95	90	110					

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 15			SampType: Continuing Calibration Verification Standar				Lab ID: CCV061314-1			Method: E300.0		
Analysis Date: 06/13/14 17:16		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	110	1.0	100		107	90	110					
Sulfate	420	1.0	400		105	90	110					

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98024

Run ID :Run Order: IC102-H_140613A: 18	SampType: Sample Matrix Spike				Lab ID: H14060243-001AMS				Method: E300.0		
Analysis Date: 06/13/14 17:49	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50	5.368	94	90	110				
Sulfate	420	1.0	200	206.8	107	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 19	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060243-001AMSD				Method: E300.0		
Analysis Date: 06/13/14 18:00	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	53	1.0	50	5.368	95	90	110	52.36	1.2	20	
Sulfate	420	1.0	200	206.8	108	90	110	420	0.8	20	

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 29	SampType: Continuing Calibration Verification Standar				Lab ID: CCV061314-2				Method: E300.0		
Analysis Date: 06/13/14 19:51	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	100		107	90	110				
Sulfate	420	1.0	400		105	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 32	SampType: Sample Matrix Spike				Lab ID: H14060255-005AMS				Method: E300.0		
Analysis Date: 06/13/14 20:25	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	51	1.0	50	3.351	95	90	110				
Sulfate	240	1.0	200	32.76	104	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98024

Run ID :Run Order: IC102-H_140613A: 33	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-005AMSD				Method: E300.0		
Analysis Date: 06/13/14 20:36	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	3.351	93	90	110	50.6	1.1	20	
Sulfate	240	1.0	200	32.76	104	90	110	240.3	0.1	20	

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 43	SampType: Continuing Calibration Verification Standar				Lab ID: CCV061314-3				Method: E300.0		
Analysis Date: 06/13/14 22:27	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	100		107	90	110				
Sulfate	420	1.0	400		106	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 46	SampType: Sample Matrix Spike				Lab ID: H14060255-015AMS				Method: E300.0		
Analysis Date: 06/13/14 23:00	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	46	1.0	50	0.422	91	90	110				
Sulfate	200	1.0	200	5.52	99	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: IC102-H_140613A: 47	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-015AMSD				Method: E300.0		
Analysis Date: 06/13/14 23:11	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	47	1.0	50	0.422	92	90	110	46.1	1.2	20	
Sulfate	200	1.0	200	5.52	99	90	110	204.2	0.2	20	

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98052

Run ID :Run Order: FIA203-HE_140617A: 9				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: A4500 N-C		
Analysis Date: 06/17/14 11:30		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
Nitrogen, Total		0.486	0.10	0.5		97	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: <b>FIA203-HE_140617A: 10</b>				SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>		Method: <b>A4500 N-C</b>		
Analysis Date: <b>06/17/14 11:31</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	-0.0851	0.10				0	0					

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: FIA203-HE_140617A: 26				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: A4500 N-C		
Analysis Date: 06/17/14 11:50		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
Nitrogen, Total		0.451	0.10	0.5		90	90	110				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98064

Run ID :Run Order: ICP2-HE_140617B: 6	SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E200.7			
Analysis Date: 06/17/14 14:36	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
Calcium	40.8	1.0	40		102	95	105				
Magnesium	42.1	1.0	40		105	95	105				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 7	SampType: Continuing Calibration Verification Standar				Lab ID: CCV-1			Method: E200.7			
Analysis Date: 06/17/14 14:39	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
Calcium	24.6	1.0	25		99	95	105				
Magnesium	24.1	1.0	25		96	95	105				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 10	SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.7			
Analysis Date: 06/17/14 14:50	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
Calcium	473	1.0	500		95	80	120				
Magnesium	533	1.0	500		107	80	120				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 11	SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7			
Analysis Date: 06/17/14 14:54	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	454	1.0	500		91	80	120				
Magnesium	509	1.0	500		102	80	120				

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 43	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E200.7			
Analysis Date: 06/17/14 17:02	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
Calcium	24.0	1.0	25		96	90	110				
Magnesium	23.4	1.0	25		94	90	110				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98064

Run ID :Run Order: ICP2-HE_140617B: 43	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7
Analysis Date: 06/17/14 17:02	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

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 55	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7						
Analysis Date: 06/17/14 17:47	Units: mg/L	Prep Info: Prep Date:	Prep Method:						
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual						
Calcium	24.1	1.0	25	97	90	110			
Magnesium	23.6	1.0	25	94	90	110			

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 74	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7						
Analysis Date: 06/17/14 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						
Magnesium	26.1	1.0	25	104	90	110			

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

Run ID :Run Order: ICP2-HE_140617B: 86	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7						
Analysis Date: 06/17/14 19:43	Units: mg/L	Prep Info: Prep Date:	Prep Method:						
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual						
Calcium	24.5	1.0	25	98	90	110			
Magnesium	23.4	1.0	25	93	90	110			

Associated samples: H14060255-001C, H14060255-002C, H14060255-003C, H14060255-004C, H14060255-005C, H14060255-006C, H14060255-007C, H14060255-008C, H14060255-009C, H14060255-010C, H14060255-011C, H14060255-012C, H14060255-013C, H14060255-014C, H14060255-015C, H14060255-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98073

Run ID :Run Order: FIA202-HE_140618A: 8	SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E365.1			
Analysis Date: 06/18/14 08:34	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
Phosphorus, Total as P	0.256	0.010	0.25		102	90	110				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA202-HE_140618A: 10	SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB			Method: E365.1			
Analysis Date: 06/18/14 08:36	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
Phosphorus, Total as P	0.00328	0.010				0	0				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA202-HE_140618A: 11	SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E365.1			
Analysis Date: 06/18/14 08:37	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
Phosphorus, Total as P	0.255	0.010	0.25		102	90	110				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA202-HE_140618A: 12	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E365.1			
Analysis Date: 06/18/14 08:38	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
Phosphorus, Total as P	0.0972	0.010	0.1		97	90	110				

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA202-HE_140618A: 30	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E365.1			
Analysis Date: 06/18/14 08:57	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0977	0.010	0.1		98	90	110				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98073

Run ID :Run Order: FIA202-HE_140618A: 30	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E365.1
Analysis Date: 06/18/14 08:57	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

Run ID :Run Order: FIA202-HE_140618A: 46	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E365.1
Analysis Date: 06/18/14 09:14	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
Phosphorus, Total as P	0.0984 0.010 0.1	98 90 110	

Associated samples: H14060255-001D, H14060255-002D, H14060255-003D, H14060255-004D, H14060255-005D, H14060255-006D, H14060255-007D, H14060255-008D, H14060255-009D, H14060255-010D, H14060255-011D, H14060255-012D, H14060255-013D, H14060255-014D, H14060255-015D, H14060255-016D, H14060255-017D, H14060255-018D, H14060255-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** R98094

Run ID :Run Order: ICP2-HE_140618A: 6		SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E200.7		
Analysis Date: 06/18/14 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
Calcium	39.4	1.0	40		98	95	105				
Magnesium	39.8	1.0	40		100	95	105				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C

Run ID :Run Order: ICP2-HE_140618A: 7			SampType: Continuing Calibration Verification Standar				Lab ID: CCV-1		Method: E200.7		
Analysis Date: 06/18/14 12:17		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.8	1.0	25		99	95	105				
Magnesium	24.2	1.0	25		97	95	105				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C

Run ID :Run Order: ICP2-HE_140618A: 10			SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.7			
Analysis Date: 06/18/14 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
Calcium			464	1.0	500		93	80	120				
Magnesium			499	1.0	500		100	80	120				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C

Run ID :Run Order: ICP2-HE_140618A: 11			SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7		
Analysis Date: 06/18/14 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	
Calcium	457	1.0	500		91	80	120					
Magnesium	499	1.0	500		100	80	120					

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C

Run ID :Run Order: ICP2-HE_140618A: 19			SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E200.7		
Analysis Date: 06/18/14 13:03		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.7	1.0	25		95	90	110				
Magnesium	22.6	1.0	25		91	90	110				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98094

Run ID :Run Order: ICP2-HE_140618A: 31			SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E200.7		
Analysis Date: 06/18/14 13:47		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
Calcium	23.8	1.0	25		95	90	110				
Magnesium	23.1	1.0	25		92	90	110				

Associated samples: H14060255-014C, H14060255-015C, H14060255-016C, H14060255-017C, H14060255-018C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98112

Run ID :Run Order: ICPMS204-B_140619A: 10			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 06/18/14 11:49		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0596	0.0050	0.06		99	90	110				
Cadmium	0.0314	0.0010	0.03		105	90	110				
Copper	0.0610	0.010	0.06		102	90	110				
Lead	0.0591	0.010	0.06		98	90	110				
Zinc	0.0624	0.010	0.06		104	90	110				

Associated samples: H14060255-001B, H14060255-001C, H14060255-002B, H14060255-002C, H14060255-003B, H14060255-003C, H14060255-004B, H14060255-004C, H14060255-005B, H14060255-005C, H14060255-006B, H14060255-006C, H14060255-007B, H14060255-007C, H14060255-008B, H14060255-008C, H14060255-009B, H14060255-009C, H14060255-010B, H14060255-010C, H14060255-011B, H14060255-011C, H14060255-012B, H14060255-012C, H14060255-013B, H14060255-013C, H14060255-014B, H14060255-014C, H14060255-015B, H14060255-015C, H14060255-016B, H14060255-016C, H14060255-017B, H14060255-017C, H14060255-018B, H14060255-018C, H14060255-019B, H14060255-019C

Run ID :Run Order: ICPMS204-B_140619A: 11			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 06/18/14 11:53			Units: mg/L		Prep Info:		Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000202	0.0050									
Cadmium	0.000341	0.0010									
Copper	0.000390	0.010									
Lead	0.000264	0.010									
Zinc	0.00170	0.010									

Associated samples: H14060255-001B, H14060255-001C, H14060255-002B, H14060255-002C, H14060255-003B, H14060255-003C, H14060255-004B, H14060255-004C, H14060255-005B, H14060255-005C, H14060255-006B, H14060255-006C, H14060255-007B, H14060255-007C, H14060255-008B, H14060255-008C, H14060255-009B, H14060255-009C, H14060255-010B, H14060255-010C, H14060255-011B, H14060255-011C, H14060255-012B, H14060255-012C, H14060255-013B, H14060255-013C, H14060255-014B, H14060255-014C, H14060255-015B, H14060255-015C, H14060255-016B, H14060255-016C, H14060255-017B, H14060255-017C, H14060255-018B, H14060255-018C, H14060255-019B, H14060255-019C

Run ID :Run Order: ICPMS204-B_140619A: 12			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 06/18/14 11:58		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0109	0.0050	0.01		109	70	130				
Cadmium	0.00941	0.0010	0.01		94	70	130				
Copper	0.0207	0.010	0.02		104	70	130				
Lead	0.000351	0.010				0	0				
Zinc	0.0116	0.010	0.01		116	70	130				

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98112

Run ID :Run Order: ICPMS204-B_140619A: 12				SampType: Interference Check Sample AB				Lab ID: ICSAB				Method: E200.8													
Analysis Date: 06/18/14 11:58				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: H14060255-001B, H14060255-001C, H14060255-002B, H14060255-002C, H14060255-003B, H14060255-003C, H14060255-004B, H14060255-004C, H14060255-005B, H14060255-005C, H14060255-006B, H14060255-006C, H14060255-007B, H14060255-007C, H14060255-008B, H14060255-008C, H14060255-009B, H14060255-009C, H14060255-010B, H14060255-010C, H14060255-011B, H14060255-011C, H14060255-012B, H14060255-012C, H14060255-013B, H14060255-013C, H14060255-014B, H14060255-014C, H14060255-015B, H14060255-015C, H14060255-016B, H14060255-016C, H14060255-017B, H14060255-017C, H14060255-018B, H14060255-018C, H14060255-019B, H14060255-019C

Run ID :Run Order: ICPMS204-B_140619A: 17				SampType: Method Blank				Lab ID: ICB				Method: E200.8			
Analysis Date: 06/18/14 12:40				Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 5				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Arsenic	ND	3E-05									
Cadmium	ND	6E-06									
Copper	3E-05	3E-05									
Lead	ND	8E-06									
Zinc	ND	0.0003									

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

Run ID :Run Order: ICPMS204-B_140619A: 18				SampType: Laboratory Fortified Blank				Lab ID: LFB				Method: E200.8			
Analysis Date: 06/18/14 12:45				Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 5				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Arsenic	0.0512	0.0050	0.05		102	85	115				
Cadmium	0.0522	0.0010	0.05		104	85	115				
Copper	0.0536	0.010	0.05	0.000031	107	85	115				
Lead	0.0508	0.010	0.05		101	85	115				
Zinc	0.0553	0.010	0.05		111	85	115				

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

Run ID :Run Order: ICPMS204-B_140619A: 35				SampType: Sample Matrix Spike				Lab ID: H14060255-001BMS				Method: E200.8	
Analysis Date: 06/18/14 13:58				Units: mg/L				Prep Info: Prep Date:				Prep Method:	
Analytes 5		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Arsenic	0.0573	0.0010	0.05	0.005029	105	70	130				
Cadmium	0.0524	0.0010	0.05	0.0000222	105	70	130				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98112

Run ID :Run Order: ICPMS204-B_140619A: 35	SampType: Sample Matrix Spike				Lab ID: H14060255-001BMS				Method: E200.8		
Analysis Date: 06/18/14 13:58	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0570	0.0050	0.05	0.003946	106	70	130				
Lead	0.0508	0.0010	0.05	0.0000816	101	70	130				
Zinc	0.0616	0.010	0.05	0.008144	107	70	130				

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

Run ID :Run Order: ICPMS204-B_140619A: 36	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060255-001BMSD				Method: E200.8		
Analysis Date: 06/18/14 14:03	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0580	0.0010	0.05	0.005029	106	70	130	0.05733	1.2	20	
Cadmium	0.0511	0.0010	0.05	0.0000222	102	70	130	0.05239	2.6	20	
Copper	0.0575	0.0050	0.05	0.003946	107	70	130	0.05704	0.8	20	
Lead	0.0497	0.0010	0.05	0.0000816	99	70	130	0.05078	2.2	20	
Zinc	0.0627	0.010	0.05	0.008144	109	70	130	0.06155	1.8	20	

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

Run ID :Run Order: ICPMS204-B_140619A: 66	SampType: Sample Matrix Spike				Lab ID: H14060255-011BMS				Method: E200.8		
Analysis Date: 06/18/14 16:14	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0721	0.0010	0.05	0.01981	105	70	130				
Cadmium	0.0517	0.0010	0.05	0.0000177	103	70	130				
Copper	0.0578	0.0050	0.05	0.00331	109	70	130				
Lead	0.0504	0.0010	0.05	0.0001577	101	70	130				
Zinc	0.0650	0.010	0.05	0.01008	110	70	130				

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R98112**

**Date:** 07-Jul-14

Run ID :Run Order: ICPMS204-B_140619A: 67			SampType: Sample Matrix Spike Duplicate			Lab ID: H14060255-011BMSD			Method: E200.8		
Analysis Date: 06/18/14 16:18			Units: mg/L		Prep Info: Prep Date:			Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0725	0.0010	0.05	0.01981	105	70	130	0.0721	0.5	20	
Cadmium	0.0517	0.0010	0.05	0.0000177	103	70	130	0.05168	0.1	20	
Copper	0.0579	0.0050	0.05	0.00331	109	70	130	0.05775	0.3	20	
Lead	0.0507	0.0010	0.05	0.0001577	101	70	130	0.05043	0.5	20	
Zinc	0.0639	0.010	0.05	0.01008	108	70	130	0.06495	1.7	20	

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

Run ID :Run Order: ICPMS204-B_140619A: 113			SampType: Sample Matrix Spike			Lab ID: H14060290-001BMS			Method: E200.8		
Analysis Date: 06/18/14 20:35		Units: mg/L					Prep Info: Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.259	0.0010	0.25	0.00711	101	70	130				
Cadmium	0.212	0.0010	0.25	0.000124	85	70	130				
Copper	0.248	0.0050	0.25	0.004126	98	70	130				
Lead	0.259	0.0010	0.25	0.00046	104	70	130				
Zinc	0.253	0.010	0.25	0.03235	88	70	130				

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

Run ID :Run Order: ICPMS204-B_140619A: 114				SampType: Sample Matrix Spike Duplicate		Lab ID: H14060290-001BMSD			Method: E200.8		
Analysis Date: 06/18/14 20:39		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.257	0.0010	0.25	0.00711	100	70	130	0.2592	0.8	20	
Cadmium	0.209	0.0010	0.25	0.000124	84	70	130	0.2124	1.6	20	
Copper	0.247	0.0050	0.25	0.004126	97	70	130	0.2479	0.3	20	
Lead	0.256	0.0010	0.25	0.00046	102	70	130	0.2594	1.5	20	
Zinc	0.257	0.010	0.25	0.03235	90	70	130	0.2529	1.6	20	

Associated samples: H14060255-001B, H14060255-002B, H14060255-003B, H14060255-004B, H14060255-005B, H14060255-006B, H14060255-007B, H14060255-008B, H14060255-009B, H14060255-010B, H14060255-011B, H14060255-012B, H14060255-013B, H14060255-014B, H14060255-015B, H14060255-016B, H14060255-017B, H14060255-018B, H14060255-019B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98112

Run ID :Run Order: ICPMS204-B_140619A: 129			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 06/18/14 21:46		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0596	0.0050	0.06		99	90	110				
Cadmium	0.0315	0.0010	0.03		105	90	110				
Copper	0.0629	0.010	0.06		105	90	110				
Lead	0.0602	0.010	0.06		100	90	110				
Zinc	0.0624	0.010	0.06		104	90	110				

Associated samples: H14060255-001B, H14060255-001C, H14060255-002B, H14060255-002C, H14060255-003B, H14060255-003C, H14060255-004B, H14060255-004C, H14060255-005B, H14060255-005C, H14060255-006B, H14060255-006C, H14060255-007B, H14060255-007C, H14060255-008B, H14060255-008C, H14060255-009B, H14060255-009C, H14060255-010B, H14060255-010C, H14060255-011B, H14060255-011C, H14060255-012B, H14060255-012C, H14060255-013B, H14060255-013C, H14060255-014B, H14060255-014C, H14060255-015B, H14060255-015C, H14060255-016B, H14060255-016C, H14060255-017B, H14060255-017C, H14060255-018B, H14060255-018C, H14060255-019B, H14060255-019C

Run ID :Run Order: ICPMS204-B_140619A: 130			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 06/18/14 21:50		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000160	0.0050									
Cadmium	0.000362	0.0010									
Copper	0.000358	0.010									
Lead	0.000256	0.010									
Zinc	0.00161	0.010									

Associated samples: H14060255-001B, H14060255-001C, H14060255-002B, H14060255-002C, H14060255-003B, H14060255-003C, H14060255-004B, H14060255-004C, H14060255-005B, H14060255-005C, H14060255-006B, H14060255-006C, H14060255-007B, H14060255-007C, H14060255-008B, H14060255-008C, H14060255-009B, H14060255-009C, H14060255-010B, H14060255-010C, H14060255-011B, H14060255-011C, H14060255-012B, H14060255-012C, H14060255-013B, H14060255-013C, H14060255-014B, H14060255-014C, H14060255-015B, H14060255-015C, H14060255-016B, H14060255-016C, H14060255-017B, H14060255-017C, H14060255-018B, H14060255-018C, H14060255-019B, H14060255-019C

Run ID :Run Order: ICPMS204-B_140619A: 131			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 06/18/14 21:54		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0108	0.0050	0.01		108	70	130				
Cadmium	0.00941	0.0010	0.01		94	70	130				
Copper	0.0207	0.010	0.02		104	70	130				
Lead	0.000342	0.010				0	0				
Zinc	0.0118	0.010	0.01		118	70	130				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98112

Run ID :Run Order: ICPMS204-B_140619A: 131	SampType: Interference Check Sample AB	Lab ID: ICSAB	Method: E200.8								
Analysis Date: 06/18/14 21:54	Units: mg/L	Prep Info: Prep Date:	Prep Method:								
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H14060255-001B, H14060255-001C, H14060255-002B, H14060255-002C, H14060255-003B, H14060255-003C, H14060255-004B, H14060255-004C, H14060255-005B, H14060255-005C, H14060255-006B, H14060255-006C, H14060255-007B, H14060255-007C, H14060255-008B, H14060255-008C, H14060255-009B, H14060255-009C, H14060255-010B, H14060255-010C, H14060255-011B, H14060255-011C, H14060255-012B, H14060255-012C, H14060255-013B, H14060255-013C, H14060255-014B, H14060255-014C, H14060255-015B, H14060255-015C, H14060255-016B, H14060255-016C, H14060255-017B, H14060255-017C, H14060255-018B, H14060255-018C, H14060255-019B, H14060255-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** R98319

Run ID :Run Order: <b>PHSC_101-H_140626A: 131</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB</b>				Method: <b>A2320 B</b>		
Analysis Date: <b>06/26/14 17:31</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO <sub>3</sub>	1	0.9									

Associated samples: **H14060255-013A, H14060255-017A**

Run ID :Run Order: <b>PHSC_101-H_140626A: 133</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS</b>				Method: <b>A2320 B</b>		
Analysis Date: <b>06/26/14 17:37</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO <sub>3</sub>	590	4.0	600	1.35	98	90	110				

Associated samples: **H14060255-013A, H14060255-017A**

Run ID :Run Order: <b>PHSC_101-H_140626A: 136</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14060255-013ADUP</b>				Method: <b>A2320 B</b>		
Analysis Date: <b>06/26/14 17:58</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO <sub>3</sub>	ND	4.0						2.9		10	
Bicarbonate as HCO <sub>3</sub>	0.24	4.0						2.928		10	

Associated samples: **H14060255-013A, H14060255-017A**

Run ID :Run Order: <b>PHSC_101-H_140626A: 140</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060255-017AMS</b>				Method: <b>A2320 B</b>		
Analysis Date: <b>06/26/14 18:10</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO <sub>3</sub>	600	4.0	600		99	80	120				

Associated samples: **H14060255-013A, H14060255-017A**

Run ID :Run Order: <b>PHSC_101-H_140626A: 177</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14060508-004ADUP</b>				Method: <b>A2320 B</b>		
Analysis Date: <b>06/26/14 20:26</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO <sub>3</sub>	170	4.0						166.9	1.4	10	
Bicarbonate as HCO <sub>3</sub>	210	4.0						203	1.4	10	

Associated samples: **H14060255-013A, H14060255-017A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 07-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98393

Run ID :Run Order: ICPMS204-B_140626A: 10				SampType: Initial Calibration Verification Standard				Lab ID: ICV STD			Method: E200.8	
Analysis Date: 06/26/14 10:21				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		0.0629	0.010	0.06		105	90	110				

Associated samples: H14060255-013B

Run ID :Run Order: ICPMS204-B_140626A: 11				SampType: Interference Check Sample A				Lab ID: ICSA				Method: E200.8													
Analysis Date: 06/26/14 10:26				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	
Zinc				0.00164		0.010																			

Associated samples: H14060255-013B

Run ID :Run Order: ICPMS204-B_140626A: 12				SampType: Interference Check Sample AB				Lab ID: ICSAB				Method: E200.8			
Analysis Date: 06/26/14 10:30				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	
Zinc				0.0122	0.010	0.01		123	70	130					

Associated samples: H14060255-013B

Run ID :Run Order: ICPMS204-B_140626A: 17				SampType: Method Blank		Lab ID: ICB				Method: E200.8		
Analysis Date: 06/26/14 10:52				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
Zinc		0.0003	0.0003									

Associated samples: H14060255-013B

Run ID :Run Order: ICPMS204-B_140626A: 18				SampType: Laboratory Fortified Blank		Lab ID: LFB			Method: E200.8		
Analysis Date: 06/26/14 10:57		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0544	0.010	0.05	0.0003211	108	85	115				

Associated samples: H14060255-013B

Run ID :Run Order: ICPMS204-B_140626A: 37				SampType: Sample Matrix Spike		Lab ID: H14060420-011BMS				Method: E200.8		
Analysis Date: 06/26/14 12:20		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
Zinc		0.0532	0.010	0.05	0.001647	103	70	130				

Associated samples: H14060255-013B

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R98393**

**Date:** 07-Jul-14

Run ID :Run Order: <b>ICPMS204-B_140626A: 38</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060420-011BMSD</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/26/14 12:24</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0539	0.010	0.05	0.001647	<b>105</b>	70	130	0.05315	<b>1.4</b>	20	

Associated samples: **H14060255-013B**

Run ID :Run Order: <b>ICPMS204-B_140626A: 53</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV STD</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/26/14 13:52</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0620	0.010	0.06		<b>103</b>	90	110				

Associated samples: **H14060255-013B**

Run ID :Run Order: <b>ICPMS204-B_140626A: 54</b>	SampType: <b>Interference Check Sample A</b>				Lab ID: <b>ICSA</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/26/14 13:56</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.00163	0.010									

Associated samples: **H14060255-013B**

Run ID :Run Order: <b>ICPMS204-B_140626A: 55</b>	SampType: <b>Interference Check Sample AB</b>				Lab ID: <b>ICSAB</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/26/14 14:01</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0117	0.010	0.01		<b>117</b>	70	130				

Associated samples: **H14060255-013B**

Run ID :Run Order: <b>ICPMS204-B_140626A: 63</b>	SampType: <b>Interference Check Sample A</b>				Lab ID: <b>ICSA</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/27/14 03:12</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.00163	0.010									

Associated samples: **H14060255-013B**

Run ID :Run Order: <b>ICPMS204-B_140626A: 64</b>	SampType: <b>Interference Check Sample AB</b>				Lab ID: <b>ICSAB</b>				Method: <b>E200.8</b>		
Analysis Date: <b>06/27/14 03:16</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0121	0.010	0.01		<b>121</b>	70	130				

Associated samples: **H14060255-013B**

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060255  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 07-Jul-14

**BatchID:** TSS140613A

Run ID :Run Order: <b>ACCU-124 (14410200)_140613A: 1</b>					SampType: <b>Method Blank</b>				Lab ID: <b>MB-1_140613A</b>				Method: <b>A2540 D</b>	
Analysis Date: <b>06/13/14 09:02</b>		Units: <b>mg/L</b>			<b>Prep Info:</b>		Prep Date:		Prep Method:					
Analytes <b>1</b>		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: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: <b>ACCU-124 (14410200)_140613A: 2</b>					SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS-2_140613A</b>			Method: <b>A2540 D</b>		
Analysis Date: <b>06/13/14 09:03</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C		91.0	10	100		91	80	120				

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

Run ID :Run Order: ACCU-124 (14410200)_140613A: 4					SampType: Sample Duplicate				Lab ID: H14060256-003A DUP				Method: A2540 D	
Analysis Date: 06/13/14 09:03		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		
Solids, Total Suspended TSS @ 105 C		106	10						111	4.6	5			

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

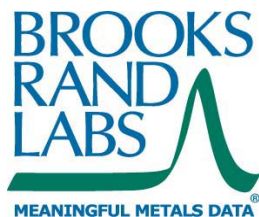
Run ID :Run Order: <b>ACCU-124 (14410200)_140613A: 1</b>					SampType: <b>Sample Duplicate</b>		Lab ID: <b>H14060256-004A DUP</b>				Method: <b>A2540 D</b>	
Analysis Date: <b>06/13/14 09:07</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C		16.0	10						17	<b>6.1</b>	5	R

Associated samples: H14060255-001A, H14060255-002A, H14060255-003A, H14060255-004A, H14060255-005A, H14060255-006A, H14060255-007A, H14060255-008A, H14060255-009A, H14060255-010A, H14060255-011A, H14060255-012A, H14060255-013A, H14060255-014A, H14060255-015A, H14060255-016A, H14060255-017A, H14060255-018A, H14060255-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



July 04, 2014

Energy Laboratories, Inc.  
ATTN: Jonathan Dee Hager  
PO Box 5688  
Helena MT 59604  
jhager@energylab.com

RE: Project ENL-HL1201

Client Project: Silver Bow / Clark Fork

Dear Jonathan Dee Hager,

This report contains results for the 5 samples received by Brooks Rand Labs (BRL) on June 13, 2014. The samples were logged-in for the contracted analyses according to the chain-of-custody form(s). The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology. A Trip Blank was also received with the samples. It was logged-in and analyzed for methylmercury analysis along with the other samples.

The results were method blank corrected as described in the calculations section of the relevant BRL SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details. All data is reported without qualification (with the exception of concentration qualifiers), and all associated quality control sample results meet the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Lydia Greaves  
Project Manager  
Lydia@brooksrands.com

## Report Information

### Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <<http://www.brooksrand.com/about/accreditations-certifications/>>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BLK</b>	method blank	<b>MS</b>	matrix spike
<b>BRL</b>	Brooks Rand Labs	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCV</b>	continuing calibration verification	<b>N/C</b>	not calculated
<b>CCB</b>	continuing calibration blank	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>RSD</b>	relative standard deviation
<b>ICV</b>	initial calibration verification	<b>SCV</b>	secondary calibration verification
<b>MDL</b>	method detection limit	<b>SOP</b>	standard operating procedure
<b>MRL</b>	method reporting limit	<b>SRM</b>	standard reference material
<b>IBL</b>	instrument blank	<b>T</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H14060255-016F	1424050-01	Water	Sample	06/10/2014	06/13/2014
H14060255-017F	1424050-02	DIW	Field Blank	06/10/2014	06/13/2014
H14060255-018F	1424050-03	Water	Sample	06/10/2014	06/13/2014
H14060255-019F	1424050-04	Water	Sample	06/10/2014	06/13/2014
Trip Blank	1424050-05	DIW	Trip Blank	06/10/2014	06/13/2014

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	06/24/2014	06/25/2014	B141103	1400558



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>H14060255-016F</b>										
1424050-01	MeHg	Water	T	0.323		0.020	0.050	ng/L	B141103	1400558
<b>H14060255-017F</b>										
1424050-02	MeHg	DIW	T	0.020	U	0.020	0.049	ng/L	B141103	1400558
<b>H14060255-018F</b>										
1424050-03	MeHg	Water	T	1.19		0.020	0.050	ng/L	B141103	1400558
<b>H14060255-019F</b>										
1424050-04	MeHg	Water	T	0.716		0.020	0.050	ng/L	B141103	1400558
<b>Trip Blank</b>										
1424050-05	MeHg	DIW	T	0.020	U	0.020	0.050	ng/L	B141103	1400558

## Accuracy & Precision Summary

Batch: B141103  
Lab Matrix: Water  
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B141103-BS1	Laboratory Fortified Blank (1425037) MeHg		1.000	1.001	ng/L	100% 67-133	
B141103-BS2	Laboratory Fortified Blank (1425037) MeHg		1.000	1.096	ng/L	110% 67-133	
B141103-MS1	Matrix Spike (1424050-01) MeHg	0.323	1.500	2.119	ng/L	120% 65-135	
B141103-MSD1	Matrix Spike Duplicate (1424050-01) MeHg	0.323	1.500	1.794	ng/L	98% 65-135	17% 35

## Method Blanks & Reporting Limits

Batch: B141103  
Matrix: Water  
Method: EPA 1630  
Analyte: MeHg

Sample	Result	Units
B141103-BLK1	0.006	ng/L
B141103-BLK2	0.005	ng/L
B141103-BLK3	0.006	ng/L
B141103-BLK4	0.007	ng/L
Average: 0.006		Standard Deviation: 0.001
Limit: 0.045		Limit: 0.015
		MDL: 0.020
		MRL: 0.049

**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1424050  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12940

## Sample Containers

<b>Lab ID:</b> 1424050-01 <b>Sample:</b> H14060255-016F			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample			<b>Collected:</b> 06/10/2014 <b>Received:</b> 06/13/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250 mL	13-0293	0.8% 6N HCl (PP)	1420031	<2	Cooler
<b>Lab ID:</b> 1424050-02 <b>Sample:</b> H14060255-017F			<b>Report Matrix:</b> DIW <b>Sample Type:</b> Field Blank			<b>Collected:</b> 06/10/2014 <b>Received:</b> 06/13/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250 mL	13-0293	0.8% 6N HCl (PP)	1420031	<2	Cooler
<b>Lab ID:</b> 1424050-03 <b>Sample:</b> H14060255-018F			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample			<b>Collected:</b> 06/10/2014 <b>Received:</b> 06/13/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250 mL	13-0293	0.8% 6N HCl (PP)	1420031	<2	Cooler
<b>Lab ID:</b> 1424050-04 <b>Sample:</b> H14060255-019F			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample			<b>Collected:</b> 06/10/2014 <b>Received:</b> 06/13/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250 mL	13-0293	0.8% 6N HCl (PP)	1420031	<2	Cooler
<b>Lab ID:</b> 1424050-05 <b>Sample:</b> Trip Blank			<b>Report Matrix:</b> DIW <b>Sample Type:</b> Trip Blank			<b>Collected:</b> 06/10/2014 <b>Received:</b> 06/13/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250 mL	14-0293	0.4% HCl (BRL)		<2	Cooler

## Shipping Containers

### Cooler

**Received:** June 13, 2014 9:15  
**Tracking No:** 1Z37EW970153264256 via FedEx  
**Coolant Type:** Ice  
**Temperature:** 0.4 °C

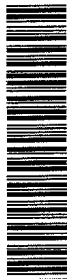
**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No

**Custody seals present?** Yes  
**Custody seals intact?** Yes  
**COC present?** Yes

3161 East Lyndale Avenue

Helena, MT 59601

(406) 442-0711



H14060255

# CHAIN-OF-CUSTODY RECORD

BRL Report 1424050

12-Jun-14

Custody Seal: Y N

Shipped By: \_\_\_\_\_

Intacted: Y N

Receipt Temp: \_\_\_\_\_

Signature Match: Y N

**Subcontractor:**

## Brooks Rand Labs

**3958 6th Ave NW**

Seattle, WA 98106

TEL: (206) 632-6206 FAX: (206) 632-6017

Acct #:

**Subcontractor's Client:**

Rush	Sample ID	Matrix	Collection Date	Bottle Type
<input type="checkbox"/>	H14060255-016F	Aqueous	06/10/14 12:00 P	1-CLIENT-SLD
<input type="checkbox"/>	H14060255-017F	Aqueous	06/10/14 01:00 P	1-CLIENT-SLD
<input type="checkbox"/>	H14060255-018F	Aqueous	06/10/14 01:30 P	1-CLIENT-SLD
<input type="checkbox"/>	H14060255-019F	Aqueous	06/10/14 01:30 P	1-CLIENT-SLD

[illegible]

**Earliest Due Date:** 6/26/2014

**Comments:** PO# H12940

OC Level:

# THIS

Date/Time

**Relinquished by:**

Received by:

**Relinquished by:**

Received by:

6/13/14 09K



# Workorder Receipt Checklist

MT DEQ-Federal Superfund

H14060255

Login completed by: Tracy L. Lorash

Date Received: 6/12/2014

Reviewed by: BL2000\sdull

Received by: TLL

Reviewed Date: 6/23/2014

Carrier Hand Del  
name:

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

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Per Erich, we are to analyze Tot Hg (ULL from TR metals) on samples CFR-84F, Field Blank #1, FC-CFR and FC-CFR Duplicate only.

Cooler 1 was received at 2.0°C, Cooler 2 at 3.0°C. Samples were received on wet ice. TI 6/12/14



# Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Page 1 of 3

Company Name: **MT DEQ (RESPEC)**  
Report Mail Address (Required): **erich.weber@respec.com**  
**benquinones@mt.gov**  
**joe.naughton@respec.com**  
**gary.ingram@respec.com**  
☐ No Hard Copy Email:

Invoice Address (Required):  
**MT DEQ**  
**P.O. Box 200901**  
**Helena, MT 59620-0901**  
☐ No Hard Copy Email:

Special Report/Formats:  
☐ DW ☐ EDD/EDT (Electronic Data)  
☐ POTW/MWTP ☐ Format:  
☐ State: ☐ LEVEL IV  
☐ Other: ☐ NELAC

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time
<sup>1</sup> CFR-116A	6-10-2014	0915
<sup>2</sup> CSC	6-10-2014	1030
<sup>3</sup> LBR-CFR-02	6-10-2014	1530
<sup>4</sup> CFR-42G	6-10-2014	1700
<sup>5</sup> CFR-27H	6-10-2014	1800
<sup>6</sup> CFR-11F	6-11-2014	0900
<sup>7</sup> CFR-07D	6-11-2014	1000
<sup>8</sup> CFR-03A	6-11-2014	1100
<sup>9</sup> WSC-SBC	6-11-2014	1130
<sup>10</sup> SS-25	6-11-2014	1300

Relinquished by (print): **Erich Weber** Date/Time: **6-12-2014 11:35**  
Relinquished by (print): \_\_\_\_\_ Date/Time: \_\_\_\_\_

Signature: \_\_\_\_\_  
Signature: \_\_\_\_\_

Received by (print): \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received by (print): \_\_\_\_\_ Date/Time: \_\_\_\_\_

Sample Disposal: \_\_\_\_\_ Return to Client: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Lab Disposal: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Signature: \_\_\_\_\_ Date/Time: \_\_\_\_\_

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](http://www.energylab.com) for additional information, downloadable fee schedule form.

Company Name: <b>MT DEQ (RESPEC)</b>	
Report Mail Address (Required):  <b>See page 1</b>	
<input type="checkbox"/> No Hard Copy Email:	
Invoice Address (Required):  <b>See page 1</b>	
<input type="checkbox"/> No Hard Copy Email:	
Special Report/Formats:	
<input type="checkbox"/> DW	<input type="checkbox"/> EDD/EDT (Electronic Data)
<input type="checkbox"/> POTW/WWTP	Format: _____
<input type="checkbox"/> State: _____	<input type="checkbox"/> LEVEL IV
<input type="checkbox"/> Other: _____	<input type="checkbox"/> NELAC
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date
1 MWJB-SBC	6-11-2014
2 SBC P2	6-11-2014
3 Field Blank #2	6-11-2014
4 MCWC-MWJB	6-11-2014
5 MWC-MWJB Duplicate	6-11-2014
6 CFR-B4F	6-10-2014
7 Field Blank #1	6-10-2014
8 FC-CFR	6-10-2014
9 FC-CFR Duplicate	6-10-2014
10	

PLEASE PRINT! (Provide as much information as possible.) Project Name, PWS, Permit, Etc. <b>CEROW Monitoring</b>		Sample Origin State: <b>MT</b>	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	Page <b>2</b> of <b>2</b>
Contact Name: <b>See page 1</b>		Phone/Fax: Cell:	Sampler: (Please Print) <b>see pg. 1</b>	
Invoice Contact & Phone: <b>See page 1</b>		Purchase Order:	Quote/Bottle Order:	

[illegible]

<b>Custody Record MUST be Signed</b>	Relinquished by (print): <i>Enrich Weber</i>	Date/Time: <i>6-12-2014 11:35</i>	Signature: <i>[Signature]</i>
	Relinquished by (print):	Date/Time:	Signature:
	Received by (print):	Date/Time:	Signature:
	Received by Laboratory: <i>Gray</i>	Date/Time: <i>6/12/14 11:35</i>	Signature: <i>[Signature]</i>
	Sample Disposal:	Return to Client:	Lab Disposal:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories.

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](http://www.energylab.com) for additional information, downloadable fee schedule forms, and list.



# Chain of Custody and Analytical Request Record

Page 3 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: MT DEQ (RESPEC)

Report Mail Address (Required): see page 1

☐ No Hard Copy Email:

Invoice Address (Required): see page 1

☐ No Hard Copy Email:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)

☐ POTW/WWTP ☐ Format:

☐ State: ☐ LEVEL IV

☐ Other: ☐ NELAC

SAMPLE IDENTIFICATION

(Name, Location, Interval, etc.)

Collection Date

Collection Time

1 CFR-84F 6-10-2014 1200

2 Field Blank #1 6-10-2014 1300

3 FC-CFR 6-10-2014 1330

4 FC-CFR Duplicate 6-10-2014 1330

5

6

7

8

9

10

Relinquished by (print): Erin Weber

Relinquished by (print): 6-12-2014 11:35

Signature: [Signature]

Date/Time: 6-12-2014 11:35

Sample Disposal: Return to Client

Lab Disposal: see page 1

Relinquished by (print): see page 1

Relinquished by (print): see page 1

Signature: see page 1

Date/Time: see page 1

Received by (print): see page 1

Received by (print): see page 1

Signature: see page 1

Date/Time: see page 1

Received by Laboratory: see page 1

Received by Laboratory: see page 1

Signature: see page 1

Date/Time: see page 1

Received by Laboratory: see page 1

Received by Laboratory: see page 1

Signature: see page 1

Date/Time: see page 1



# Chain of Custody and Analytical Request Record

Page 3 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: MT DEQ (RESPEC)

Report Mail Address (Required): see page 1

☐ No Hard Copy Email:

Invoice Address (Required): see page 1

☐ No Hard Copy Email:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)

☐ POTW/WWTP ☐ Format:

☐ State: ☐ LEVEL IV

☐ Other: ☐ NELAC

SAMPLE IDENTIFICATION

(Name, Location, Interval, etc.)

Collection Date

Collection Time

1 CFR-84F 6-10-2014 1200

2 Field Blank #1 6-10-2014 1300

3 FC-CFR 6-10-2014 1330

4 FC-CFR Duplicate 6-10-2014 1330

5

6

7

8

9

10

Relinquished by (print): Erin Weber

Relinquished by (print): 6-12-2014 11:35

Signature: [Signature]

Date/Time: 6-12-2014 11:35

Sample Disposal: Return to Client

Lab Disposal: see page 1

Relinquished by (print): see page 1

Relinquished by (print): see page 1

Signature: see page 1

Date/Time: see page 1

Received by (print): see page 1

Received by (print): see page 1

Signature: see page 1

Date/Time: see page 1

Received by Laboratory: see page 1

Received by Laboratory: see page 1

Signature: see page 1

Date/Time: see page 1

Received by Laboratory: see page 1

Received by Laboratory: see page 1

Signature: see page 1

Date/Time: see page 1



# Chain of Custody and Analytical Request Record

Page 3 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: MT DEQ (RESPEC)

Report Mail Address (Required): see page 1

☐ No Hard Copy Email:

Invoice Address (Required): see page 1

☐ No Hard Copy Email:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)

☐ POTW/WWTP ☐ Format:

☐ State: ☐ LEVEL IV

☐ Other: ☐ NELAC

SAMPLE IDENTIFICATION

(Name, Location, Interval, etc.)

Collection Date

Collection Time

1 CFR-84F 6-10-2014 1200

2 Field Blank #1 6-10-2014 1300

3 FC-CFR 6-10-2014 1330

4 FC-CFR Duplicate 6-10-2014 1330

5

6

7

8

9

10

Relinquished by (print): Erin Weber

Relinquished by (print): 6-12-2014 11:35

Signature: [Signature]

Date/Time: 6-12-2014 11:35

Sample Disposal: Return to Client

Lab Disposal: see page 1

Relinquished by (print): see page 1

Relinquished by (print): see page 1

Signature: see page 1

Date/Time: see page 1

Received by (print): see page 1

Received by (print): see page 1

Signature: see page 1

Date/Time: see page 1

Received by Laboratory: see page 1

Received by Laboratory: see page 1

Signature: see page 1

Date/Time: see page 1

Received by Laboratory: see page 1

Received by Laboratory: see page 1

Signature: see page 1

Date/Time: see page 1

## ANALYTICAL SUMMARY REPORT

July 23, 2014

MT DEQ-Federal Superfund  
PO Box 200901  
Helena, MT 59620-0901

Work Order: H14060541 Quote ID: H958 - CFR Monitoring-474374

Project Name: CFR OU Monitoring

Energy Laboratories Inc Helena MT received the following 19 samples for MT DEQ-Federal Superfund on 6/26/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14060541-001	CFR-116A	06/24/14 9:00	06/26/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14060541-002	CSC	06/24/14 10:30	06/26/14	Aqueous	Same As Above
H14060541-003	LBR-CFR-02	06/24/14 15:30	06/26/14	Aqueous	Same As Above
H14060541-004	CFR-42G	06/24/14 17:00	06/26/14	Aqueous	Same As Above
H14060541-005	CFR-27H	06/24/14 18:00	06/26/14	Aqueous	Same As Above
H14060541-006	CFR-11F	06/25/14 9:00	06/26/14	Aqueous	Same As Above
H14060541-007	CFR-07D	06/25/14 10:00	06/26/14	Aqueous	Same As Above
H14060541-008	CFR-03A	06/25/14 11:00	06/26/14	Aqueous	Same As Above
H14060541-009	WSC-SBC	06/25/14 12:00	06/26/14	Aqueous	Same As Above
H14060541-010	SS-25	06/25/14 12:45	06/26/14	Aqueous	Same As Above
H14060541-011	MWB-SBC	06/25/14 13:30	06/26/14	Aqueous	Same As Above
H14060541-012	SBC P2	06/25/14 14:00	06/26/14	Aqueous	Same As Above
H14060541-013	Field Blank #2	06/25/14 15:00	06/26/14	Aqueous	Same As Above
H14060541-014	MCWC-MWB	06/25/14 15:30	06/26/14	Aqueous	Same As Above
H14060541-015	MCWC-MWB Duplicate	06/25/14 15:30	06/26/14	Aqueous	Same As Above

## ANALYTICAL SUMMARY REPORT

H14060541-016	CFR-84F	06/24/14 11:45 06/26/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Mercury, Total Recoverable Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H14060541-017	Field Blank #1	06/24/14 13:15 06/26/14	Aqueous	Same As Above
H14060541-018	FC-CFR	06/24/14 13:45 06/26/14	Aqueous	Same As Above
H14060541-019	FC-CFR Duplicate	06/24/14 13:45 06/26/14	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

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

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

Report Approved By:



**CLIENT:** MT DEQ-Federal Superfund  
**Project:** CFR OU Monitoring  
**Work Order:** H14060541

**Report Date:** 07/23/14

## **CASE NARRATIVE**

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Samples for Methyl Mercury were submitted to BrooksRand Labs. Attached is the report. Wj 7/23/14

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A  
**Lab ID:** H14060541-001  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 09:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	12	mg/L		2		A2540 D	06/27/14 11:24 / blm		-124 (14410200)_140627A : 5		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	89	mg/L		4		A2320 B	06/27/14 18:13 / SR		PHSC_101-H_140627A : 250		R98374
Bicarbonate as HCO <sub>3</sub>	110	mg/L		4		A2320 B	06/27/14 18:13 / SR		PHSC_101-H_140627A : 250		R98374
Chloride	2	mg/L		1		E300.0	06/27/14 19:26 / SR		IC102-H_140627A : 57		R98436
Sulfate	19	mg/L		1		E300.0	06/27/14 19:26 / SR		IC102-H_140627A : 57		R98436
Hardness as CaCO <sub>3</sub>	87	mg/L		1		A2340 B	07/02/14 08:57 / sld		WATERCALC_140702A : 1		R98494
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.5	mg/L		0.5		A5310 C	06/27/14 19:20 / eli-c		SUB-C188057 : 16		C_41808
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:22 / cm		FIA203-HE_140707B : 19		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 15:57 / cm		FIA203-HE_140630A : 62		R98451
Nitrogen, Total	0.08	mg/L		0.05		A4500 N-C	07/02/14 08:48 / cm	07/01/14 12:12	FIA203-HE_140702A : 16		25174
Phosphorus, Total as P	0.026	mg/L		0.005		E365.1	06/30/14 14:46 / cm	06/30/14 13:53	FIA202-HE_140630B : 27		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	07/01/14 00:36 / dck		ICPMS204-B_140630A : 181		R98479
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 00:36 / dck		ICPMS204-B_140630A : 181		R98479
Copper	0.005	mg/L		0.001		E200.8	07/01/14 00:36 / dck		ICPMS204-B_140630A : 181		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 00:36 / dck		ICPMS204-B_140630A : 181		R98479
Zinc	0.011	mg/L		0.008		E200.8	07/01/14 00:36 / dck		ICPMS204-B_140630A : 181		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.007	mg/L		0.001		E200.8	07/01/14 01:02 / dck	06/27/14 09:25	ICPMS204-B_140630A : 187		25106
Cadmium	0.00006	mg/L	D	0.00004		E200.8	07/01/14 01:02 / dck	06/27/14 09:25	ICPMS204-B_140630A : 187		25106
Calcium	25	mg/L		1		E200.7	06/30/14 23:18 / sld	06/27/14 09:25	ICP2-HE_140630B : 192		25106
Copper	0.012	mg/L		0.001		E200.8	07/01/14 01:02 / dck	06/27/14 09:25	ICPMS204-B_140630A : 187		25106
Lead	0.0016	mg/L		0.0003		E200.8	07/01/14 01:02 / dck	06/27/14 09:25	ICPMS204-B_140630A : 187		25106

**Report** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

**Definitions:** D - RL increased due to sample matrix.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-116A

**Lab ID:** H14060541-001

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/24/14 09:00

**Date Received:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	6	mg/L		1		E200.7	06/30/14 23:18 / sld	06/27/14 09:25	ICP2-HE_140630B : 192		25106
Zinc	0.016	mg/L		0.008		E200.8	07/01/14 01:02 / dck	06/27/14 09:25	ICPMS204-B_140630A : 187		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CSC  
**Lab ID:** H14060541-002  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 10:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		2		A2540 D	06/27/14 11:25 / blm		-124 (14410200)_140627A : 6		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	06/27/14 18:19 / SR		PHSC_101-H_140627A : 252		R98374
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	06/27/14 18:19 / SR		PHSC_101-H_140627A : 252		R98374
Chloride	3	mg/L		1		E300.0	06/27/14 20:00 / SR		IC102-H_140627A : 60		R98436
Sulfate	28	mg/L		1		E300.0	06/27/14 20:00 / SR		IC102-H_140627A : 60		R98436
Hardness as CaCO <sub>3</sub>	143	mg/L		1		A2340 B	06/30/14 23:33 / abb		CALC_140701A : 311		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.1	mg/L		0.5		A5310 C	06/27/14 19:30 / eli-c		SUB-C188057 : 17		C_41808
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:23 / cm		FIA203-HE_140707B : 20		R98605
Nitrogen, Nitrate+Nitrite as N	0.22	mg/L		0.05		E353.2	06/30/14 15:59 / cm		FIA203-HE_140630A : 63		R98451
Nitrogen, Total	0.27	mg/L		0.05		A4500 N-C	07/02/14 08:49 / cm	07/01/14 12:12	FIA203-HE_140702A : 17		25174
Phosphorus, Total as P	0.010	mg/L		0.005		E365.1	06/30/14 14:49 / cm	06/30/14 13:53	FIA202-HE_140630B : 30		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.002	mg/L		0.001		E200.8	07/01/14 01:24 / dck		ICPMS204-B_140630A : 192		R98479
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 01:24 / dck		ICPMS204-B_140630A : 192		R98479
Copper	ND	mg/L		0.001		E200.8	07/01/14 01:24 / dck		ICPMS204-B_140630A : 192		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 01:24 / dck		ICPMS204-B_140630A : 192		R98479
Zinc	0.018	mg/L		0.008		E200.8	07/01/14 01:24 / dck		ICPMS204-B_140630A : 192		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.002	mg/L		0.001		E200.8	07/01/14 01:28 / dck	06/27/14 09:25	ICPMS204-B_140630A : 193		25106
Cadmium	0.00003	mg/L		0.00003		E200.8	07/01/14 23:33 / dck	06/27/14 09:25	ICPMS204-B_140701B : 114		25106
Calcium	42	mg/L		1		E200.7	06/30/14 23:33 / sld	06/27/14 09:25	ICP2-HE_140630B : 196		25106
Copper	0.003	mg/L		0.001		E200.8	07/01/14 01:28 / dck	06/27/14 09:25	ICPMS204-B_140630A : 193		25106
Lead	ND	mg/L		0.0003		E200.8	07/01/14 01:28 / dck	06/27/14 09:25	ICPMS204-B_140630A : 193		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CSC

**Lab ID:** H14060541-002

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/24/14 10:30

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	06/30/14 23:33 / sld	06/27/14 09:25	ICP2-HE_140630B : 196		25106
Zinc	0.011	mg/L		0.008		E200.8	07/01/14 01:28 / dck	06/27/14 09:25	ICPMS204-B_140630A : 193		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02  
**Lab ID:** H14060541-003  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 15:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	4	mg/L		2		A2540 D	06/27/14 11:25 / blm		-124 (14410200)_140627A : 7		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	06/27/14 18:26 / SR		PHSC_101-H_140627A : 254		R98374
Bicarbonate as HCO <sub>3</sub>	130	mg/L		4		A2320 B	06/27/14 18:26 / SR		PHSC_101-H_140627A : 254		R98374
Chloride	2	mg/L		1		E300.0	06/27/14 20:33 / SR		IC102-H_140627A : 63		R98436
Sulfate	8	mg/L		1		E300.0	06/27/14 20:33 / SR		IC102-H_140627A : 63		R98436
Hardness as CaCO <sub>3</sub>	104	mg/L		1		A2340 B	06/30/14 23:37 / abb		CALC_140701A : 322		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.4	mg/L		0.5		A5310 C	06/27/14 19:40 / eli-c		SUB-C188057 : 18		C_41808
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:24 / cm		FIA203-HE_140707B : 21		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:00 / cm		FIA203-HE_140630A : 64		R98451
Nitrogen, Total	0.19	mg/L		0.05		A4500 N-C	07/02/14 08:50 / cm	07/01/14 12:12	FIA203-HE_140702A : 18		25174
Phosphorus, Total as P	0.028	mg/L		0.005		E365.1	06/30/14 14:50 / cm	06/30/14 13:53	FIA202-HE_140630B : 31		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	07/01/14 01:32 / dck		ICPMS204-B_140630A : 194		R98479
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 01:32 / dck		ICPMS204-B_140630A : 194		R98479
Copper	0.001	mg/L		0.001		E200.8	07/01/14 01:32 / dck		ICPMS204-B_140630A : 194		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 01:32 / dck		ICPMS204-B_140630A : 194		R98479
Zinc	ND	mg/L		0.008		E200.8	07/01/14 01:32 / dck		ICPMS204-B_140630A : 194		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.006	mg/L		0.001		E200.8	07/01/14 23:38 / dck	06/27/14 09:25	ICPMS204-B_140701B : 115		25106
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 23:38 / dck	06/27/14 09:25	ICPMS204-B_140701B : 115		25106
Calcium	31	mg/L		1		E200.7	06/30/14 23:37 / sld	06/27/14 09:25	ICP2-HE_140630B : 197		25106
Copper	0.001	mg/L		0.001		E200.8	07/01/14 01:59 / dck	06/27/14 09:25	ICPMS204-B_140630A : 200		25106
Lead	0.0003	mg/L		0.0003		E200.8	07/01/14 01:59 / dck	06/27/14 09:25	ICPMS204-B_140630A : 200		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02  
**Lab ID:** H14060541-003  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 15:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	06/30/14 23:37 / sld	06/27/14 09:25	ICP2-HE_140630B : 197		25106
Zinc	ND	mg/L		0.008		E200.8	07/01/14 01:59 / dck	06/27/14 09:25	ICPMS204-B_140630A : 200		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-42G  
**Lab ID:** H14060541-004  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 17:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	23	mg/L		2		A2540 D	06/27/14 11:26 / blm		-124 (14410200)_140627A : 8		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	06/27/14 18:31 / SR		PHSC_101-H_140627A : 256		R98374
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	06/27/14 18:31 / SR		PHSC_101-H_140627A : 256		R98374
Chloride	4	mg/L		1		E300.0	06/27/14 20:44 / SR		IC102-H_140627A : 64		R98436
Sulfate	37	mg/L		1		E300.0	06/27/14 20:44 / SR		IC102-H_140627A : 64		R98436
Hardness as CaCO <sub>3</sub>	132	mg/L		1		A2340 B	06/30/14 23:41 / abb		CALC_140701A : 333		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.5	mg/L		0.5		A5310 C	06/30/14 20:01 / eli-c		SUB-C188112 : 16		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:26 / cm		FIA203-HE_140707B : 22		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:01 / cm		FIA203-HE_140630A : 65		R98451
Nitrogen, Total	0.22	mg/L		0.05		A4500 N-C	07/02/14 08:52 / cm	07/01/14 12:12	FIA203-HE_140702A : 19		25174
Phosphorus, Total as P	0.046	mg/L		0.005		E365.1	06/30/14 14:51 / cm	06/30/14 13:53	FIA202-HE_140630B : 32		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.017	mg/L		0.001		E200.8	07/01/14 23:42 / dck		ICPMS204-B_140701B : 116		R98549
Cadmium	0.00015	mg/L		0.00003		E200.8	07/01/14 02:03 / dck		ICPMS204-B_140630A : 201		R98479
Copper	0.014	mg/L		0.001		E200.8	07/01/14 02:03 / dck		ICPMS204-B_140630A : 201		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 02:03 / dck		ICPMS204-B_140630A : 201		R98479
Zinc	0.013	mg/L		0.008		E200.8	07/01/14 02:03 / dck		ICPMS204-B_140630A : 201		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	07/01/14 23:47 / dck	06/27/14 09:25	ICPMS204-B_140701B : 117		25106
Cadmium	0.00020	mg/L		0.00003		E200.8	07/01/14 02:08 / dck	06/27/14 09:25	ICPMS204-B_140630A : 202		25106
Calcium	38	mg/L		1		E200.7	06/30/14 23:41 / sld	06/27/14 09:25	ICP2-HE_140630B : 198		25106
Copper	0.051	mg/L		0.001		E200.8	07/01/14 02:08 / dck	06/27/14 09:25	ICPMS204-B_140630A : 202		25106
Lead	0.0054	mg/L		0.0003		E200.8	07/01/14 02:08 / dck	06/27/14 09:25	ICPMS204-B_140630A : 202		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-42G  
**Lab ID:** H14060541-004  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 17:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	06/30/14 23:41 / sld	06/27/14 09:25	ICP2-HE_140630B : 198		25106
Zinc	0.039	mg/L		0.008		E200.8	07/01/14 02:08 / dck	06/27/14 09:25	ICPMS204-B_140630A : 202		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H  
**Lab ID:** H14060541-005  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 18:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	20	mg/L		2		A2540 D	06/27/14 11:26 / blm		-124 (14410200)_140627A : 9		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	88	mg/L		4		A2320 B	06/27/14 18:37 / SR		PHSC_101-H_140627A : 258		R98374
Bicarbonate as HCO <sub>3</sub>	110	mg/L		4		A2320 B	06/27/14 18:37 / SR		PHSC_101-H_140627A : 258		R98374
Chloride	3	mg/L		1		E300.0	06/27/14 20:55 / SR		IC102-H_140627A : 65		R98436
Sulfate	35	mg/L		1		E300.0	06/27/14 20:55 / SR		IC102-H_140627A : 65		R98436
Hardness as CaCO <sub>3</sub>	113	mg/L		1		A2340 B	06/30/14 23:45 / abb		CALC_140701A : 344		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.5		A5310 C	06/30/14 20:50 / eli-c		SUB-C188112 : 19		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:27 / cm		FIA203-HE_140707B : 23		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:02 / cm		FIA203-HE_140630A : 66		R98451
Nitrogen, Total	0.30	mg/L		0.05		A4500 N-C	07/02/14 08:53 / cm	07/01/14 12:12	FIA203-HE_140702A : 20		25174
Phosphorus, Total as P	0.031	mg/L		0.005		E365.1	06/30/14 14:52 / cm	06/30/14 13:53	FIA202-HE_140630B : 33		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.016	mg/L		0.001		E200.8	07/01/14 23:51 / dck		ICPMS204-B_140701B : 118		R98549
Cadmium	0.00004	mg/L		0.00003		E200.8	07/01/14 23:51 / dck		ICPMS204-B_140701B : 118		R98549
Copper	0.012	mg/L		0.001		E200.8	07/01/14 02:12 / dck		ICPMS204-B_140630A : 203		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 02:12 / dck		ICPMS204-B_140630A : 203		R98479
Zinc	ND	mg/L		0.008		E200.8	07/01/14 02:12 / dck		ICPMS204-B_140630A : 203		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	07/01/14 23:56 / dck	06/27/14 09:25	ICPMS204-B_140701B : 119		25106
Cadmium	0.00019	mg/L		0.00003		E200.8	07/01/14 02:17 / dck	06/27/14 09:25	ICPMS204-B_140630A : 204		25106
Calcium	34	mg/L		1		E200.7	06/30/14 23:45 / sld	06/27/14 09:25	ICP2-HE_140630B : 199		25106
Copper	0.048	mg/L		0.001		E200.8	07/01/14 02:17 / dck	06/27/14 09:25	ICPMS204-B_140630A : 204		25106
Lead	0.0046	mg/L		0.0003		E200.8	07/01/14 02:17 / dck	06/27/14 09:25	ICPMS204-B_140630A : 204		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-27H

**Lab ID:** H14060541-005

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/24/14 18:00

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	06/30/14 23:45 / sld	06/27/14 09:25	ICP2-HE_140630B : 199		25106
Zinc	0.035	mg/L		0.008		E200.8	07/01/14 02:17 / dck	06/27/14 09:25	ICPMS204-B_140630A : 204		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F  
**Lab ID:** H14060541-006  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 09:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	11	mg/L		2		A2540 D	06/27/14 11:26 / blm		I24 (14410200)_140627A : 10		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	88	mg/L		4		A2320 B	06/27/14 19:07 / SR		PHSC_101-H_140627A : 265		R98374
Bicarbonate as HCO <sub>3</sub>	110	mg/L		4		A2320 B	06/27/14 19:07 / SR		PHSC_101-H_140627A : 265		R98374
Chloride	4	mg/L		1		E300.0	06/27/14 21:06 / SR		IC102-H_140627A : 66		R98436
Sulfate	43	mg/L		1		E300.0	06/27/14 21:06 / SR		IC102-H_140627A : 66		R98436
Hardness as CaCO <sub>3</sub>	122	mg/L		1		A2340 B	06/30/14 23:49 / abb		CALC_140701A : 355		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.0	mg/L		0.5		A5310 C	06/30/14 21:05 / eli-c		SUB-C188112 : 20		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:33 / cm		FIA203-HE_140707B : 28		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:03 / cm		FIA203-HE_140630A : 67		R98451
Nitrogen, Total	0.19	mg/L		0.05		A4500 N-C	07/02/14 08:54 / cm	07/01/14 12:12	FIA203-HE_140702A : 21		25174
Phosphorus, Total as P	0.025	mg/L		0.005		E365.1	06/30/14 14:53 / cm	06/30/14 13:53	FIA202-HE_140630B : 34		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.018	mg/L		0.001		E200.8	07/02/14 00:00 / dck		ICPMS204-B_140701B : 120		R98549
Cadmium	ND	mg/L		0.00003		E200.8	07/02/14 00:00 / dck		ICPMS204-B_140701B : 120		R98549
Copper	0.007	mg/L		0.001		E200.8	07/01/14 02:21 / dck		ICPMS204-B_140630A : 205		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 02:21 / dck		ICPMS204-B_140630A : 205		R98479
Zinc	0.012	mg/L		0.008		E200.8	07/01/14 02:21 / dck		ICPMS204-B_140630A : 205		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	07/02/14 00:04 / dck	06/27/14 09:25	ICPMS204-B_140701B : 121		25106
Cadmium	0.00012	mg/L		0.00003		E200.8	07/01/14 02:26 / dck	06/27/14 09:25	ICPMS204-B_140630A : 206		25106
Calcium	36	mg/L		1		E200.7	06/30/14 23:49 / sld	06/27/14 09:25	ICP2-HE_140630B : 200		25106
Copper	0.026	mg/L		0.001		E200.8	07/01/14 02:26 / dck	06/27/14 09:25	ICPMS204-B_140630A : 206		25106
Lead	0.0027	mg/L		0.0003		E200.8	07/01/14 02:26 / dck	06/27/14 09:25	ICPMS204-B_140630A : 206		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-11F

**Lab ID:** H14060541-006

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/25/14 09:00

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	06/30/14 23:49 / sld	06/27/14 09:25	ICP2-HE_140630B : 200		25106
Zinc	0.020	mg/L		0.008		E200.8	07/01/14 02:26 / dck	06/27/14 09:25	ICPMS204-B_140630A : 206		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-07D  
**Lab ID:** H14060541-007  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 10:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	12	mg/L		2		A2540 D	06/27/14 11:27 / blm		I24 (14410200)_140627A : 11		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	83	mg/L		4		A2320 B	06/27/14 19:18 / SR		PHSC_101-H_140627A : 269		R98374
Bicarbonate as HCO <sub>3</sub>	100	mg/L		4		A2320 B	06/27/14 19:18 / SR		PHSC_101-H_140627A : 269		R98374
Chloride	3	mg/L		1		E300.0	06/27/14 21:17 / SR		IC102-H_140627A : 67		R98436
Sulfate	40	mg/L		1		E300.0	06/27/14 21:17 / SR		IC102-H_140627A : 67		R98436
Hardness as CaCO <sub>3</sub>	113	mg/L		1		A2340 B	07/01/14 00:00 / abb		CALC_140701A : 366		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.9	mg/L		0.5		A5310 C	06/30/14 21:20 / eli-c		SUB-C188112 : 21		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:36 / cm		FIA203-HE_140707B : 31		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:04 / cm		FIA203-HE_140630A : 68		R98451
Nitrogen, Total	0.15	mg/L		0.05		A4500 N-C	07/02/14 08:55 / cm	07/01/14 12:12	FIA203-HE_140702A : 22		25174
Phosphorus, Total as P	0.027	mg/L		0.005		E365.1	06/30/14 14:54 / cm	06/30/14 13:53	FIA202-HE_140630B : 35		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.017	mg/L		0.001		E200.8	07/02/14 00:09 / dck		ICPMS204-B_140701B : 122		R98549
Cadmium	0.00003	mg/L		0.00003		E200.8	07/02/14 00:09 / dck		ICPMS204-B_140701B : 122		R98549
Copper	0.007	mg/L		0.001		E200.8	07/01/14 02:30 / dck		ICPMS204-B_140630A : 207		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 02:30 / dck		ICPMS204-B_140630A : 207		R98479
Zinc	0.017	mg/L		0.008		E200.8	07/01/14 02:30 / dck		ICPMS204-B_140630A : 207		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	07/02/14 00:13 / dck	06/27/14 09:25	ICPMS204-B_140701B : 123		25106
Cadmium	0.00012	mg/L		0.00003		E200.8	07/01/14 02:35 / dck	06/27/14 09:25	ICPMS204-B_140630A : 208		25106
Calcium	33	mg/L		1		E200.7	07/01/14 00:00 / sld	06/27/14 09:25	ICP2-HE_140630B : 203		25106
Copper	0.027	mg/L		0.001		E200.8	07/01/14 02:35 / dck	06/27/14 09:25	ICPMS204-B_140630A : 208		25106
Lead	0.0027	mg/L		0.0003		E200.8	07/01/14 02:35 / dck	06/27/14 09:25	ICPMS204-B_140630A : 208		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-07D

**Lab ID:** H14060541-007

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/25/14 10:00

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	07/01/14 00:00 / sld	06/27/14 09:25	ICP2-HE_140630B : 203		25106
Zinc	0.027	mg/L		0.008		E200.8	07/01/14 02:35 / dck	06/27/14 09:25	ICPMS204-B_140630A : 208		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A  
**Lab ID:** H14060541-008  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 11:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	10	mg/L		2		A2540 D	06/27/14 11:27 / blm		I24 (14410200)_140627A : 12		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	76	mg/L		4		A2320 B	06/27/14 19:39 / SR		PHSC_101-H_140627A : 272		R98374
Bicarbonate as HCO <sub>3</sub>	92	mg/L		4		A2320 B	06/27/14 19:39 / SR		PHSC_101-H_140627A : 272		R98374
Chloride	3	mg/L		1		E300.0	06/27/14 21:28 / SR		IC102-H_140627A : 68		R98436
Sulfate	36	mg/L		1		E300.0	06/27/14 21:28 / SR		IC102-H_140627A : 68		R98436
Hardness as CaCO <sub>3</sub>	99	mg/L		1		A2340 B	07/01/14 00:04 / abb		CALC_140701A : 377		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.5		A5310 C	06/30/14 21:35 / eli-c		SUB-C188112 : 22		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:38 / cm		FIA203-HE_140707B : 32		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:08 / cm		FIA203-HE_140630A : 71		R98451
Nitrogen, Total	0.15	mg/L		0.05		A4500 N-C	07/02/14 08:56 / cm	07/01/14 12:12	FIA203-HE_140702A : 23		25174
Phosphorus, Total as P	0.027	mg/L		0.005		E365.1	06/30/14 14:55 / cm	06/30/14 13:53	FIA202-HE_140630B : 36		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.018	mg/L		0.001		E200.8	07/02/14 00:31 / dck		ICPMS204-B_140701B : 127		R98549
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 02:39 / dck		ICPMS204-B_140630A : 209		R98479
Copper	0.005	mg/L		0.001		E200.8	07/01/14 02:39 / dck		ICPMS204-B_140630A : 209		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 02:39 / dck		ICPMS204-B_140630A : 209		R98479
Zinc	ND	mg/L		0.008		E200.8	07/01/14 02:39 / dck		ICPMS204-B_140630A : 209		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	07/02/14 00:49 / dck	06/27/14 09:25	ICPMS204-B_140701B : 131		25106
Cadmium	0.00008	mg/L	D	0.00004		E200.8	07/02/14 00:49 / dck	06/27/14 09:25	ICPMS204-B_140701B : 131		25106
Calcium	29	mg/L		1		E200.7	07/01/14 00:04 / sld	06/27/14 09:25	ICP2-HE_140630B : 204		25106
Copper	0.016	mg/L		0.001		E200.8	07/01/14 02:57 / dck	06/27/14 09:25	ICPMS204-B_140630A : 213		25106
Lead	0.0018	mg/L		0.0003		E200.8	07/01/14 02:57 / dck	06/27/14 09:25	ICPMS204-B_140630A : 213		25106

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund

**Client Sample ID:** CFR-03A

**Lab ID:** H14060541-008

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/25/14 11:00

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	6	mg/L		1		E200.7	07/01/14 00:04 / sld	06/27/14 09:25	ICP2-HE_140630B : 204		25106
Zinc	0.013	mg/L		0.008		E200.8	07/01/14 02:57 / dck	06/27/14 09:25	ICPMS204-B_140630A : 213		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14060541-009  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 12:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	11	mg/L		2		A2540 D	06/27/14 11:28 / blm		I24 (14410200)_140627A : 13		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	70	mg/L		4		A2320 B	06/27/14 19:45 / SR		PHSC_101-H_140627A : 274		R98374
Bicarbonate as HCO <sub>3</sub>	85	mg/L		4		A2320 B	06/27/14 19:45 / SR		PHSC_101-H_140627A : 274		R98374
Chloride	ND	mg/L		1		E300.0	06/27/14 21:40 / SR		IC102-H_140627A : 69		R98436
Sulfate	13	mg/L		1		E300.0	06/27/14 21:40 / SR		IC102-H_140627A : 69		R98436
Hardness as CaCO <sub>3</sub>	75	mg/L		1		A2340 B	07/01/14 00:07 / abb		CALC_140701A : 388		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.1	mg/L		0.5		A5310 C	06/30/14 21:51 / eli-c		SUB-C188112 : 23		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:39 / cm		FIA203-HE_140707B : 33		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:12 / cm		FIA203-HE_140630A : 74		R98451
Nitrogen, Total	0.05	mg/L		0.05		A4500 N-C	07/02/14 08:57 / cm	07/01/14 12:12	FIA203-HE_140702A : 24		25174
Phosphorus, Total as P	0.009	mg/L		0.005		E365.1	06/30/14 14:56 / cm	06/30/14 13:53	FIA202-HE_140630B : 37		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	07/02/14 00:54 / dck		ICPMS204-B_140701B : 132		R98549
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 03:01 / dck		ICPMS204-B_140630A : 214		R98479
Copper	0.004	mg/L		0.001		E200.8	07/01/14 03:01 / dck		ICPMS204-B_140630A : 214		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 03:01 / dck		ICPMS204-B_140630A : 214		R98479
Zinc	ND	mg/L		0.008		E200.8	07/02/14 00:54 / dck		ICPMS204-B_140701B : 132		R98549
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.007	mg/L		0.001		E200.8	07/02/14 00:58 / dck	06/27/14 09:25	ICPMS204-B_140701B : 133		25106
Cadmium	0.00010	mg/L		0.00003		E200.8	07/01/14 03:06 / dck	06/27/14 09:25	ICPMS204-B_140630A : 215		25106
Calcium	24	mg/L		1		E200.7	07/01/14 00:07 / sld	06/27/14 09:25	ICP2-HE_140630B : 205		25106
Copper	0.017	mg/L		0.001		E200.8	07/01/14 03:06 / dck	06/27/14 09:25	ICPMS204-B_140630A : 215		25106
Lead	0.0015	mg/L		0.0003		E200.8	07/01/14 03:06 / dck	06/27/14 09:25	ICPMS204-B_140630A : 215		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14060541-009  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 12:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	4	mg/L		1		E200.7	07/01/14 00:07 / sld	06/27/14 09:25	ICP2-HE_140630B : 205		25106
Zinc	0.010	mg/L		0.008		E200.8	07/01/14 03:06 / dck	06/27/14 09:25	ICPMS204-B_140630A : 215		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SS-25  
**Lab ID:** H14060541-010  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 12:45 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	7	mg/L		2		A2540 D	06/27/14 11:29 / blm		I24 (14410200)_140627A : 16		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	69	mg/L		4		A2320 B	06/27/14 19:51 / SR		PHSC_101-H_140627A : 276		R98374
Bicarbonate as HCO <sub>3</sub>	74	mg/L		4		A2320 B	06/27/14 19:51 / SR		PHSC_101-H_140627A : 276		R98374
Chloride	6	mg/L		1		E300.0	06/27/14 21:51 / SR		IC102-H_140627A : 70		R98436
Sulfate	36	mg/L		1		E300.0	06/27/14 21:51 / SR		IC102-H_140627A : 70		R98436
Hardness as CaCO <sub>3</sub>	87	mg/L		1		A2340 B	07/01/14 00:11 / abb		CALC_140701A : 399		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	5.1	mg/L		0.5		A5310 C	06/30/14 22:11 / eli-c		SUB-C188112 : 24		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:40 / cm		FIA203-HE_140707B : 34		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:13 / cm		FIA203-HE_140630A : 75		R98451
Nitrogen, Total	0.32	mg/L		0.05		A4500 N-C	07/02/14 09:01 / cm	07/01/14 12:12	FIA203-HE_140702A : 27		25174
Phosphorus, Total as P	0.045	mg/L		0.005		E365.1	06/30/14 14:57 / cm	06/30/14 13:53	FIA202-HE_140630B : 38		25153
<b>METALS, DISSOLVED</b>											
Arsenic	0.026	mg/L		0.001		E200.8	07/02/14 01:03 / dck		ICPMS204-B_140701B : 134		R98549
Cadmium	0.00003	mg/L		0.00003		E200.8	07/02/14 01:03 / dck		ICPMS204-B_140701B : 134		R98549
Copper	0.006	mg/L		0.001		E200.8	07/01/14 03:10 / dck		ICPMS204-B_140630A : 216		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 03:10 / dck		ICPMS204-B_140630A : 216		R98479
Zinc	ND	mg/L		0.008		E200.8	07/01/14 03:10 / dck		ICPMS204-B_140630A : 216		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.027	mg/L		0.001		E200.8	07/02/14 01:07 / dck	06/27/14 09:25	ICPMS204-B_140701B : 135		25106
Cadmium	0.00010	mg/L		0.00003		E200.8	07/01/14 03:14 / dck	06/27/14 09:25	ICPMS204-B_140630A : 217		25106
Calcium	26	mg/L		1		E200.7	07/01/14 00:11 / sld	06/27/14 09:25	ICP2-HE_140630B : 206		25106
Copper	0.009	mg/L		0.001		E200.8	07/01/14 03:14 / dck	06/27/14 09:25	ICPMS204-B_140630A : 217		25106
Lead	0.0012	mg/L		0.0003		E200.8	07/01/14 03:14 / dck	06/27/14 09:25	ICPMS204-B_140630A : 217		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** SS-25

**Lab ID:** H14060541-010

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/25/14 12:45

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	6	mg/L		1		E200.7	07/01/14 00:11 / sld	06/27/14 09:25	ICP2-HE_140630B : 206		25106
Zinc	0.011	mg/L		0.008		E200.8	07/01/14 03:14 / dck	06/27/14 09:25	ICPMS204-B_140630A : 217		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14060541-011  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 13:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	10	mg/L		2		A2540 D	06/27/14 11:29 / blm		I24 (14410200)_140627A : 17		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	60	mg/L		4		A2320 B	06/27/14 19:59 / SR		PHSC_101-H_140627A : 278		R98374
Bicarbonate as HCO <sub>3</sub>	72	mg/L		4		A2320 B	06/27/14 19:59 / SR		PHSC_101-H_140627A : 278		R98374
Chloride	1	mg/L		1		E300.0	06/27/14 22:02 / SR		IC102-H_140627A : 71		R98436
Sulfate	25	mg/L		1		E300.0	06/27/14 22:02 / SR		IC102-H_140627A : 71		R98436
Hardness as CaCO <sub>3</sub>	75	mg/L		1		A2340 B	07/01/14 00:15 / abb		CALC_140701A : 410		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.4	mg/L		0.5		A5310 C	06/30/14 22:27 / eli-c		SUB-C188112 : 25		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:41 / cm		FIA203-HE_140707B : 35		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:14 / cm		FIA203-HE_140630A : 76		R98451
Nitrogen, Total	0.21	mg/L		0.05		A4500 N-C	07/02/14 09:05 / cm	07/01/14 12:12	FIA203-HE_140702A : 30		25174
Phosphorus, Total as P	0.028	mg/L		0.005		E365.1	06/30/14 15:03 / cm	06/30/14 13:56	FIA202-HE_140630B : 43		25154
<b>METALS, DISSOLVED</b>											
Arsenic	0.024	mg/L		0.001		E200.8	07/02/14 01:12 / dck		ICPMS204-B_140701B : 136		R98549
Cadmium	0.00003	mg/L		0.00003		E200.8	07/02/14 01:12 / dck		ICPMS204-B_140701B : 136		R98549
Copper	0.004	mg/L		0.001		E200.8	07/01/14 03:19 / dck		ICPMS204-B_140630A : 218		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 03:19 / dck		ICPMS204-B_140630A : 218		R98479
Zinc	0.011	mg/L		0.008		E200.8	07/01/14 03:19 / dck		ICPMS204-B_140630A : 218		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.026	mg/L		0.001		E200.8	07/02/14 01:30 / dck	06/27/14 09:25	ICPMS204-B_140701B : 140		25106
Cadmium	0.00011	mg/L		0.00003		E200.8	07/01/14 03:23 / dck	06/27/14 09:25	ICPMS204-B_140630A : 219		25106
Calcium	22	mg/L		1		E200.7	07/01/14 00:15 / sld	06/27/14 09:25	ICP2-HE_140630B : 207		25106
Copper	0.008	mg/L		0.001		E200.8	07/01/14 03:23 / dck	06/27/14 09:25	ICPMS204-B_140630A : 219		25106
Lead	0.0016	mg/L		0.0003		E200.8	07/01/14 03:23 / dck	06/27/14 09:25	ICPMS204-B_140630A : 219		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14060541-011  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 13:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	5	mg/L		1		E200.7	07/01/14 00:15 / sld	06/27/14 09:25	ICP2-HE_140630B : 207		25106
Zinc	0.010	mg/L		0.008		E200.8	07/01/14 03:23 / dck	06/27/14 09:25	ICPMS204-B_140630A : 219		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SBC P2  
**Lab ID:** H14060541-012  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 14:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		2		A2540 D	06/27/14 11:30 / blm		I24 (14410200)_140627A : 18		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	80	mg/L		4		A2320 B	06/27/14 20:05 / SR		PHSC_101-H_140627A : 280		R98374
Bicarbonate as HCO <sub>3</sub>	65	mg/L		4		A2320 B	06/27/14 20:05 / SR		PHSC_101-H_140627A : 280		R98374
Chloride	13	mg/L		1		E300.0	06/27/14 22:35 / SR		IC102-H_140627A : 74		R98436
Sulfate	52	mg/L		1		E300.0	06/27/14 22:35 / SR		IC102-H_140627A : 74		R98436
Hardness as CaCO <sub>3</sub>	112	mg/L		1		A2340 B	07/01/14 00:30 / abb		CALC_140701A : 421		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	7.2	mg/L		0.5		A5310 C	06/30/14 22:43 / eli-c		SUB-C188112 : 26		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:42 / cm		FIA203-HE_140707B : 36		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:15 / cm		FIA203-HE_140630A : 77		R98451
Nitrogen, Total	0.46	mg/L		0.05		A4500 N-C	07/02/14 09:06 / cm	07/01/14 12:12	FIA203-HE_140702A : 31		25174
Phosphorus, Total as P	0.074	mg/L		0.005		E365.1	06/30/14 15:06 / cm	06/30/14 13:56	FIA202-HE_140630B : 46		25154
<b>METALS, DISSOLVED</b>											
Arsenic	0.029	mg/L		0.001		E200.8	07/02/14 01:34 / dck		ICPMS204-B_140701B : 141		R98549
Cadmium	0.00003	mg/L		0.00003		E200.8	07/02/14 01:34 / dck		ICPMS204-B_140701B : 141		R98549
Copper	0.008	mg/L		0.001		E200.8	07/01/14 03:54 / dck		ICPMS204-B_140630A : 226		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 03:54 / dck		ICPMS204-B_140630A : 226		R98479
Zinc	ND	mg/L		0.008		E200.8	07/01/14 03:54 / dck		ICPMS204-B_140630A : 226		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.029	mg/L		0.001		E200.8	07/02/14 01:39 / dck	06/27/14 09:25	ICPMS204-B_140701B : 142		25106
Cadmium	0.00007	mg/L	D	0.00004		E200.8	07/02/14 01:39 / dck	06/27/14 09:25	ICPMS204-B_140701B : 142		25106
Calcium	32	mg/L		1		E200.7	07/01/14 00:30 / sld	06/27/14 09:25	ICP2-HE_140630B : 211		25106
Copper	0.008	mg/L		0.001		E200.8	07/01/14 03:58 / dck	06/27/14 09:25	ICPMS204-B_140630A : 227		25106
Lead	ND	mg/L		0.0003		E200.8	07/01/14 03:58 / dck	06/27/14 09:25	ICPMS204-B_140630A : 227		25106

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund

**Client Sample ID:** SBC P2

**Lab ID:** H14060541-012

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/25/14 14:00

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	07/01/14 00:30 / sld	06/27/14 09:25	ICP2-HE_140630B : 211		25106
Zinc	ND	mg/L		0.008		E200.8	07/01/14 03:58 / dck	06/27/14 09:25	ICPMS204-B_140630A : 227		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14060541-013  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 15:00 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		2		A2540 D	06/27/14 11:31 / blm		I24 (14410200)_140627A : 19		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	06/27/14 20:11 / SR		PHSC_101-H_140627A : 282		R98374
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	06/27/14 20:11 / SR		PHSC_101-H_140627A : 282		R98374
Chloride	ND	mg/L		1		E300.0	06/27/14 23:08 / SR		IC102-H_140627A : 77		R98436
Sulfate	ND	mg/L		1		E300.0	06/27/14 23:08 / SR		IC102-H_140627A : 77		R98436
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	07/07/14 07:56 / sld		WATERCALC_140707A : 1		R98588
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	ND	mg/L		0.5		A5310 C	06/30/14 22:57 / eli-c		SUB-C188112 : 27		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:43 / cm		FIA203-HE_140707B : 37		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:16 / cm		FIA203-HE_140630A : 78		R98451
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	07/02/14 09:07 / cm	07/01/14 12:12	FIA203-HE_140702A : 32		25174
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	06/30/14 15:07 / cm	06/30/14 13:56	FIA202-HE_140630B : 47		25154
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	07/02/14 01:43 / dck		ICPMS204-B_140701B : 143		R98549
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 04:03 / dck		ICPMS204-B_140630A : 228		R98479
Copper	ND	mg/L		0.001		E200.8	07/01/14 04:03 / dck		ICPMS204-B_140630A : 228		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 04:03 / dck		ICPMS204-B_140630A : 228		R98479
Zinc	0.012	mg/L		0.008		E200.8	07/01/14 04:03 / dck		ICPMS204-B_140630A : 228		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	07/02/14 01:48 / dck	06/27/14 09:25	ICPMS204-B_140701B : 144		25106
Cadmium	ND	mg/L		0.00003		E200.8	07/02/14 01:48 / dck	06/27/14 09:25	ICPMS204-B_140701B : 144		25106
Calcium	ND	mg/L		1		E200.7	07/01/14 00:34 / sld	06/27/14 09:25	ICP2-HE_140630B : 212		25106
Copper	ND	mg/L		0.001		E200.8	07/01/14 04:21 / dck	06/27/14 09:25	ICPMS204-B_140630A : 232		25106
Lead	ND	mg/L		0.0003		E200.8	07/01/14 04:21 / dck	06/27/14 09:25	ICPMS204-B_140630A : 232		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #2

**Lab ID:** H14060541-013

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/25/14 15:00

**Date Received:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	07/01/14 00:34 / sld	06/27/14 09:25	ICP2-HE_140630B : 212		25106
Zinc	ND	mg/L		0.008		E200.8	07/02/14 01:48 / dck	06/27/14 09:25	ICPMS204-B_140701B : 144		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14060541-014  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 15:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	18	mg/L		2		A2540 D	06/27/14 11:31 / blm		I24 (14410200)_140627A : 20		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	51	mg/L		4		A2320 B	06/27/14 20:17 / SR		PHSC_101-H_140627A : 284		R98374
Bicarbonate as HCO <sub>3</sub>	62	mg/L		4		A2320 B	06/27/14 20:17 / SR		PHSC_101-H_140627A : 284		R98374
Chloride	ND	mg/L		1		E300.0	06/27/14 23:20 / SR		IC102-H_140627A : 78		R98436
Sulfate	6	mg/L		1		E300.0	06/27/14 23:20 / SR		IC102-H_140627A : 78		R98436
Hardness as CaCO <sub>3</sub>	49	mg/L		1		A2340 B	07/01/14 00:45 / abb		CALC_140701A : 443		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.7	mg/L		0.5		A5310 C	06/30/14 23:48 / eli-c		SUB-C188112 : 29		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:45 / cm		FIA203-HE_140707B : 38		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:18 / cm		FIA203-HE_140630A : 79		R98451
Nitrogen, Total	0.16	mg/L		0.05		A4500 N-C	07/02/14 09:08 / cm	07/01/14 12:12	FIA203-HE_140702A : 33		25174
Phosphorus, Total as P	0.033	mg/L		0.005		E365.1	06/30/14 15:08 / cm	06/30/14 13:56	FIA202-HE_140630B : 48		25154
<b>METALS, DISSOLVED</b>											
Arsenic	0.025	mg/L		0.001		E200.8	07/02/14 01:53 / dck		ICPMS204-B_140701B : 145		R98549
Cadmium	0.00004	mg/L		0.00003		E200.8	07/02/14 01:53 / dck		ICPMS204-B_140701B : 145		R98549
Copper	0.005	mg/L		0.001		E200.8	07/01/14 04:25 / dck		ICPMS204-B_140630A : 233		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 04:25 / dck		ICPMS204-B_140630A : 233		R98479
Zinc	0.011	mg/L		0.008		E200.8	07/01/14 04:25 / dck		ICPMS204-B_140630A : 233		R98479
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.028	mg/L		0.001		E200.8	07/02/14 01:57 / dck	06/27/14 09:25	ICPMS204-B_140701B : 146		25106
Cadmium	0.00016	mg/L		0.00003		E200.8	07/01/14 04:30 / dck	06/27/14 09:25	ICPMS204-B_140630A : 234		25106
Calcium	14	mg/L		1		E200.7	07/01/14 00:45 / sld	06/27/14 09:25	ICP2-HE_140630B : 215		25106
Copper	0.011	mg/L		0.001		E200.8	07/01/14 04:30 / dck	06/27/14 09:25	ICPMS204-B_140630A : 234		25106
Lead	0.0027	mg/L		0.0003		E200.8	07/01/14 04:30 / dck	06/27/14 09:25	ICPMS204-B_140630A : 234		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14060541-014  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 15:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	3	mg/L		1		E200.7	07/01/14 00:45 / sld	06/27/14 09:25	ICP2-HE_140630B : 215		25106
Zinc	0.014	mg/L		0.008		E200.8	07/01/14 04:30 / dck	06/27/14 09:25	ICPMS204-B_140630A : 234		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14060541-015  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 15:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	18	mg/L		2		A2540 D	06/27/14 11:31 / blm		I24 (14410200)_140627A : 21		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	51	mg/L		4		A2320 B	06/27/14 20:24 / SR		PHSC_101-H_140627A : 286		R98374
Bicarbonate as HCO <sub>3</sub>	61	mg/L		4		A2320 B	06/27/14 20:24 / SR		PHSC_101-H_140627A : 286		R98374
Chloride	ND	mg/L		1		E300.0	06/27/14 23:31 / SR		IC102-H_140627A : 79		R98436
Sulfate	6	mg/L		1		E300.0	06/27/14 23:31 / SR		IC102-H_140627A : 79		R98436
Hardness as CaCO <sub>3</sub>	47	mg/L		1		A2340 B	07/01/14 00:49 / abb		CALC_140701A : 454		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.7	mg/L		0.5		A5310 C	07/01/14 00:36 / eli-c		SUB-C188112 : 32		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:46 / cm		FIA203-HE_140707B : 39		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:19 / cm		FIA203-HE_140630A : 80		R98451
Nitrogen, Total	0.19	mg/L		0.05		A4500 N-C	07/02/14 09:09 / cm	07/01/14 12:12	FIA203-HE_140702A : 34		25174
Phosphorus, Total as P	0.034	mg/L		0.005		E365.1	06/30/14 15:09 / cm	06/30/14 13:56	FIA202-HE_140630B : 49		25154
<b>METALS, DISSOLVED</b>											
Arsenic	0.025	mg/L		0.001		E200.8	07/02/14 02:02 / dck		ICPMS204-B_140701B : 147		R98549
Cadmium	0.00004	mg/L		0.00003		E200.8	07/02/14 02:02 / dck		ICPMS204-B_140701B : 147		R98549
Copper	0.005	mg/L		0.001		E200.8	07/01/14 05:01 / dck		ICPMS204-B_140630A : 241		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 05:01 / dck		ICPMS204-B_140630A : 241		R98479
Zinc	0.012	mg/L		0.008		E200.8	07/02/14 02:02 / dck		ICPMS204-B_140701B : 147		R98549
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.028	mg/L		0.001		E200.8	07/02/14 02:20 / dck	06/27/14 09:25	ICPMS204-B_140701B : 151		25106
Cadmium	0.00016	mg/L		0.00003		E200.8	07/01/14 05:05 / dck	06/27/14 09:25	ICPMS204-B_140630A : 242		25106
Calcium	14	mg/L		1		E200.7	07/01/14 00:49 / sld	06/27/14 09:25	ICP2-HE_140630B : 216		25106
Copper	0.011	mg/L		0.001		E200.8	07/01/14 05:05 / dck	06/27/14 09:25	ICPMS204-B_140630A : 242		25106
Lead	0.0026	mg/L		0.0003		E200.8	07/01/14 05:05 / dck	06/27/14 09:25	ICPMS204-B_140630A : 242		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14060541-015  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/25/14 15:30 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	3	mg/L		1		E200.7	07/01/14 00:49 / sld	06/27/14 09:25	ICP2-HE_140630B : 216		25106
Zinc	0.015	mg/L		0.008		E200.8	07/02/14 02:20 / dck	06/27/14 09:25	ICPMS204-B_140701B : 151		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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 888-680-2218

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-84F  
**Lab ID:** H14060541-016  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 11:45 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	18	mg/L		2		A2540 D	06/27/14 11:32 / blm		I24 (14410200)_140627A : 22		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	06/27/14 20:30 / SR		PHSC_101-H_140627A : 288		R98374
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	06/27/14 20:30 / SR		PHSC_101-H_140627A : 288		R98374
Chloride	3	mg/L		1		E300.0	06/27/14 23:42 / SR		IC102-H_140627A : 80		R98436
Sulfate	37	mg/L		1		E300.0	06/27/14 23:42 / SR		IC102-H_140627A : 80		R98436
Hardness as CaCO <sub>3</sub>	146	mg/L		1		A2340 B	07/01/14 00:53 / abb		CALC_140701A : 465		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.9	mg/L		0.5		A5310 C	07/01/14 00:53 / eli-c		SUB-C188112 : 33		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:51 / cm		FIA203-HE_140707B : 43		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:20 / cm		FIA203-HE_140630A : 81		R98451
Nitrogen, Total	0.29	mg/L		0.05		A4500 N-C	07/02/14 09:11 / cm	07/01/14 12:12	FIA203-HE_140702A : 35		25174
Phosphorus, Total as P	0.047	mg/L		0.005		E365.1	06/30/14 15:10 / cm	06/30/14 13:56	FIA202-HE_140630B : 50		25154
<b>METALS, DISSOLVED</b>											
Arsenic	0.012	mg/L		0.001		E200.8	07/02/14 02:24 / dck		ICPMS204-B_140701B : 152		R98549
Cadmium	0.00004	mg/L		0.00003		E200.8	07/02/14 02:24 / dck		ICPMS204-B_140701B : 152		R98549
Copper	0.009	mg/L		0.001		E200.8	07/01/14 05:10 / dck		ICPMS204-B_140630A : 243		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 05:10 / dck		ICPMS204-B_140630A : 243		R98479
Zinc	0.013	mg/L		0.008		E200.8	07/02/14 02:24 / dck		ICPMS204-B_140701B : 152		R98549
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.014	mg/L		0.001		E200.8	07/02/14 02:29 / dck	06/27/14 09:25	ICPMS204-B_140701B : 153		25106
Cadmium	0.00013	mg/L		0.00003		E200.8	07/01/14 05:14 / dck	06/27/14 09:25	ICPMS204-B_140630A : 244		25106
Calcium	43	mg/L		1		E200.7	07/01/14 00:53 / sld	06/27/14 09:25	ICP2-HE_140630B : 217		25106
Copper	0.028	mg/L		0.001		E200.8	07/01/14 05:14 / dck	06/27/14 09:25	ICPMS204-B_140630A : 244		25106
Lead	0.0033	mg/L		0.0003		E200.8	07/01/14 05:14 / dck	06/27/14 09:25	ICPMS204-B_140630A : 244		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-84F  
**Lab ID:** H14060541-016  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 11:45 **Date Received:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	07/01/14 00:53 / sld	06/27/14 09:25	ICP2-HE_140630B : 217		25106
Mercury	0.000037	mg/L		5E-06		E245.1	07/09/14 14:15 / sbk	07/07/14 13:52	HGCV202-H_140709A : 42		25247
Zinc	0.027	mg/L		0.008		E200.8	07/02/14 02:29 / dck	06/27/14 09:25	ICPMS204-B_140701B : 153		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14060541-017  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 13:15 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		2		A2540 D	06/30/14 11:14 / blm		I24 (14410200)_140627A : 79		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	06/27/14 20:36 / SR		PHSC_101-H_140627A : 290		R98374
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	06/27/14 20:36 / SR		PHSC_101-H_140627A : 290		R98374
Chloride	ND	mg/L		1		E300.0	06/27/14 23:53 / SR		IC102-H_140627A : 81		R98436
Sulfate	ND	mg/L		1		E300.0	06/27/14 23:53 / SR		IC102-H_140627A : 81		R98436
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	07/07/14 07:56 / sld		WATERCALC_140707A : 2		R98588
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.5	mg/L		0.5		A5310 C	07/01/14 01:07 / eli-c		SUB-C188112 : 34		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:54 / cm		FIA203-HE_140707B : 46		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:21 / cm		FIA203-HE_140630A : 82		R98451
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	07/02/14 09:12 / cm	07/01/14 12:12	FIA203-HE_140702A : 36		25174
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	06/30/14 15:11 / cm	06/30/14 13:56	FIA202-HE_140630B : 51		25154
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	07/02/14 02:33 / dck		ICPMS204-B_140701B : 154		R98549
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 05:19 / dck		ICPMS204-B_140630A : 245		R98479
Copper	ND	mg/L		0.001		E200.8	07/01/14 05:19 / dck		ICPMS204-B_140630A : 245		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 05:19 / dck		ICPMS204-B_140630A : 245		R98479
Zinc	0.009	mg/L		0.008		E200.8	07/02/14 02:33 / dck		ICPMS204-B_140701B : 154		R98549
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	07/02/14 02:38 / dck	06/27/14 09:25	ICPMS204-B_140701B : 155		25106
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 05:23 / dck	06/27/14 09:25	ICPMS204-B_140630A : 246		25106
Calcium	ND	mg/L		1		E200.7	07/01/14 00:56 / sld	06/27/14 09:25	ICP2-HE_140630B : 218		25106
Copper	ND	mg/L		0.001		E200.8	07/01/14 05:23 / dck	06/27/14 09:25	ICPMS204-B_140630A : 246		25106
Lead	ND	mg/L		0.0003		E200.8	07/01/14 05:23 / dck	06/27/14 09:25	ICPMS204-B_140630A : 246		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #1

**Lab ID:** H14060541-017

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/24/14 13:15

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	07/01/14 00:56 / sld	06/27/14 09:25	ICP2-HE_140630B : 218		25106
Mercury	ND	mg/L		5E-06		E245.1	07/09/14 14:19 / sbk	07/07/14 13:52	HGCV202-H_140709A : 43		25247
Zinc	ND	mg/L		0.008		E200.8	07/02/14 02:38 / dck	06/27/14 09:25	ICPMS204-B_140701B : 155		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14060541-018  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 13:45 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	13	mg/L		2		A2540 D	06/27/14 17:11 / blm		I24 (14410200)_140627A : 78		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	06/27/14 20:42 / SR		PHSC_101-H_140627A : 292		R98374
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	06/27/14 20:42 / SR		PHSC_101-H_140627A : 292		R98374
Chloride	3	mg/L		1		E300.0	06/28/14 00:04 / SR		IC102-H_140627A : 82		R98436
Sulfate	8	mg/L		1		E300.0	06/28/14 00:04 / SR		IC102-H_140627A : 82		R98436
Hardness as CaCO <sub>3</sub>	129	mg/L		1		A2340 B	07/01/14 01:00 / abb		CALC_140701A : 487		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.7	mg/L		0.5		A5310 C	07/01/14 01:23 / eli-c		SUB-C188112 : 35		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:55 / cm		FIA203-HE_140707B : 47		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:25 / cm		FIA203-HE_140630A : 85		R98451
Nitrogen, Total	0.34	mg/L		0.05		A4500 N-C	07/02/14 09:13 / cm	07/01/14 12:12	FIA203-HE_140702A : 37		25174
Phosphorus, Total as P	0.048	mg/L		0.005		E365.1	06/30/14 15:12 / cm	06/30/14 13:56	FIA202-HE_140630B : 52		25154
<b>METALS, DISSOLVED</b>											
Arsenic	0.009	mg/L		0.001		E200.8	07/02/14 02:42 / dck		ICPMS204-B_140701B : 156		R98549
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 05:28 / dck		ICPMS204-B_140630A : 247		R98479
Copper	0.001	mg/L		0.001		E200.8	07/01/14 05:28 / dck		ICPMS204-B_140630A : 247		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 05:28 / dck		ICPMS204-B_140630A : 247		R98479
Zinc	0.014	mg/L		0.008		E200.8	07/02/14 02:42 / dck		ICPMS204-B_140701B : 156		R98549
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	07/02/14 03:00 / dck	06/27/14 09:25	ICPMS204-B_140701B : 160		25106
Cadmium	0.00006	mg/L		0.00003		E200.8	07/02/14 03:00 / dck	06/27/14 09:25	ICPMS204-B_140701B : 160		25106
Calcium	36	mg/L		1		E200.7	07/01/14 01:00 / sld	06/27/14 09:25	ICP2-HE_140630B : 219		25106
Copper	0.003	mg/L		0.001		E200.8	07/01/14 05:32 / dck	06/27/14 09:25	ICPMS204-B_140630A : 248		25106
Lead	0.0048	mg/L		0.0003		E200.8	07/01/14 05:32 / dck	06/27/14 09:25	ICPMS204-B_140630A : 248		25106

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** FC-CFR

**Lab ID:** H14060541-018

**Matrix:** Aqueous

**Project:** CFR OU Monitoring

**Collection Date:** 06/24/14 13:45

**DateReceived:** 06/26/14

**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	07/01/14 01:00 / sld	06/27/14 09:25	ICP2-HE_140630B : 219		25106
Mercury	0.00022	mg/L		5E-06		E245.1	07/09/14 14:23 / sbk	07/07/14 13:52	HGCV202-H_140709A : 44		25247
Zinc	0.015	mg/L		0.008		E200.8	07/02/14 03:00 / dck	06/27/14 09:25	ICPMS204-B_140701B : 160		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14060541-019  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 13:45 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		2		A2540 D	06/27/14 11:35 / blm		I24 (14410200)_140627A : 27		TSS140627A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	06/27/14 20:50 / SR		PHSC_101-H_140627A : 294		R98374
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	06/27/14 20:50 / SR		PHSC_101-H_140627A : 294		R98374
Chloride	3	mg/L		1		E300.0	06/28/14 00:15 / SR		IC102-H_140627A : 83		R98436
Sulfate	8	mg/L		1		E300.0	06/28/14 00:15 / SR		IC102-H_140627A : 83		R98436
Hardness as CaCO <sub>3</sub>	122	mg/L		1		A2340 B	07/01/14 01:04 / abb		CALC_140701A : 498		R98472
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.9	mg/L		0.5		A5310 C	07/01/14 01:38 / eli-c		SUB-C188112 : 36		C_R188112
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/07/14 11:57 / cm		FIA203-HE_140707B : 48		R98605
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	06/30/14 16:28 / cm		FIA203-HE_140630A : 88		R98451
Nitrogen, Total	0.21	mg/L		0.05		A4500 N-C	07/02/14 09:14 / cm	07/01/14 12:12	FIA203-HE_140702A : 38		25174
Phosphorus, Total as P	0.049	mg/L		0.005		E365.1	06/30/14 15:13 / cm	06/30/14 13:56	FIA202-HE_140630B : 53		25154
<b>METALS, DISSOLVED</b>											
Arsenic	0.009	mg/L		0.001		E200.8	07/02/14 03:05 / dck		ICPMS204-B_140701B : 161		R98549
Cadmium	ND	mg/L		0.00003		E200.8	07/01/14 05:37 / dck		ICPMS204-B_140630A : 249		R98479
Copper	0.002	mg/L		0.001		E200.8	07/01/14 05:37 / dck		ICPMS204-B_140630A : 249		R98479
Lead	ND	mg/L		0.0003		E200.8	07/01/14 05:37 / dck		ICPMS204-B_140630A : 249		R98479
Zinc	0.014	mg/L		0.008		E200.8	07/02/14 03:05 / dck		ICPMS204-B_140701B : 161		R98549
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	07/02/14 03:23 / dck	06/27/14 09:25	ICPMS204-B_140701B : 165		25106
Cadmium	0.00005	mg/L		0.00003		E200.8	07/02/14 03:23 / dck	06/27/14 09:25	ICPMS204-B_140701B : 165		25106
Calcium	34	mg/L		1		E200.7	07/01/14 01:04 / sld	06/27/14 09:25	ICP2-HE_140630B : 220		25106
Copper	0.003	mg/L		0.001		E200.8	07/01/14 05:41 / dck	06/27/14 09:25	ICPMS204-B_140630A : 250		25106
Lead	0.0039	mg/L		0.0003		E200.8	07/01/14 05:41 / dck	06/27/14 09:25	ICPMS204-B_140630A : 250		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14060541-019  
**Matrix:** Aqueous

**Project:** CFR OU Monitoring  
**Collection Date:** 06/24/14 13:45 **DateReceived:** 06/26/14  
**Report Date:** 07/23/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	07/01/14 01:04 / sld	06/27/14 09:25	ICP2-HE_140630B : 220		25106
Mercury	0.00019	mg/L		5E-06		E245.1	07/09/14 14:28 / sbk	07/07/14 13:52	HGCV202-H_140709A : 45		25247
Zinc	0.014	mg/L		0.008		E200.8	07/02/14 03:23 / dck	06/27/14 09:25	ICPMS204-B_140701B : 165		25106

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 23-Jul-14

**BatchID:** 140709wa

Run ID :Run Order: <b>HGCV202-H_140709A: 37</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>07/09/14 13:54</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00021	0.00010	0.0002		<b>104</b>	90	110				

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

Run ID :Run Order: <b>HGCV202-H_140709A: 38</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>			
Analysis Date: <b>07/09/14 13:58</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002		<b>101</b>	95	105				

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 23-Jul-14

**BatchID:** 25106

Run ID :Run Order: ICP2-HE_140630B: 181				SampType: Method Blank				Lab ID: MB-25106				Method: E200.7			
Analysis Date: 06/30/14 22:37				Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium				0.06	0.03										
Magnesium				ND	0.01										

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 191				SampType: Laboratory Control Sample				Lab ID: LCS-25106				Method: E200.7			
Analysis Date: 06/30/14 23:15				Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium				23.8	1.0	25	0.05511	95	85	115					
Magnesium				23.8	1.0	25		95	85	115					

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 193				SampType: Serial Dilution		Lab ID: H14060541-001CDIL				Method: E200.7	
Analysis Date: 06/30/14 23:22		Units: mg/L		Prep Info: Prep Date: 6/27/2014				Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.1	1.0				0	0	24.94	4.6	10	
Magnesium	6.39	1.0				0	0	6.055	5.3	10	

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 194				SampType: Sample Matrix Spike				Lab ID: H14060541-001CMS3				Method: E200.7		
Analysis Date: 06/30/14 23:26				Units: mg/L		Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2				
Analytes <u>2</u>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium				50.0	1.0	25	24.94	100	70	130				
Magnesium				28.9	1.0	25	6.055	91	70	130				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** 25106

Run ID :Run Order: ICP2-HE_140630B: 195	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060541-001CMSD3				Method: E200.7		
Analysis Date: 06/30/14 23:30	Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	48.7	1.0	25	24.94	95	70	130	49.98	2.5	20	
Magnesium	28.1	1.0	25	6.055	88	70	130	28.87	2.6	20	

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 208	SampType: Serial Dilution				Lab ID: H14060541-011CDIL				Method: E200.7		
Analysis Date: 07/01/14 00:19	Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	22.8	1.0				0	0	22.35	2.0	10	
Magnesium	4.66	1.0				0	0	4.682	0.5	10	

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 209	SampType: Sample Matrix Spike				Lab ID: H14060541-011CMS3				Method: E200.7		
Analysis Date: 07/01/14 00:23	Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	44.5	1.0	25	22.35	89	70	130				
Magnesium	26.0	1.0	25	4.682	85	70	130				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 210	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060541-011CMSD3				Method: E200.7		
Analysis Date: 07/01/14 00:26	Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	46.1	1.0	25	22.35	95	70	130	44.49	3.6	20	
Magnesium	27.5	1.0	25	4.682	91	70	130	26.01	5.5	20	

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 25106**

**Date:** 23-Jul-14

Run ID :Run Order: ICPMS204-B_140630A: 183	SampType: Method Blank				Lab ID: MB-25106				Method: E200.8		
Analysis Date: 07/01/14 00:45	Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9E-05	6E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0003									
Lead	8E-05	3E-05									
Zinc	0.002	0.001									

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 184	SampType: Laboratory Control Sample				Lab ID: LCS-25106				Method: E200.8		
Analysis Date: 07/01/14 00:49	Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.515	0.0010	0.5	0.0000888	103	85	115				
Cadmium	0.242	0.0010	0.25		97	85	115				
Copper	0.488	0.0050	0.5		98	85	115				
Lead	0.492	0.0010	0.5	0.0000756	98	85	115				
Zinc	0.484	0.010	0.5	0.001865	97	85	115				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 188	SampType: Sample Matrix Spike				Lab ID: H14060541-001CMS3				Method: E200.8		
Analysis Date: 07/01/14 01:07	Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.530	0.0010	0.5	0.007185	105	70	130				
Cadmium	0.242	0.0010	0.25	0.0000588	97	70	130				
Copper	0.494	0.0050	0.5	0.01222	96	70	130				
Lead	0.498	0.0010	0.5	0.001554	99	70	130				
Zinc	0.494	0.010	0.5	0.01611	96	70	130				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 25106**

**Date:** 23-Jul-14

Run ID :Run Order: ICPMS204-B_140630A: 189				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060541-001CMSD3				Method: E200.8	
Analysis Date: 07/01/14 01:11				Units: mg/L				Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2	
Analytes <u>5</u>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic		0.517	0.0010	0.5	0.007185	102	70	130	0.53	2.5	20		
Cadmium		0.234	0.0010	0.25	0.0000588	94	70	130	0.242	3.4	20		
Copper		0.493	0.0050	0.5	0.01222	96	70	130	0.4939	0.3	20		
Lead		0.498	0.0010	0.5	0.001554	99	70	130	0.4979	0.1	20		
Zinc		0.490	0.010	0.5	0.01611	95	70	130	0.4944	0.9	20		

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 220				SampType: Sample Matrix Spike		Lab ID: H14060541-011CMS3				Method: E200.8	
Analysis Date: 07/01/14 03:28		Units: mg/L		Prep Info: Prep Date: 6/27/2014				Prep Method: E200.2			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.589	0.0010	0.5	0.02816	112	70	130				
Cadmium	0.264	0.0010	0.25	0.0001076	106	70	130				
Copper	0.538	0.0050	0.5	0.008327	106	70	130				
Lead	0.541	0.0010	0.5	0.001644	108	70	130				
Zinc	0.533	0.010	0.5	0.01022	105	70	130				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 221				SampType: Sample Matrix Spike Duplicate			Lab ID: H14060541-011CMSD3			Method: E200.8		
Analysis Date: 07/01/14 03:32		Units: mg/L		Prep Info: Prep Date: 6/27/2014					Prep Method: E200.2			
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.594	0.0010	0.5	0.02816	113	70	130	0.5886	0.8	20		
Cadmium	0.266	0.0010	0.25	0.0001076	106	70	130	0.2644	0.6	20		
Copper	0.539	0.0050	0.5	0.008327	106	70	130	0.5376	0.3	20		
Lead	0.541	0.0010	0.5	0.001644	108	70	130	0.5409	0.1	20		
Zinc	0.533	0.010	0.5	0.01022	105	70	130	0.5331	0.1	20		

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** 25106

Run ID :Run Order: <b>ICPMS204-B_140701B: 113</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-25106</b>				Method: <b>E200.8</b>			
Analysis Date: <b>07/01/14 23:28</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>6/27/2014</b>				Prep Method: <b>E200.2</b>			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	ND	6E-05										
Cadmium	ND	3E-05										
Copper	ND	0.0003										
Lead	8E-05	3E-05										
Zinc	0.002	0.001										

Associated samples: **H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 25153**

**Date:** 23-Jul-14

Run ID :Run Order: <b>FIA202-HE_140630B: 11</b>		SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-25153</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/30/14 14:30</b>		Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/30/2014</b>		Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.425	0.010	0.4		106	90	110				
Associated samples: <b>H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D</b>											

Run ID :Run Order: <b>FIA202-HE_140630B: 12</b>		SampType: <b>Method Blank</b>				Lab ID: <b>MB-25153</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/30/14 14:31</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/30/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	ND	0.001									
Associated samples: <b>H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D</b>											

Run ID :Run Order: <b>FIA202-HE_140630B: 28</b>		SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060541-001Dms</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/30/14 14:47</b>		Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/30/2014</b>		Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.239	0.010	0.2	0.02608	106	90	110				
Associated samples: <b>H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D</b>											

Run ID :Run Order: <b>FIA202-HE_140630B: 29</b>		SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060541-001Dmsd</b>			Method: <b>E365.1</b>		
Analysis Date: <b>06/30/14 14:48</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/30/2014</b>			Prep Method: <b>E365.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.225	0.010	0.2	0.02608	100	90	110	0.2386	5.8	20	
Associated samples: <b>H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D</b>											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 25154**

**Date:** 23-Jul-14

Run ID :Run Order: <b>FIA202-HE_140630B: 39</b>			SampType: <b>Laboratory Control Sample</b>			Lab ID: <b>LCS-25154</b>			Method: <b>E365.1</b>				
Analysis Date: <b>06/30/14 14:58</b>			Units: <b>mg/L</b>			Prep Info: Prep Date: <b>6/30/2014</b>			Prep Method: <b>E365.1</b>				
Analytes <b>1</b>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P			0.428	0.010	0.4		107	90	110				
Associated samples: <b>H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D</b>													

Run ID :Run Order: <b>FIA202-HE_140630B: 40</b>			SampType: <b>Method Blank</b>			Lab ID: <b>MB-25154</b>			Method: <b>E365.1</b>		
Analysis Date: <b>06/30/14 14:59</b>			Units: <b>mg/L</b>			<b>Prep Info:</b> Prep Date: <b>6/30/2014</b>			Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	ND	0.001									
Associated samples: <b>H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D</b>											

Run ID :Run Order: <b>FIA202-HE_140630B: 44</b>		SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060541-011Dms</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/30/14 15:04</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/30/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.235	0.010	0.2	0.02808	<b>103</b>	90	110				
Associated samples: <b>H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D</b>											

Run ID :Run Order: <b>FIA202-HE_140630B: 45</b>		SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060541-011Dmsd</b>				Method: <b>E365.1</b>	
Analysis Date: <b>06/30/14 15:05</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>6/30/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.239	0.010	0.2	0.02808	105	90	110	0.2346	1.8	20	
Associated samples: <b>H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D</b>											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 25174**

**Date:** 23-Jul-14

Run ID :Run Order: <b>FIA203-HE_140702A: 11</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-25174</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>07/02/14 08:42</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>7/1/2014</b>				Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	14.8	0.30	15.2		<b>97</b>	90	110				

Associated samples: **H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A**

Run ID :Run Order: <b>FIA203-HE_140702A: 12</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-25174</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>07/02/14 08:43</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>7/1/2014</b>				Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	ND	0.02									

Associated samples: **H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A**

Run ID :Run Order: <b>FIA203-HE_140702A: 14</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060528-003BMS</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>07/02/14 08:46</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>7/1/2014</b>				Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.950	0.10	1		<b>95</b>	90	110				

Associated samples: **H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A**

Run ID :Run Order: <b>FIA203-HE_140702A: 15</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060528-003BMDS</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>07/02/14 08:47</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>7/1/2014</b>				Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.981	0.10	1		<b>98</b>	90	110	0.9503	<b>3.1</b>	20	

Associated samples: **H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A**

Run ID :Run Order: <b>FIA203-HE_140702A: 28</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14060541-010AMS</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>07/02/14 09:02</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>7/1/2014</b>				Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	1.17	0.10	1	0.3193	<b>85</b>	90	110				S

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 25174**

**Date:** 23-Jul-14

Run ID :Run Order: <b>FIA203-HE_140702A: 28</b>	SampType: <b>Sample Matrix Spike</b>	Lab ID: <b>H14060541-010AMS</b>	Method: <b>A4500 N-C</b>
Analysis Date: <b>07/02/14 09:02</b>	Units: <b>mg/L</b>	Prep Info: Prep Date: <b>7/1/2014</b>	Prep Method: <b>A4500 N-C</b>
Analytes <b>1</b>	Result	PQL	SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Associated samples: **H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A**

Run ID :Run Order: <b>FIA203-HE_140702A: 29</b>	SampType: <b>Sample Matrix Spike Duplicate</b>	Lab ID: <b>H14060541-010AMSD</b>	Method: <b>A4500 N-C</b>
Analysis Date: <b>07/02/14 09:03</b>	Units: <b>mg/L</b>	Prep Info: Prep Date: <b>7/1/2014</b>	Prep Method: <b>A4500 N-C</b>
Analytes <b>1</b>	Result	PQL	SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Nitrogen, Total	1.21	0.10	1 0.3193 <b>89</b> 90 110 1.167 <b>3.7</b> 20 S

Associated samples: **H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A**

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 25247**

**Date:** 23-Jul-14

Run ID :Run Order: <b>HGCV202-H_140709A: 4</b>				SampType: <b>Method Blank</b>		Lab ID: <b>MB-25247</b>				Method: <b>E245.1</b>		
Analysis Date: <b>07/09/14 10:25</b>		Units: <b>mg/L</b>		<b>Prep Info:</b> Prep Date: <b>7/7/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	1E-06									

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

Run ID :Run Order: <b>HGCV202-H_140709A: 7</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS-25247</b>				Method: <b>E245.1</b>		
Analysis Date: <b>07/09/14 10:37</b>				Units: <b>mg/L</b>		Prep Info: Prep Date: <b>7/7/2014</b>		Prep Method: <b>E245.1</b>				
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00014	0.00010	0.00015		94	90	110				

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

Run ID :Run Order: <b>HGCV202-H_140709A: 30</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14060563-002DMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>07/09/14 12:39</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>7/7/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	0.00017	0.00010	0.00015	0.00000703	109	70	130					

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

Run ID :Run Order: <b>HGCV202-H_140709A: 31</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060563-002DMSD</b>				Method: <b>E245.1</b>	
Analysis Date: <b>07/09/14 12:43</b>				Units: <b>mg/L</b>		Prep Info: Prep Date: <b>7/7/2014</b>				Prep Method: <b>E245.1</b>			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00017	0.00010	0.00015	0.00000703	107	70	130	0.000171	1.6	20		

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

Run ID :Run Order: <b>HGCV202-H_140709A: 48</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14060563-002DMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>07/09/14 14:40</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>7/7/2014</b>				Prep Method: <b>E245.1</b>				
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercurv		0.00016	0.00010	0.00015	0.00000463	103	70	130				

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

Run ID :Run Order: <b>HGCV202-H_140709A: 49</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14060563-002DMSD</b>				Method: <b>E245.1</b>	
Analysis Date: <b>07/09/14 14:45</b>				Units: <b>mg/L</b>				Prep Info: Prep Date: <b>7/7/2014</b>				Prep Method: <b>E245.1</b>	
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00016	0.00010	0.00015	0.00000463	101	70	130	0.0001597	2.2	20		

Associated samples: **H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C**

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** C\_41808

Run ID :Run Order: <b>SUB-C188057: 1</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV-41808</b>			Method: <b>A5310 C</b>			
Analysis Date: <b>06/27/14 08:36</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/27/2014</b>			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.2	0.50	10		<b>102</b>	90	110				

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

Run ID :Run Order: <b>SUB-C188057: 2</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-41808</b>			Method: <b>A5310 C</b>			
Analysis Date: <b>06/27/14 08:57</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/27/2014</b>			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	0.2	0.07									

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

Run ID :Run Order: <b>SUB-C188057: 3</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-41808</b>			Method: <b>A5310 C</b>			
Analysis Date: <b>06/27/14 14:08</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/27/2014</b>			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.1	0.50	10	0.2235	<b>99</b>	90	110				

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

Run ID :Run Order: <b>SUB-C188057: 4</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>C14060976-003EMS</b>			Method: <b>A5310 C</b>			
Analysis Date: <b>06/27/14 16:46</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/27/2014</b>			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	7.18	0.50	5	2.179	<b>100</b>	85	115				

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

Run ID :Run Order: <b>SUB-C188057: 5</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>C14060976-003EMSD</b>			Method: <b>A5310 C</b>			
Analysis Date: <b>06/27/14 16:58</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/27/2014</b>			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	7.21	0.50	5	2.179	<b>101</b>	85	115	7.178	<b>0.4</b>	10	

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

Run ID :Run Order: <b>SUB-C188057: 6</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV-41808</b>			Method: <b>A5310 C</b>			
Analysis Date: <b>06/27/14 17:21</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>6/27/2014</b>			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	10.0	0.50	10		<b>100</b>	90	110				

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 23-Jul-14

**BatchID:** C\_41808

Run ID :Run Order: <b>SUB-C188057: 13</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>C14060979-005AMS</b>				Method: <b>A5310 C</b>		
Analysis Date: <b>06/27/14 19:51</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>6/27/2014</b>				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	7.86	0.50	5	2.62	<b>105</b>	85	115				

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

Run ID :Run Order: <b>SUB-C188057: 14</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>C14060979-005AMSD</b>				Method: <b>A5310 C</b>		
Analysis Date: <b>06/27/14 20:02</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>6/27/2014</b>				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	7.93	0.50	5	2.62	<b>106</b>	85	115	7.861	<b>0.9</b>	10	

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

Run ID :Run Order: <b>SUB-C188057: 15</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-41808</b>				Method: <b>A5310 C</b>		
Analysis Date: <b>06/27/14 17:09</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>6/27/2014</b>				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	9.67	0.50	10	0.2235	<b>94</b>	90	110				

Associated samples: **H14060541-001E, H14060541-002E, H14060541-003E**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 23-Jul-14

**BatchID:** C\_R188112

Run ID :Run Order: SUB-C188112: 13	SampType: Method Blank	Lab ID: MBLK	Method: A5310 C
Analysis Date: 06/30/14 19:15	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	ND 0.04		
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

Run ID :Run Order: SUB-C188112: 14	SampType: Initial Calibration Verification Standard	Lab ID: ICV-8116	Method: A5310 C
Analysis Date: 06/30/14 19:31	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
Organic Carbon, Dissolved (DOC)	10.1 0.50 10	101 90 110	
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

Run ID :Run Order: SUB-C188112: 15	SampType: Continuing Calibration Verification Standar	Lab ID: CCV-7923	Method: A5310 C
Analysis Date: 06/30/14 19:46	Units: mg/L	Prep Info: Prep Date: 5/10/2005	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	9.98 0.50 10	100 90 110	
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

Run ID :Run Order: SUB-C188112: 17	SampType: Sample Matrix Spike	Lab ID: H14060541-004E	Method: A5310 C
Analysis Date: 06/30/14 20:17	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
Organic Carbon, Dissolved (DOC)	9.96 0.50 5 4.485	110 85 115	
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

Run ID :Run Order: SUB-C188112: 18	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060541-004E	Method: A5310 C
Analysis Date: 06/30/14 20:33	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
Organic Carbon, Dissolved (DOC)	9.86 0.50 5 4.485	108 85 115 9.96	1.0 10
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: C\_R188112**

**Date:** 23-Jul-14

Run ID :Run Order: SUB-C188112: 28	SampType: Continuing Calibration Verification Standar	Lab ID: CCV-7923	Method: A5310 C
Analysis Date: 06/30/14 23:15	Units: mg/L	Prep Info: Prep Date: 5/10/2005	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	10.6 0.50 10	106 90 110	
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

Run ID :Run Order: SUB-C188112: 30	SampType: Sample Matrix Spike	Lab ID: H14060541-014E	Method: A5310 C
Analysis Date: 07/01/14 00:05	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
Organic Carbon, Dissolved (DOC)	9.08 0.50 5 3.668	108 85 115	
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

Run ID :Run Order: SUB-C188112: 31	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060541-014E	Method: A5310 C
Analysis Date: 07/01/14 00:21	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
Organic Carbon, Dissolved (DOC)	9.12 0.50 5 3.668	109 85 115 9.078	0.5 10
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

Run ID :Run Order: SUB-C188112: 37	SampType: Laboratory Control Sample	Lab ID: LCS-8116	Method: A5310 C
Analysis Date: 07/01/14 01:54	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	10.5 0.50 10	105 90 110	
Associated samples: H14060541-004E, H14060541-005E, H14060541-006E, H14060541-007E, H14060541-008E, H14060541-009E, H14060541-010E, H14060541-011E, H14060541-012E, H14060541-013E, H14060541-014E, H14060541-015E, H14060541-016E, H14060541-017E, H14060541-018E, H14060541-019E			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R98374**

**Date:** 23-Jul-14

Run ID :Run Order: <b>PHSC_101-H_140627A: 214</b>				SampType: <b>Method Blank</b>				Lab ID: <b>MB</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>06/27/14 15:47</b>				Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date:				Prep Method:			
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3				3	0.9										

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: <b>PHSC_101-H_140627A: 216</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS</b>				Method: <b>A2320 B</b>		
Analysis Date: <b>06/27/14 15:54</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>		Prep Date:		Prep Method:				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	580	4.0	600	3.35	96	90	110					

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: <b>PHSC_101-H_140627A: 219</b>				SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14060514-007ADUP</b>				Method: <b>A2320 B</b>	
Analysis Date: <b>06/27/14 16:15</b>				Units: <b>mg/L</b>		<b>Prep Info:</b> Prep Date:				Prep Method:			
Analytes <b><u>2</u></b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3		2.6	4.0						2.6		10		
Bicarbonate as HCO3		2.6	4.0						2.562		10		

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: PHSC_101-H_140627A: 223				SampType: Sample Matrix Spike		Lab ID: H14060514-008AMS				Method: A2320 B		
Analysis Date: 06/27/14 16:29		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3		760	4.0	600	235.6	87	80	120				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: PHSC_101-H_140627A: 260				SampType: Sample Duplicate				Lab ID: H14060541-005ADUP				Method: A2320 B	
Analysis Date: 06/27/14 18:42				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	
Alkalinity, Total as CaCO3		90	4.0						88.15	2.4	10		

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R98374**

**Date:** 23-Jul-14

Run ID :Run Order: PHSC_101-H_140627A: 260				SampType: Sample Duplicate				Lab ID: H14060541-005ADUP				Method: A2320 B	
Analysis Date: 06/27/14 18:42				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	
Bicarbonate as HCO3		110	4.0						106.9	2.4	10		

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: PHSC_101-H_140627A: 262				SampType: Method Blank				Lab ID: MB				Method: A2320 B			
Analysis Date: 06/27/14 18:47				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	
Alkalinity, Total as CaCO3				2	0.9										

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: <b>PHSC_101-H_140627A: 264</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS</b>			Method: <b>A2320 B</b>		
Analysis Date: <b>06/27/14 18:53</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	580	4.0	600	2.4	96	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: PHSC_101-H_140627A: 267		SampType: Sample Duplicate			Lab ID: H14060541-006ADUP				Method: A2320 B		
Analysis Date: 06/27/14 19:12		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
Alkalinity, Total as CaCO3	88	4.0						87.55	0.3	10	
Bicarbonate as HCO3	110	4.0						106.2	0.3	10	

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: PHSC_101-H_140627A: 271				SampType: Sample Matrix Spike				Lab ID: H14060541-007AMS				Method: A2320 B	
Analysis Date: 06/27/14 19:24				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		640	4.0	600	82.55	93	80	120					

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98374

Run ID :Run Order: PHSC_101-H_140627A: 271	SampType: Sample Matrix Spike	Lab ID: H14060541-007AMS	Method: A2320 B								
Analysis Date: 06/27/14 19:24	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

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: PHSC_101-H_140627A: 308	SampType: Sample Duplicate	Lab ID: H14060546-004ADUP	Method: A2320 B								
Analysis Date: 06/27/14 21:37	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
Alkalinity, Total as CaCO3	2.2	4.0						2.3		10	
Bicarbonate as HCO3	2.1	4.0						2.196		10	

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98436

Run ID :Run Order: IC102-H_140627A: 12			SampType: Initial Calibration Verification Standard				Lab ID: ICV		Method: E300.0		
Analysis Date: 06/27/14 11:06		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <span>2</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		102	90	110				
Sulfate	410	1.0	400		102	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 13				SampType: Method Blank				Lab ID: ICB				Method: E300.0			
Analysis Date: 06/27/14 11:17				Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride				ND	0.008										
Sulfate				ND	0.08										

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 14				SampType: Laboratory Fortified Blank		Lab ID: LFB			Method: E300.0		
Analysis Date: 06/27/14 11:28		Units: mg/L		Prep Info: Prep Date:			Prep Method:				
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	47	1.0	50		94	90	110				
Sulfate	190	1.0	200		97	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 44				SampType: Continuing Calibration Verification Standar				Lab ID: CCV062714-3			Method: E300.0	
Analysis Date: 06/27/14 17:02		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	110	1.0	100		108	90	110					
Sulfate	410	1.0	400		102	90	110					

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R98436**

**Date:** 23-Jul-14

Run ID :Run Order: IC102-H_140627A: 58				SampType: Continuing Calibration Verification Standar				Lab ID: CCV062714-4		Method: E300.0		
Analysis Date: 06/27/14 19:37		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		110	1.0	100		108	90	110				
Sulfate		410	1.0	400		103	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 61		SampType: Sample Matrix Spike				Lab ID: H14060541-002AMS				Method: E300.0	
Analysis Date: 06/27/14 20:11		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	53	1.0	50	3.492	99	90	110				
Sulfate	230	1.0	200	27.56	103	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 62				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060541-002AMSD				Method: E300.0	
Analysis Date: 06/27/14 20:22				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		53	1.0	50	3.492	98	90	110	53.05	0.8	20		
Sulfate		230	1.0	200	27.56	101	90	110	233.4	1.5	20		

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 72				SampType: Continuing Calibration Verification Standar				Lab ID: CCV062714-5		Method: E300.0	
Analysis Date: 06/27/14 22:13		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	110	1.0	100		107	90	110				
Sulfate	410	1.0	400		102	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98436

Run ID :Run Order: IC102-H_140627A: 75	SampType: Sample Matrix Spike				Lab ID: H14060541-012AMS				Method: E300.0		
Analysis Date: 06/27/14 22:46	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	64	1.0	50	12.87	102	90	110				
Sulfate	260	1.0	200	52.12	104	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 76	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060541-012AMSD				Method: E300.0		
Analysis Date: 06/27/14 22:57	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	65	1.0	50	12.87	103	90	110	63.76	1.2	20	
Sulfate	260	1.0	200	52.12	104	90	110	259.8	0.2	20	

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 89	SampType: Sample Matrix Spike				Lab ID: H14060543-002AMS				Method: E300.0		
Analysis Date: 06/28/14 01:22	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	66	1.0	50	13.84	104	90	110				
Sulfate	250	1.0	200	41.63	103	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: IC102-H_140627A: 90	SampType: Sample Matrix Spike Duplicate				Lab ID: H14060543-002AMSD				Method: E300.0		
Analysis Date: 06/28/14 01:33	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	66	1.0	50	13.84	104	90	110	65.76	0.3	20	
Sulfate	250	1.0	200	41.63	105	90	110	248.4	1.2	20	

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98450

Run ID :Run Order: FIA202-HE_140630B: 8	SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E365.1			
Analysis Date: 06/30/14 14:26	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
Phosphorus, Total as P	0.257	0.010	0.25		103	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA202-HE_140630B: 10	SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB			Method: E365.1			
Analysis Date: 06/30/14 14:29	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
Phosphorus, Total as P	-0.000450	0.010				0	0				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA202-HE_140630B: 26	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E365.1			
Analysis Date: 06/30/14 14:45	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0946	0.010	0.1		95	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA202-HE_140630B: 42	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E365.1			
Analysis Date: 06/30/14 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
Phosphorus, Total as P	0.0926	0.010	0.1		93	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98451

Run ID :Run Order: FIA203-HE_140630A: 8			SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E353.2		
Analysis Date: 06/30/14 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	
Nitrogen, Nitrate+Nitrite as N												
	1.03	0.010	1		103	90	110					

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 9		SampType: Laboratory Fortified Blank				Lab ID: LFB			Method: E353.2		
Analysis Date: 06/30/14 14:54		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.938	0.011	1		94	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 11			SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB		Method: E353.2		
Analysis Date: 06/30/14 14:57		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N		-0.0142	0.010			0	0				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 13				SampType: Method Blank				Lab ID: MBLK				Method: E353.2			
Analysis Date: 06/30/14 14:59				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	
Nitrogen, Nitrate+Nitrite as N				ND	0.001										

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 56			SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E353.2		
Analysis Date: 06/30/14 15:50		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
Nitrogen, Nitrate+Nitrite as N	0.474	0.010	0.5		95	90	110				

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98451

Run ID :Run Order: FIA203-HE_140630A: 56				SampType: Continuing Calibration Verification Standar				Lab ID: CCV				Method: E353.2													
Analysis Date: 06/30/14 15:50				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	

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 59				SampType: Sample Matrix Spike		Lab ID: H14060536-003BMS				Method: E353.2		
Analysis Date: 06/30/14 15:54		Units: mg/L		Prep Info:		Prep Date:		Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Nitrate+Nitrite as N		1.92	0.011	1	0.9833	94	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 60				SampType: Sample Matrix Spike Duplicate				Lab ID: H14060536-003BMSD				Method: E353.2	
Analysis Date: 06/30/14 15:55				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	
Nitrogen, Nitrate+Nitrite as N		1.93	0.011	1	0.9833	95	90	110	1.923	0.6	20		

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 70				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E353.2		
Analysis Date: 06/30/14 16:07		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Nitrate+Nitrite as N	0.469	0.010	0.5		94	90	110					

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 72				SampType: Sample Matrix Spike		Lab ID: H14060541-008DMS				Method: E353.2		
Analysis Date: 06/30/14 16:09		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	
Nitrogen, Nitrate+Nitrite as N		0.921	0.011	1	0.003039	92	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98451

Run ID :Run Order: FIA203-HE_140630A: 73	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060541-008DMSD	Method: E353.2
Analysis Date: 06/30/14 16:10	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
Nitrogen, Nitrate+Nitrite as N	0.933 0.011 1 0.003039	93 90 110 0.9207	1.3 20

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 84	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E353.2
Analysis Date: 06/30/14 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
Nitrogen, Nitrate+Nitrite as N	0.455 0.010 0.5	91 90 110	

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 86	SampType: Sample Matrix Spike	Lab ID: H14060541-018DMS	Method: E353.2
Analysis Date: 06/30/14 16:26	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.918 0.011 1 0.009657	91 90 110	

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140630A: 87	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060541-018DMSD	Method: E353.2
Analysis Date: 06/30/14 16:27	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.936 0.011 1 0.009657	93 90 110 0.918	1.9 20

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98465

Run ID :Run Order: ICP2-HE_140630B: 6	SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E200.7			
Analysis Date: 06/30/14 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
Calcium	39.0	1.0	40		98	95	105				
Magnesium	39.4	1.0	40		99	95	105				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 7	SampType: Continuing Calibration Verification Standar				Lab ID: CCV-1			Method: E200.7			
Analysis Date: 06/30/14 10:34	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
Calcium	24.9	1.0	25		100	95	105				
Magnesium	24.5	1.0	25		98	95	105				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 10	SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.7			
Analysis Date: 06/30/14 10:45	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	467	1.0	500		93	80	120				
Magnesium	497	1.0	500		99	80	120				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 11	SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7			
Analysis Date: 06/30/14 10:49	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
Calcium	462	1.0	500		92	80	120				
Magnesium	493	1.0	500		99	80	120				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98465

Run ID :Run Order: ICP2-HE_140630B: 189			SampType: Continuing Calibration Verification Standar			Lab ID: CCV			Method: E200.7		
Analysis Date: 06/30/14 23:07			Units: mg/L		Prep Info:			Prep Date:		Prep Method:	
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	
Calcium			24.8	1.0	25		99	90	110		
Magnesium			24.1	1.0	25		96	90	110		

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 201			SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E200.7		
Analysis Date: 06/30/14 23:52		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.8	1.0	25		95	90	110				
Magnesium	22.5	1.0	25		90	90	110				

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

Run ID :Run Order: ICP2-HE_140630B: 213				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: E200.7		
Analysis Date: 07/01/14 00:38		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	
Calcium	24.1	1.0	25		96	90	110					
Magnesium	22.5	1.0	25		90	90	110					

Associated samples: H14060541-001C, H14060541-002C, H14060541-003C, H14060541-004C, H14060541-005C, H14060541-006C, H14060541-007C, H14060541-008C, H14060541-009C, H14060541-010C, H14060541-011C, H14060541-012C, H14060541-013C, H14060541-014C, H14060541-015C, H14060541-016C, H14060541-017C, H14060541-018C, H14060541-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98479

Run ID :Run Order: ICPMS204-B_140630A: 10			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 06/30/14 11:58		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0581	0.0050	0.06		97	90	110				
Cadmium	0.0316	0.0010	0.03		105	90	110				
Copper	0.0603	0.010	0.06		100	90	110				
Lead	0.0582	0.010	0.06		97	90	110				
Zinc	0.0597	0.010	0.06		99	90	110				

Associated samples: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 11			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 06/30/14 12:03		Units: mg/L				Prep Info: Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000341	0.0050									
Cadmium	0.000453	0.0010									
Copper	0.000405	0.010									
Lead	0.000281	0.010									
Zinc	0.00163	0.010									

Associated samples: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 12			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 06/30/14 12:07		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.00968	0.0010	0.01		97	70	130				
Copper	0.0203	0.010	0.02		102	70	130				
Lead	0.000250	0.010				0	0				
Zinc	0.0110	0.010	0.01		110	70	130				

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98479

Run ID :Run Order: ICPMS204-B_140630A: 12				SampType: Interference Check Sample AB				Lab ID: ICSAB				Method: E200.8													
Analysis Date: 06/30/14 12:07				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: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 17				SampType: Method Blank				Lab ID: ICB				Method: E200.8													
Analysis Date: 06/30/14 12:29				Units: mg/L				Prep Info: Prep Date:				Prep Method:													
Analytes 5				Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual	

Arsenic	ND	3E-05									
Cadmium	ND	6E-06									
Copper	ND	3E-05									
Lead	ND	8E-06									
Zinc	ND	0.0003									

Associated samples: H14060541-001B, H14060541-002B, H14060541-003B, H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140630A: 18				SampType: Laboratory Fortified Blank				Lab ID: LFB				Method: E200.8			
Analysis Date: 06/30/14 12:34				Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 5				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Arsenic	0.0527	0.0050	0.05		105	85	115				
Cadmium	0.0515	0.0010	0.05		103	85	115				
Copper	0.0534	0.010	0.05		107	85	115				
Lead	0.0498	0.010	0.05		100	85	115				
Zinc	0.0537	0.010	0.05		107	85	115				

Associated samples: H14060541-001B, H14060541-002B, H14060541-003B, H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140630A: 73				SampType: Initial Calibration Verification Standard				Lab ID: ICV STD				Method: E200.8													
Analysis Date: 06/30/14 16:35				Units: mg/L				Prep Info: Prep Date:				Prep Method:													
Analytes 5				Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual	

Arsenic	0.0597	0.0050	0.06		100	90	110				
Cadmium	0.0318	0.0010	0.03		106	90	110				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98479

Run ID :Run Order: ICPMS204-B_140630A: 73			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 06/30/14 16:35		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0608	0.010	0.06		101	90	110				
Lead	0.0601	0.010	0.06		100	90	110				
Zinc	0.0625	0.010	0.06		104	90	110				

Associated samples: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 74			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 06/30/14 16:39		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000345	0.0050									
Cadmium	0.000431	0.0010									
Copper	0.000387	0.010									
Lead	0.000266	0.010									
Zinc	0.00175	0.010									

Associated samples: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 75			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 06/30/14 16:44		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0103	0.0050	0.01		103	70	130				
Cadmium	0.00954	0.0010	0.01		95	70	130				
Copper	0.0200	0.010	0.02		100	70	130				
Lead	0.000246	0.010				0	0				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R98479**

**Date:** 23-Jul-14

Run ID :Run Order: ICPMS204-B_140630A: 195		SampType: Sample Matrix Spike			Lab ID: H14060541-003BMS				Method: E200.8		
Analysis Date: 07/01/14 01:37		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0605	0.0010	0.05	0.005919	109	70	130				
Cadmium	0.0512	0.0010	0.05	0.0000107	102	70	130				
Copper	0.0532	0.0050	0.05	0.001076	104	70	130				
Lead	0.0503	0.0010	0.05	0.0000541	100	70	130				
Zinc	0.0583	0.010	0.05	0.005896	105	70	130				

Associated samples: H14060541-001B, H14060541-002B, H14060541-003B, H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140630A: 196		SampType: Sample Matrix Spike Duplicate			Lab ID: H14060541-003BMSD				Method: E200.8		
Analysis Date: 07/01/14 01:41		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0600	0.0010	0.05	0.005919	108	70	130	0.06052	0.9	20	
Cadmium	0.0524	0.0010	0.05	0.0000107	105	70	130	0.0512	2.3	20	
Copper	0.0536	0.0050	0.05	0.001076	105	70	130	0.05316	0.8	20	
Lead	0.0513	0.0010	0.05	0.0000541	103	70	130	0.0503	2.0	20	
Zinc	0.0581	0.010	0.05	0.005896	104	70	130	0.05828	0.3	20	

Associated samples: H14060541-001B, H14060541-002B, H14060541-003B, H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140630A: 229		SampType: Sample Matrix Spike			Lab ID: H14060541-013BMS				Method: E200.8		
Analysis Date: 07/01/14 04:07		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0579	0.0010	0.05	0.0001506	115	70	130				
Cadmium	0.0555	0.0010	0.05	0.000007	111	70	130				
Copper	0.0565	0.0050	0.05	0.0000655	113	70	130				
Lead	0.0536	0.0010	0.05	0.0000109	107	70	130				
Zinc	0.0712	0.010	0.05	0.01196	118	70	130				

Associated samples: H14060541-001B, H14060541-002B, H14060541-003B, H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98479

Run ID :Run Order: ICPMS204-B_140630A: 230		SampType: Sample Matrix Spike Duplicate			Lab ID: H14060541-013BMSD				Method: E200.8		
Analysis Date: 07/01/14 04:12		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0578	0.0010	0.05	0.0001506	115	70	130	0.05788	0.1	20	
Cadmium	0.0558	0.0010	0.05	0.000007	112	70	130	0.05549	0.6	20	
Copper	0.0569	0.0050	0.05	0.0000655	114	70	130	0.05655	0.6	20	
Lead	0.0535	0.0010	0.05	0.0000109	107	70	130	0.05355	0.0	20	
Zinc	0.0712	0.010	0.05	0.01196	119	70	130	0.07121	0.1	20	

Associated samples: H14060541-001B, H14060541-002B, H14060541-003B, H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140630A: 235		SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.8		
Analysis Date: 07/01/14 04:34		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000492	0.0050									
Cadmium	0.000454	0.0010									
Copper	0.000435	0.010									
Lead	0.000290	0.010									
Zinc	0.00191	0.010									

Associated samples: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140630A: 236			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 07/01/14 04:38		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0115	0.0050	0.01		115	70	130				
Cadmium	0.00989	0.0010	0.01		99	70	130				
Copper	0.0216	0.010	0.02		108	70	130				
Lead	0.000266	0.010				0	0				
Zinc	0.0118	0.010	0.01		118	70	130				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98479

Run ID :Run Order:	ICPMS204-B_140630A: 236	SampType:	Interference Check Sample AB	Lab ID:	ICSAB	Method:	E200.8					
Analysis Date:	07/01/14 04:38	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: H14060541-001B, H14060541-001C, H14060541-002B, H14060541-002C, H14060541-003B, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98503

Run ID :Run Order: FIA203-HE_140702A: 9				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: A4500 N-C		
Analysis Date: 07/02/14 08:40		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
Nitrogen, Total		0.477	0.10	0.5		95	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: FIA203-HE_140702A: 10				SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB				Method: A4500 N-C			
Analysis Date: 07/02/14 08:41				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			
Nitrogen, Total		0.00658	0.10				0	0							

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

Run ID :Run Order: FIA203-HE_140702A: 26				SampType: Continuing Calibration Verification Standar				Lab ID: CCV		Method: A4500 N-C		
Analysis Date: 07/02/14 09:00		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
Nitrogen, Total		0.496	0.10	0.5		99	90	110				

Associated samples: H14060541-001A, H14060541-002A, H14060541-003A, H14060541-004A, H14060541-005A, H14060541-006A, H14060541-007A, H14060541-008A, H14060541-009A, H14060541-010A, H14060541-011A, H14060541-012A, H14060541-013A, H14060541-014A, H14060541-015A, H14060541-016A, H14060541-017A, H14060541-018A, H14060541-019A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98549

Run ID :Run Order: ICPMS204-B_140701B: 10			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 07/01/14 10:34		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
Arsenic	0.0599	0.0050	0.06		100	90	110				
Cadmium	0.0320	0.0010	0.03		107	90	110				
Zinc	0.0617	0.010	0.06		103	90	110				

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140701B: 11			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 07/01/14 10:39		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000361	0.0050									
Cadmium	0.000432	0.0010									
Zinc	0.00188	0.010									

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140701B: 12			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 07/01/14 10:43		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.00955	0.0010	0.01		95	70	130				
Zinc	0.0114	0.010	0.01		114	70	130				

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: <b>ICPMS204-B_140701B: 20</b>				SampType: <b>Method Blank</b>				Lab ID: <b>ICB</b>				Method: <b>E200.8</b>			
Analysis Date: <b>07/01/14 13:55</b>				Units: <b>mg/L</b>				<b>Prep Info:</b>		Prep Date:		Prep Method:			
Analytes <b>3</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic				ND	3E-05										
Cadmium				ND	6E-06										

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98549

Run ID :Run Order: ICPMS204-B_140701B: 20	SampType: Method Blank	Lab ID: ICB	Method: E200.8
Analysis Date: 07/01/14 13:55	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 3	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Zinc	ND 0.0003		

Associated samples: H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140701B: 21	SampType: Laboratory Fortified Blank	Lab ID: LFB	Method: E200.8
Analysis Date: 07/01/14 13:59	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
Arsenic	0.0511 0.0050 0.05	102 85 115	
Cadmium	0.0505 0.0010 0.05	101 85 115	
Zinc	0.0526 0.010 0.05	105 85 115	

Associated samples: H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140701B: 34	SampType: Initial Calibration Verification Standard	Lab ID: ICV STD	Method: E200.8
Analysis Date: 07/01/14 17:27	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
Arsenic	0.0614 0.0050 0.06	102 90 110	
Cadmium	0.0320 0.0010 0.03	107 90 110	
Zinc	0.0636 0.010 0.06	106 90 110	

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140701B: 35	SampType: Interference Check Sample A	Lab ID: ICSA	Method: E200.8
Analysis Date: 07/01/14 17:31	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 3	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.000320 0.0050		
Cadmium	0.000423 0.0010		
Zinc	0.00170 0.010		

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98549

Run ID :Run Order: ICPMS204-B_140701B: 36			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 07/01/14 17:36			Units: mg/L		Prep Info: Prep Date:			Prep Method:			
Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0108	0.0050	0.01		107	70	130				
Cadmium	0.00961	0.0010	0.01		96	70	130				
Zinc	0.0118	0.010	0.01		118	70	130				

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140701B: 128				SampType: Sample Matrix Spike		Lab ID: H14060541-008BMS			Method: E200.8		
Analysis Date: 07/02/14 00:36		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0725	0.0010	0.05	0.01791	109	70	130				
Cadmium	0.0529	0.0010	0.05	0.0000299	106	70	130				
Zinc	0.0606	0.010	0.05	0.006514	108	70	130				

Associated samples: H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140701B: 129				SampType: Sample Matrix Spike Duplicate			Lab ID: H14060541-008BMSD			Method: E200.8		
Analysis Date: 07/02/14 00:40		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	
Arsenic	0.0702	0.0010	0.05	0.01791	105	70	130	0.07249	3.2	20		
Cadmium	0.0525	0.0010	0.05	0.0000299	105	70	130	0.05288	0.6	20		
Zinc	0.0600	0.010	0.05	0.006514	107	70	130	0.06059	0.9	20		

Associated samples: H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140701B: 157				SampType: Sample Matrix Spike		Lab ID: H14060541-018BMS			Method: E200.8		
Analysis Date: 07/02/14 02:47		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
Arsenic	0.0625	0.0010	0.05	0.00894	107	70	130				
Cadmium	0.0528	0.0010	0.05	0.0000141	106	70	130				
Zinc	0.0671	0.010	0.05	0.01448	105	70	130				

Associated samples: H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98549

Run ID :Run Order: ICPMS204-B_140701B: 158	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060541-018BMSD	Method: E200.8
Analysis Date: 07/02/14 02:51	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <b>3</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.0618 0.0010 0.05 0.00894	106 70 130 0.06246	1.1 20
Cadmium	0.0530 0.0010 0.05 0.0000141	106 70 130 0.0528	0.3 20
Zinc	0.0678 0.010 0.05 0.01448	107 70 130 0.0671	1.1 20

Associated samples: H14060541-004B, H14060541-005B, H14060541-006B, H14060541-007B, H14060541-008B, H14060541-009B, H14060541-010B, H14060541-011B, H14060541-012B, H14060541-013B, H14060541-014B, H14060541-015B, H14060541-016B, H14060541-017B, H14060541-018B, H14060541-019B

Run ID :Run Order: ICPMS204-B_140701B: 217	SampType: Interference Check Sample A	Lab ID: ICSA	Method: E200.8
Analysis Date: 07/02/14 07:15	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <b>3</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.000543 0.0050		
Cadmium	0.000373 0.0010		
Zinc	0.00174 0.010		

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

Run ID :Run Order: ICPMS204-B_140701B: 218	SampType: Interference Check Sample AB	Lab ID: ICSAB	Method: E200.8
Analysis Date: 07/02/14 07:20	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <b>3</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.0107 0.0050 0.01	107 70 130	
Cadmium	0.00939 0.0010 0.01	94 70 130	
Zinc	0.0113 0.010 0.01	113 70 130	

Associated samples: H14060541-002C, H14060541-003C, H14060541-004B, H14060541-004C, H14060541-005B, H14060541-005C, H14060541-006B, H14060541-006C, H14060541-007B, H14060541-007C, H14060541-008B, H14060541-008C, H14060541-009B, H14060541-009C, H14060541-010B, H14060541-010C, H14060541-011B, H14060541-011C, H14060541-012B, H14060541-012C, H14060541-013B, H14060541-013C, H14060541-014B, H14060541-014C, H14060541-015B, H14060541-015C, H14060541-016B, H14060541-016C, H14060541-017B, H14060541-017C, H14060541-018B, H14060541-018C, H14060541-019B, H14060541-019C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98605

Run ID :Run Order: FIA203-HE_140707B: 7	SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E350.1			
Analysis Date: 07/07/14 11:08	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
Nitrogen, Ammonia as N	14.6	0.50	15.2		96	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 8	SampType: Laboratory Fortified Blank				Lab ID: LFB			Method: E350.1			
Analysis Date: 07/07/14 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
Nitrogen, Ammonia as N	1.02	0.055	1		102	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 9	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E350.1			
Analysis Date: 07/07/14 11:10	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.452	0.050	0.5		90	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 10	SampType: Initial Calibration Blank, Instrument Blank				Lab ID: ICB			Method: E350.1			
Analysis Date: 07/07/14 11:11	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
Nitrogen, Ammonia as N	0.0103	0.050				0	0				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 11	SampType: Laboratory Fortified Blank				Lab ID: LFB			Method: E350.1			
Analysis Date: 07/07/14 11:12	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
Nitrogen, Ammonia as N	0.933	0.050	1		93	90	110				

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R98605**

**Date:** 23-Jul-14

Run ID :Run Order: FIA203-HE_140707B: 11	SampType: Laboratory Fortified Blank	Lab ID: LFB	Method: E350.1								
Analysis Date: 07/07/14 11:12	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

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 17	SampType: Sample Matrix Spike	Lab ID: H14060536-003BMS	Method: E350.1								
Analysis Date: 07/07/14 11:20	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
Nitrogen, Ammonia as N	0.772	0.055	1		77	80	120				S

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 18	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060536-003BMDS	Method: E350.1								
Analysis Date: 07/07/14 11:21	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
Nitrogen, Ammonia as N	0.826	0.055	1		83	80	120	0.772	6.7	10	

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 27	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E350.1								
Analysis Date: 07/07/14 11:32	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
Nitrogen, Ammonia as N	0.467	0.050	0.5		93	90	110				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 29	SampType: Sample Matrix Spike	Lab ID: H14060541-006DMS	Method: E350.1								
Analysis Date: 07/07/14 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
Nitrogen, Ammonia as N	0.890	0.055	1		89	80	120				

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** R98605

Run ID :Run Order: FIA203-HE_140707B: 30	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060541-006DMSD	Method: E350.1
Analysis Date: 07/07/14 11:35	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
Nitrogen, Ammonia as N	0.905 0.055 1	91 80 120 0.8901	1.7 10

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 41	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E350.1
Analysis Date: 07/07/14 11:48	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
Nitrogen, Ammonia as N	0.464 0.050 0.5	93 90 110	

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 44	SampType: Sample Matrix Spike	Lab ID: H14060541-016DMS	Method: E350.1
Analysis Date: 07/07/14 11:52	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
Nitrogen, Ammonia as N	0.843 0.055 1	84 80 120	

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

Run ID :Run Order: FIA203-HE_140707B: 45	SampType: Sample Matrix Spike Duplicate	Lab ID: H14060541-016DMSD	Method: E350.1
Analysis Date: 07/07/14 11:53	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
Nitrogen, Ammonia as N	0.864 0.055 1	86 80 120 0.8428	2.5 10

Associated samples: H14060541-001D, H14060541-002D, H14060541-003D, H14060541-004D, H14060541-005D, H14060541-006D, H14060541-007D, H14060541-008D, H14060541-009D, H14060541-010D, H14060541-011D, H14060541-012D, H14060541-013D, H14060541-014D, H14060541-015D, H14060541-016D, H14060541-017D, H14060541-018D, H14060541-019D

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14060541  
**Project:** CFR OU Monitoring

## ANALYTICAL QC SUMMARY REPORT

**Date:** 23-Jul-14

Prepared by Helena, MT Branch

**BatchID:** TSS140627A

Run ID :Run Order: ACCU-124 (14410200)_140627A: 1		SampType: Method Blank				Lab ID: MB-1_140627A				Method: A2540 D		
Analysis Date: 06/27/14 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	
Solids, Total Suspended TSS @ 105 C		ND	1									
Associated samples: H14060541-001F, H14060541-002F, H14060541-003F, H14060541-004F, H14060541-005F, H14060541-006F, H14060541-007F, H14060541-008F, H14060541-009F, H14060541-010A, H14060541-011F, H14060541-012F, H14060541-013F, H14060541-014F, H14060541-015F, H14060541-016F, H14060541-017F, H14060541-018F, H14060541-019F												

Run ID :Run Order: ACCU-124 (14410200)_140627A: 2		SampType: Laboratory Control Sample				Lab ID: LCS-2_140627A				Method: A2540 D	
Analysis Date: 06/27/14 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
Solids, Total Suspended TSS @ 105 C		92.0	10	100	92	80	120				
Associated samples: H14060541-001F, H14060541-002F, H14060541-003F, H14060541-004F, H14060541-005F, H14060541-006F, H14060541-007F, H14060541-008F, H14060541-009F, H14060541-010A, H14060541-011F, H14060541-012F, H14060541-013F, H14060541-014F, H14060541-015F, H14060541-016F, H14060541-017F, H14060541-018F, H14060541-019F											

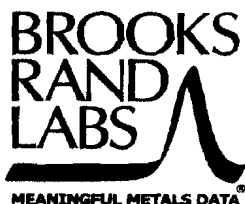
Run ID :Run Order: ACCU-124 (14410200)_140627A: 4		SampType: Sample Duplicate				Lab ID: H14060546-001A DUP				Method: A2540 D	
Analysis Date: 06/27/14 11:24		Units: mg/L				Prep Info:		Prep Date:		Prep Method:	
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C		10.0	10					12	18	5	R
Associated samples: H14060541-001F, H14060541-002F, H14060541-003F, H14060541-004F, H14060541-005F, H14060541-006F, H14060541-007F, H14060541-008F, H14060541-009F, H14060541-010A, H14060541-011F, H14060541-012F, H14060541-013F, H14060541-014F, H14060541-015F, H14060541-016F, H14060541-017F, H14060541-018F, H14060541-019F											

Run ID :Run Order: ACCU-124 (14410200)_140627A: 1		SampType: Sample Duplicate				Lab ID: H14060546-002A DUP				Method: A2540 D	
Analysis Date: 06/27/14 11:28		Units: mg/L				Prep Info:		Prep Date:		Prep Method:	
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C		32.0	10					32	0.0	5	
Associated samples: H14060541-001F, H14060541-002F, H14060541-003F, H14060541-004F, H14060541-005F, H14060541-006F, H14060541-007F, H14060541-008F, H14060541-009F, H14060541-010A, H14060541-011F, H14060541-012F, H14060541-013F, H14060541-014F, H14060541-015F, H14060541-016F, H14060541-017F, H14060541-018F, H14060541-019F											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



July 22, 2014

Energy Laboratories, Inc.  
ATTN: Jonathan Dee Hager  
PO Box 5688  
Helena MT 59604  
jhager@energylab.com

RE: Project ENL-HL1201

Client Project: Silver Bow / Clark Fork

Dear Jonathan Dee Hager,

This report contains results for the 5 samples received by Brooks Rand Labs (BRL) on June 30, 2014. The samples were logged-in for the contracted analyses according to the chain-of-custody form(s). The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The samples were received in a cooler with wet ice and at a temperature of 16.0 °C. BRL requires samples for pre-preserved samples for MeHg analysis to be kept cool ( $\leq 12 \pm 2$  °C) during shipment. Therefore, all the sample results for MeHg were qualified **H** for temperature requirements not being met.

The results were method blank corrected as described in the calculations section of the relevant BRL SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details. All additional data is reported without qualification and all other associated quality control sample results meet the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Lydia Greaves  
Project Manager  
Lydia@brooksrands.com



## Report Information

### Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <<http://www.brooksrand.com/about/accreditations-certifications/>>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BLK</b>	method blank	<b>MS</b>	matrix spike
<b>BRL</b>	Brooks Rand Labs	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>RSD</b>	relative standard deviation
<b>IBL</b>	instrument blank	<b>SCV</b>	secondary calibration verification
<b>ICV</b>	initial calibration verification	<b>SOP</b>	standard operating procedure
<b>MDL</b>	method detection limit	<b>SRM</b>	standard reference material
<b>MRL</b>	method reporting limit	<b>T</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.

**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1427004  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12946

## Sample Information

<b>Sample</b>	<b>Lab ID</b>	<b>Report Matrix</b>	<b>Type</b>	<b>Sampled</b>	<b>Received</b>
H14060541-016G	1427004-01	Water	Sample	06/24/2014	06/30/2014
H14060541-017G	1427004-02	Water	Sample	06/24/2014	06/30/2014
H14060541-018G	1427004-03	Water	Sample	06/24/2014	06/30/2014
H14060541-019G	1427004-04	Water	Sample	06/24/2014	06/30/2014
Trip Blank	1427004-05	DIW	Trip Blank	06/30/2014	06/30/2014

## Batch Summary

<b>Analyte</b>	<b>Lab Matrix</b>	<b>Method</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Batch</b>	<b>Sequence</b>
MeHg	Water	EPA 1630	07/08/2014	07/09/2014	B141168	1400599

Project ID: ENL-HL1201  
PM: Lydia Greaves



BRL Report 1427004  
Client PM: Jonathan Dee Hager  
Client PO: H12946

## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>H14060541-016G</b>										
1427004-01	MeHg	Water	T	0.319	H	0.020	0.050	ng/L	B141168	1400599
<b>H14060541-017G</b>										
1427004-02	MeHg	Water	T	0.020	H, U	0.020	0.049	ng/L	B141168	1400599
<b>H14060541-018G</b>										
1427004-03	MeHg	Water	T	0.990	H	0.020	0.050	ng/L	B141168	1400599
<b>H14060541-019G</b>										
1427004-04	MeHg	Water	T	1.03	H	0.020	0.051	ng/L	B141168	1400599
<b>Trip Blank</b>										
1427004-05	MeHg	DIW	T	0.020	H, U	0.020	0.049	ng/L	B141168	1400599



## Accuracy & Precision Summary

Batch: B141168  
Lab Matrix: Water  
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B141168-BS1	Laboratory Fortified Blank (1425037) MeHg		1.000	1.001	ng/L	100% 67-133	
B141168-MS1	Matrix Spike (1427004-01) MeHg	0.319	2.300	2.442	ng/L	92% 65-135	
B141168-MSD1	Matrix Spike Duplicate (1427004-01) MeHg	0.319	2.300	2.687	ng/L	103% 65-135	10% 35

## Method Blanks & Reporting Limits

Batch: B141168  
Matrix: Water  
Method: EPA 1630  
Analyte: MeHg

Sample	Result	Units
B141168-BLK1	0.007	ng/L
B141168-BLK2	0.023	ng/L
B141168-BLK3	0.019	ng/L
B141168-BLK4	0.020	ng/L
Average: 0.017		Standard Deviation: 0.007
Limit: 0.045		Limit: 0.015
		MDL: 0.020
		MRL: 0.050

Project ID: ENL-HL1201  
PM: Lydia Greaves



BRL Report 1427004  
Client PM: Jonathan Dee Hager  
Client PO: H12946

## Sample Containers

Lab ID: 1427004-01  
Sample: H14060541-016G  
Comments: Qualify H

Report Matrix: Water  
Sample Type: Sample

Collected: 06/24/2014  
Received: 06/30/2014

Des Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A Bottle FLPE Hg-SP	250mL	13-0293	2mL 6N HCl (PP)	1420031	<2	Cooler

Lab ID: 1427004-02  
Sample: H14060541-017G  
Comments: Qualify H

Report Matrix: Water  
Sample Type: Sample

Collected: 06/24/2014  
Received: 06/30/2014

Des Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A Bottle FLPE Hg-SP	250mL	13-0293	2mL 6N HCl (PP)	1420031	<2	Cooler

Lab ID: 1427004-03  
Sample: H14060541-018G  
Comments: Qualify H

Report Matrix: Water  
Sample Type: Sample

Collected: 06/24/2014  
Received: 06/30/2014

Des Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A Bottle FLPE Hg-SP	250mL	13-0293	2mL 6N HCl (PP)	1420031	<2	Cooler

Lab ID: 1427004-04  
Sample: H14060541-019G  
Comments: Qualify H

Report Matrix: Water  
Sample Type: Sample

Collected: 06/24/2014  
Received: 06/30/2014

Des Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A Bottle FLPE Hg-SP	250mL	13-0293	2mL 6N HCl (PP)	1420031	<2	Cooler

Lab ID: 1427004-05  
Sample: Trip Blank  
Comments: Qualify H

Report Matrix: DIW  
Sample Type: Trip Blank

Collected: 06/30/2014  
Received: 06/30/2014

Des Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A Bottle FLPE Hg-SP	250mL	13-0293	2mL 6N HCl (BRL)	1350060	<2	Cooler

**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1427004  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12946

## Shipping Containers

### Cooler

**Received:** June 30, 2014 12:45  
**Tracking No:** 1Z37EW970351003233 via UPS  
**Coolant Type:** Ice  
**Temperature:** 16.0 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No

**Custody seals present?** Yes  
**Custody seals intact?** Yes  
**COC present?** Yes

**Energy Laboratories Inc**

3161 East Lyndale Avenue  
Helena, MT 59601  
(406) 442-0711



H14060541

1427004

**CHAIN-OF-CUSTODY RECORD**

BRL Report 1427004  
Page 1 of 1  
26-Jun-14

Custody Seal: ☒ Y ☐ N  
Intacted: ☒ Y ☐ N  
Signature Match: Y N

Shipped By: \_\_\_\_\_  
Receipt Temp: 16.9°C

**Subcontractor:**

Brooks Rand Labs  
3958 6th Ave NW  
Seattle, WA 98106

TEL: (206) 632-6206 FAX: (206) 632-6017

Acct #: \_\_\_\_\_

**Subcontractor's Client:**

Rush Sample ID Matrix Collection Date Bottle Type

<input type="checkbox"/>	H14060541-016G	Aqueous	06/24/14 11:45 A	1-
<input type="checkbox"/>	H14060541-017G	Aqueous	06/24/14 01:15 P	1-
<input type="checkbox"/>	H14060541-018G	Aqueous	06/24/14 01:45 P	1-
<input type="checkbox"/>	H14060541-019G	Aqueous	06/24/14 01:45 P	1-

Requested Tests															
SUB-BROOKSRAND															

**Earliest Due Date:** 7/11/2014

**Comments:** H12946

**QC Level:**

**STD**

Date/Time

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

# Workorder Receipt Checklist

MT DEQ-Federal Superfund

H14060541

Login completed by: Tracy L. Lorash

Date Received: 6/26/2014

Reviewed by: BL2000\sdull

Received by: wjj

Reviewed Date: 7/15/2014

Carrier Hand Del  
name:

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

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Sample ID on COC is LBR-CFR-02 -ID on all bottles except 1 liter is LBR-CFR. Logged in with ID from COC.

Sample ID on COC is SBR P2 -ID on bottles is SBR-P2. Logged in with ID from COC.

SS-25 500 mL raw bottle received preserved.

Cooler 1 was received at 2.0°C, Cooler 2 at 3.0°C, Cooler 3 at 1.6°C. Samples were received on wet ice. TI 6/26/14





# Chain of Custody and Analytical Request Record

Page 1 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (RESPEC)</b>		Project Name, PWS, Permit, Etc. <b>CFR00 Monitoring</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>crich.weber@respec.com joe.naughton@respec.com gary.ingram@respec.com benquinones@mt.gov</b>		Contact Name: <b>Ben Quinones</b>		Sample Origin: State: <b>MT</b>	
Invoice Address (Required): <b>MT DEQ P.O. Box 200901 Helena, MT 59620-0901</b>		Phone/Fax: <b>406-841-5709</b>		Cell: <b>439-0563</b>	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/MWTP <input type="checkbox"/> Format: <input type="checkbox"/> State: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: <input type="checkbox"/> NELAC		Invoice Contact & Phone: <b>Ben Quinones 406-841-5709</b>		Purchase Order: <b>H958/15129</b>	
Number of Containers Sample Type: A W S V B O DW Vegetation Bioassay Other Air Water Soils/Solids DW - Drinking Water		ANALYSIS REQUESTED		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
MATRIX		SEE ATTACHED		Standard Turnaround (TAT)	
1 CFR-116A		TPN		R	
2 CSC		Diss Ar, Cd, Cu, Pb, Zn		U	
3 LBR-CFR-02		TPN		S	
4 CFR-42G		NH <sub>3</sub> , NO <sub>3</sub> -N, TP		H	
5 CFR-27H		TSS		Comments: All dissolved samples were field filtered	
6 CFR-11F		TSS		Shipped by: <b>handdel</b>	
7 CFR-07D		Hardness (TR Ca & Mg)		Cooler ID(s): <b>Y</b>	
8 CFR-03A		DOC		Receipt Temp: <b>See Comments</b>	
9 WSC-SBC		X		On Ice: <input checked="" type="checkbox"/> N	
10 SS-25		X		Custody Seal: <b>Y N N N Y N</b>	
Custody Record MUST be Signed		Received by (print): <b>Wendy</b>		Intact: <b>Y</b>	
Relinquished by (print): <b>Enrich Weber</b>		Received by (print):		Signature Match: <b>Y</b>	
Date/Time: <b>6-26-2014 11:30</b>		Date/Time:		Signature: <b>H14066541</b>	
Relinquished by (print):		Received by (print):		Date/Time:	
Date/Time:		Received by (print):		Date/Time:	
Sample Disposal:		Return to Client:		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 noted on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information.



# Chain of Custody and Analytical Request Record

Page 2 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MTDEQ (RESTEC)</b>	Project Name, PWS, Permit, Etc. <b>CFRCL Monitoring</b>	Sample Origin State: <b>MT</b>	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>
Report Mail Address (Required): <b>See page 1</b>	Contact Name: <b>See page 1</b>	Cell: <b>See page 1</b>	Sampler: (Please Print) <b>See page 1</b>
<input type="checkbox"/> No Hard Copy Email:	Invoice Contact & Phone: <b>See page 1</b>	Purchase Order: <b>H958/15129</b>	Quote/Bottle Order: <b>H958/15129</b>

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	ANALYSIS REQUESTED										Standard Turnaround (TAT)	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Comments:	Receipt Temp	On Ice:	Custody Seal	Intact	Signature Match	Shipped by:	Cooler ID(s):
				Number of Containers	Sample Type: A W S V B D W	DW - Drinking Water	Vegetation Bioassay	Air Water Soils/Solids	TRAs, Cd, Cu, Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPZ	NH <sub>3</sub> , NO <sub>3</sub> -N, TP	TSS										
1 MWB-SBC	6-25-2014	13:30	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2 SBC PZ	6-25-2014	14:00	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3 Field Blank #2	6-25-2014	15:00	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4 MCWC-MWB	6-25-2014	15:30	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5 MCWC-MWB Duplicate	6-25-2014	15:30	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6 CFR-84F	6-24-2014	11:45	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7 Field Blank #1	6-24-2014	13:15	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8 FC-CFR	6-24-2014	13:45	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
9 FC-CFR Duplicate	6-24-2014	13:45	6W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10																							

<b>Custody Record MUST be Signed</b>	Relinquished by (print): <b>Enrich Weber</b>	Date/Time: <b>6-26-2014 11:30</b>	Signature: <i>[Signature]</i>
	Relinquished by (print):	Date/Time:	Signature:
Sample Disposal:	Return to Client:	Date/Time:	Signature:
Received by Laboratory: <b>Wanda J. M...</b>	Date/Time: <b>6-26-14 11:28</b>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>

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

Page 3 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (RESPEC)</b>		Project Name, PWS, Permit, Etc. <b>CFR on Monitoring</b>		Sample Origin State: <b>MT</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>See page 1</b>		Contact Name: <b>See page 1</b>		Phone/Fax: <b>See page 1</b>		Sampler: (Please Print) <b>See page 1</b>	
Invoice Address (Required): <b>See page 1</b>		Invoice Contact & Phone: <b>See page 1</b>		Purchase Order: <b>See page 1</b>		Quote/Bottle Order: <b>4958/15129</b>	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other: <input type="checkbox"/> EDD/EDT (Electronic Data) Format: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC		Sample Type: A W S V B O DW Vegetation Bioassay Other DW - Drinking Water		ANALYSIS REQUESTED <b>SEE ATTACHED</b>		Standard Turnaround (TAT) <b>R U S H</b>	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	MATRIX	Comments:	Shipped by: <b>Handdel</b>	Receipt Temp <b>See page 1</b>
1 CFR - 84F		6-24-2014	11:45	1W	cooler 1-2.0	On Ice: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Custody Seal On Bottle On Cooler Intact Signature Match
2 Field Blank #1		6-24-2014	13:15	1W	cooler 2-3.0	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
3 FC-CFR		6-24-2014	13:45	1W	cooler 3-1.6	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
4 FC-CFR Duplicate		6-24-2014	13:45	1W		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
5							
6							
7							
8							
9							
10							
Relinquished by (print): <b>Enrich Weber</b>		Date/Time: <b>6-26-2014 11:30</b>		Signature: <b>[Signature]</b>		Received by (print): <b>W. Adams</b>	
Relinquished by (print):		Date/Time:		Signature:		Received by (print):	
Sample Disposal:		Return to Client:		Lab Disposal:		Received by Laboratory: <b>W. Adams</b>	
Signature:		Date/Time:		Signature:		Signature:	

**Custody Record MUST be Signed**

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.

**APPENDIX B3**  
**ANALYTICAL LABORATORY RESULTS**  
**3<sup>RD</sup> QUARTER MONITORING**

---

## ANALYTICAL SUMMARY REPORT

October 24, 2014

MT DEQ-Federal Superfund  
PO Box 200901  
Helena, MT 59620-0901

Work Order: H14090349 Quote ID: H958

Project Name: CFR Monitoring-474374

Energy Laboratories Inc Helena MT received the following 32 samples for MT DEQ-Federal Superfund on 9/18/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14090349-001	CFR-116A	09/16/14 9:00	09/18/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14090349-002	Field Blank #1	09/16/14 12:45	09/18/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Mercury, Total Recoverable Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H14090349-003	FC-CFR	09/16/14 13:00	09/18/14	Aqueous	Same As Above
H14090349-004	FC-CFR duplicate	09/16/14 13:00	09/18/14	Aqueous	Same As Above

## ANALYTICAL SUMMARY REPORT

H14090349-005	LBR-CFR-02	09/16/14 14:30	09/18/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14090349-006	CFR-27H	09/16/14 16:30	09/18/14	Aqueous	Same As Above
H14090349-007	CFR-11F	09/16/14 17:30	09/18/14	Aqueous	Same As Above
H14090349-008	CFR-07D	09/17/14 9:15	09/18/14	Aqueous	Same As Above
H14090349-009	CFR-03A	09/17/14 10:30	09/18/14	Aqueous	Same As Above
H14090349-010	WSC-SBC	09/17/14 11:15	09/18/14	Aqueous	Same As Above
H14090349-011	SS-25	09/17/14 12:30	09/18/14	Aqueous	Same As Above
H14090349-012	MWB-SBC	09/17/14 13:15	09/18/14	Aqueous	Same As Above
H14090349-013	Field Blank #2	09/17/14 14:15	09/18/14	Aqueous	Same As Above
H14090349-014	MCWC-MWB	09/17/14 14:45	09/18/14	Aqueous	Same As Above
H14090349-015	MCWC-MWB duplicate	09/17/14 14:45	09/18/14	Aqueous	Same As Above
H14090349-016	CFR-84F	09/16/14 11:30	09/18/14	Aqueous	Mercury, Total Recoverable Digestion, Mercury by CVAA Subcontracted, Analytics
H14090349-017	Trip Blank	09/16/14 9:00	09/18/14	Aqueous	Subcontracted, Analytics
H14090349-018	CFR-116A Sediment Sieve <0.065mm	09/16/14 9:00	09/18/14	Sediment	Metals by ICP/ICPMS, Total Percent Moisture Digestion, Total Metals Sieves Soil Preparation
H14090349-019	FC-CFR Sediment Sieve <0.065mm	09/16/14 13:00	09/18/14	Sediment	Metals by ICP/ICPMS, Total Percent Moisture Digestion, Total Metals Sieves
H14090349-020	FC-CFR duplicate Sediment Sieve <0.065mm	09/16/14 13:00	09/18/14	Sediment	Same As Above
H14090349-021	LBR-CFR-02 Sediment Sieve <0.065mm	09/16/14 14:30	09/18/14	Sediment	Same As Above
H14090349-022	CFR-27H Sediment Sieve <0.065mm	09/16/14 16:30	09/18/14	Sediment	Same As Above
H14090349-023	CFR-11F Sediment Sieve <0.065mm	09/16/14 17:30	09/18/14	Sediment	Same As Above
H14090349-024	CFR-07D Sediment Sieve <0.065mm	09/17/14 9:15	09/18/14	Sediment	Same As Above
H14090349-025	CFR-03A Sediment Sieve <0.065mm	09/17/14 10:30	09/18/14	Sediment	Same As Above

## ANALYTICAL SUMMARY REPORT

H14090349-026	WSC-SBC Sediment Sieve <0.065mm	09/17/14 11:15 09/18/14	Sediment	Same As Above
H14090349-027	SS-25 Sediment Sieve <0.065mm	09/17/14 12:30 09/18/14	Sediment	Same As Above
H14090349-028	MWB-SBC Sediment Sieve <0.065mm	09/17/14 13:15 09/18/14	Sediment	Same As Above
H14090349-029	MCWC-MWB Sediment Sieve <0.065mm	09/17/14 14:45 09/18/14	Sediment	Same As Above
H14090349-030	MCWC-MWB duplicate Sediment Sieve <0.065mm	09/17/14 14:45 09/18/14	Sediment	Same As Above
H14090349-031	LC-7.5 Sediment Sieve <0.065mm	09/17/14 16:00 09/18/14	Sediment	Same As Above
H14090349-032	RTC-1.5 Sediment Sieve <0.065mm	09/17/14 16:45 09/18/14	Sediment	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

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

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

Report Approved By:



**CLIENT:** MT DEQ-Federal Superfund  
**Project:** CFR Monitoring-474374  
**Work Order:** H14090349

**Report Date:** 10/28/14

## **CASE NARRATIVE**

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Sample FC-CFR and FC-CFR Duplicate the Total Persulfate Nitrogen result was confirmed by duplicate analysis. Abb  
10/28/14





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A  
**Lab ID:** H14090349-001  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 09:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	09/19/14 11:31 / SR		-124 (14410200)_140919B : 8		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	09/22/14 11:49 / SR		PHSC_101-H_140922A : 37		R100747
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	09/22/14 11:49 / SR		PHSC_101-H_140922A : 37		R100747
Chloride	4	mg/L		1		E300.0	09/19/14 12:30 / SR		IC102-H_140919A : 21		R100741
Sulfate	43	mg/L		1		E300.0	09/19/14 12:30 / SR		IC102-H_140919A : 21		R100741
Hardness as CaCO <sub>3</sub>	171	mg/L		1		A2340 B	09/24/14 17:32 / sld		WATERCALC_140924A : 2		R100845
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.1	mg/L		0.5		A5310 C	09/23/14 15:58 / eli-c		SUB-C191469 : 4		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 10:56 / cm		FIA203-HE_140929B : 19		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:46 / cm		FIA203-HE_140922B : 32		R100767
Nitrogen, Total	0.10	mg/L		0.05		A4500 N-C	09/24/14 11:25 / cm	09/23/14 07:47	FIA203-HE_140924A : 72		26265
Phosphorus, Total as P	0.017	mg/L		0.005		E365.1	09/23/14 10:43 / cm	09/22/14 16:43	FIA202-HE_140923B : 27		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.007	mg/L		0.001		E200.8	09/24/14 00:23 / dck		ICPMS204-B_140923B : 35		R100819
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 00:23 / dck		ICPMS204-B_140923B : 35		R100819
Copper	0.003	mg/L		0.001		E200.8	09/24/14 00:23 / dck		ICPMS204-B_140923B : 35		R100819
Lead	ND	mg/L		0.0003		E200.8	09/24/14 00:23 / dck		ICPMS204-B_140923B : 35		R100819
Zinc	ND	mg/L		0.008		E200.8	09/24/14 00:23 / dck		ICPMS204-B_140923B : 35		R100819
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.008	mg/L		0.001		E200.8	09/24/14 00:41 / dck	09/22/14 09:15	ICPMS204-B_140923B : 39		26241
Cadmium	0.00006	mg/L		0.00003		E200.8	09/24/14 00:41 / dck	09/22/14 09:15	ICPMS204-B_140923B : 39		26241
Calcium	48	mg/L		1		E200.7	09/23/14 11:46 / sld	09/22/14 09:15	ICP2-HE_140923A : 34		26241
Copper	0.007	mg/L		0.001		E200.8	09/24/14 00:41 / dck	09/22/14 09:15	ICPMS204-B_140923B : 39		26241
Lead	0.0008	mg/L		0.0003		E200.8	09/24/14 00:41 / dck	09/22/14 09:15	ICPMS204-B_140923B : 39		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-116A

**Lab ID:** H14090349-001

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/16/14 09:00

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	13	mg/L		1		E200.7	09/23/14 11:46 / sld	09/22/14 09:15	ICP2-HE_140923A : 34		26241
Zinc	0.011	mg/L		0.008		E200.8	09/24/14 00:41 / dck	09/22/14 09:15	ICPMS204-B_140923B : 39		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14090349-002  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 12:45 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	09/19/14 11:31 / SR		-124 (14410200)_140919B : 9		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	09/22/14 11:54 / SR		PHSC_101-H_140922A : 39		R100747
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	09/22/14 11:54 / SR		PHSC_101-H_140922A : 39		R100747
Chloride	ND	mg/L		1		E300.0	09/19/14 12:41 / SR		IC102-H_140919A : 22		R100741
Sulfate	ND	mg/L		1		E300.0	09/19/14 12:41 / SR		IC102-H_140919A : 22		R100741
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	09/24/14 17:32 / sld		WATERCALC_140924A : 3		R100845
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	ND	mg/L		0.5		A5310 C	09/23/14 16:46 / eli-c		SUB-C191469 : 7		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:00 / cm		FIA203-HE_140929B : 22		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:47 / cm		FIA203-HE_140922B : 33		R100767
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/24/14 11:26 / cm	09/23/14 07:47	FIA203-HE_140924A : 73		26265
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	09/23/14 10:46 / cm	09/22/14 16:43	FIA202-HE_140923B : 30		26261
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	09/24/14 00:45 / dck		ICPMS204-B_140923B : 40		R100819
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 00:45 / dck		ICPMS204-B_140923B : 40		R100819
Copper	ND	mg/L		0.001		E200.8	09/24/14 00:45 / dck		ICPMS204-B_140923B : 40		R100819
Lead	ND	mg/L		0.0003		E200.8	09/24/14 00:45 / dck		ICPMS204-B_140923B : 40		R100819
Zinc	0.014	mg/L		0.008		E200.8	09/24/14 00:45 / dck		ICPMS204-B_140923B : 40		R100819
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	09/24/14 00:50 / dck	09/22/14 09:15	ICPMS204-B_140923B : 41		26241
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 00:50 / dck	09/22/14 09:15	ICPMS204-B_140923B : 41		26241
Calcium	ND	mg/L		1		E200.7	09/23/14 11:50 / sld	09/22/14 09:15	ICP2-HE_140923A : 35		26241
Copper	ND	mg/L		0.001		E200.8	09/24/14 00:50 / dck	09/22/14 09:15	ICPMS204-B_140923B : 41		26241
Lead	ND	mg/L		0.0003		E200.8	09/24/14 00:50 / dck	09/22/14 09:15	ICPMS204-B_140923B : 41		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #1

**Lab ID:** H14090349-002

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/16/14 12:45

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	09/23/14 11:50 / sld	09/22/14 09:15	ICP2-HE_140923A : 35		26241
Mercury	ND	mg/L		5E-06		E245.1	09/25/14 11:57 / rgk	09/24/14 12:42	HGCV202-H_140925A : 12		26305
Zinc	ND	mg/L		0.008		E200.8	09/24/14 00:50 / dck	09/22/14 09:15	ICPMS204-B_140923B : 41		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14090349-003  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 13:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	4	mg/L		1		A2540 D	09/19/14 11:31 / SR		I24 (14410200)_140919B : 10		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	190	mg/L		4		A2320 B	09/22/14 12:00 / SR		PHSC_101-H_140922A : 41		R100747
Bicarbonate as HCO <sub>3</sub>	220	mg/L		4		A2320 B	09/22/14 12:00 / SR		PHSC_101-H_140922A : 41		R100747
Chloride	4	mg/L		1		E300.0	09/19/14 12:52 / SR		IC102-H_140919A : 23		R100741
Sulfate	19	mg/L		1		E300.0	09/19/14 12:52 / SR		IC102-H_140919A : 23		R100741
Hardness as CaCO <sub>3</sub>	195	mg/L		1		A2340 B	09/24/14 17:32 / sld		WATERCALC_140924A : 4		R100845
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.9	mg/L		0.5		A5310 C	09/23/14 17:05 / eli-c		SUB-C191469 : 8		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:01 / cm		FIA203-HE_140929B : 23		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:50 / cm		FIA203-HE_140922B : 36		R100767
Nitrogen, Total	0.28	mg/L		0.05		A4500 N-C	09/24/14 11:30 / cm	09/23/14 07:47	FIA203-HE_140924A : 76		26265
Phosphorus, Total as P	0.046	mg/L		0.005		E365.1	09/23/14 10:47 / cm	09/22/14 16:43	FIA202-HE_140923B : 31		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.008	mg/L		0.001		E200.8	09/24/14 00:54 / dck		ICPMS204-B_140923B : 42		R100819
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 00:54 / dck		ICPMS204-B_140923B : 42		R100819
Copper	ND	mg/L		0.001		E200.8	09/24/14 00:54 / dck		ICPMS204-B_140923B : 42		R100819
Lead	ND	mg/L		0.0003		E200.8	09/24/14 00:54 / dck		ICPMS204-B_140923B : 42		R100819
Zinc	ND	mg/L		0.008		E200.8	09/24/14 00:54 / dck		ICPMS204-B_140923B : 42		R100819
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.008	mg/L		0.001		E200.8	09/24/14 00:58 / dck	09/22/14 09:15	ICPMS204-B_140923B : 43		26241
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 00:58 / dck	09/22/14 09:15	ICPMS204-B_140923B : 43		26241
Calcium	52	mg/L		1		E200.7	09/23/14 11:54 / sld	09/22/14 09:15	ICP2-HE_140923A : 36		26241
Copper	0.002	mg/L		0.001		E200.8	09/24/14 00:58 / dck	09/22/14 09:15	ICPMS204-B_140923B : 43		26241
Lead	0.0009	mg/L		0.0003		E200.8	09/24/14 00:58 / dck	09/22/14 09:15	ICPMS204-B_140923B : 43		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** FC-CFR

**Lab ID:** H14090349-003

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/16/14 13:00

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	16	mg/L		1		E200.7	09/23/14 11:54 / sld	09/22/14 09:15	ICP2-HE_140923A : 36		26241
Mercury	0.000058	mg/L		5E-06		E245.1	09/25/14 12:01 / rgk	09/24/14 12:42	HGCV202-H_140925A : 13		26305
Zinc	ND	mg/L		0.008		E200.8	09/24/14 00:58 / dck	09/22/14 09:15	ICPMS204-B_140923B : 43		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR duplicate  
**Lab ID:** H14090349-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 13:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	09/19/14 11:32 / SR		I24 (14410200)_140919B : 11		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	190	mg/L		4		A2320 B	09/22/14 12:07 / SR		PHSC_101-H_140922A : 43		R100747
Bicarbonate as HCO <sub>3</sub>	220	mg/L		4		A2320 B	09/22/14 12:07 / SR		PHSC_101-H_140922A : 43		R100747
Chloride	4	mg/L		1		E300.0	09/19/14 13:03 / SR		IC102-H_140919A : 24		R100741
Sulfate	19	mg/L		1		E300.0	09/19/14 13:03 / SR		IC102-H_140919A : 24		R100741
Hardness as CaCO <sub>3</sub>	192	mg/L		1		A2340 B	09/24/14 17:32 / sld		WATERCALC_140924A : 5		R100845
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.9	mg/L		0.5		A5310 C	09/23/14 17:22 / eli-c		SUB-C191469 : 9		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:02 / cm		FIA203-HE_140929B : 24		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:51 / cm		FIA203-HE_140922B : 37		R100767
Nitrogen, Total	0.08	mg/L		0.05		A4500 N-C	09/24/14 11:31 / cm	09/23/14 07:47	FIA203-HE_140924A : 77		26265
Phosphorus, Total as P	0.046	mg/L		0.005		E365.1	09/23/14 10:48 / cm	09/22/14 16:43	FIA202-HE_140923B : 32		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.008	mg/L		0.001		E200.8	09/24/14 01:03 / dck		ICPMS204-B_140923B : 44		R100819
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 01:03 / dck		ICPMS204-B_140923B : 44		R100819
Copper	ND	mg/L		0.001		E200.8	09/24/14 01:03 / dck		ICPMS204-B_140923B : 44		R100819
Lead	ND	mg/L		0.0003		E200.8	09/24/14 01:03 / dck		ICPMS204-B_140923B : 44		R100819
Zinc	ND	mg/L		0.008		E200.8	09/24/14 01:03 / dck		ICPMS204-B_140923B : 44		R100819
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.008	mg/L		0.001		E200.8	09/24/14 01:07 / dck	09/22/14 09:15	ICPMS204-B_140923B : 45		26241
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 01:07 / dck	09/22/14 09:15	ICPMS204-B_140923B : 45		26241
Calcium	51	mg/L		1		E200.7	09/23/14 11:57 / sld	09/22/14 09:15	ICP2-HE_140923A : 37		26241
Copper	0.002	mg/L		0.001		E200.8	09/24/14 01:07 / dck	09/22/14 09:15	ICPMS204-B_140923B : 45		26241
Lead	0.0009	mg/L		0.0003		E200.8	09/24/14 01:07 / dck	09/22/14 09:15	ICPMS204-B_140923B : 45		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR duplicate  
**Lab ID:** H14090349-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 13:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	16	mg/L		1		E200.7	09/23/14 11:57 / sld	09/22/14 09:15	ICP2-HE_140923A : 37		26241
Mercury	0.000038	mg/L		5E-06		E245.1	09/25/14 12:06 / rgk	09/24/14 12:42	HGCV202-H_140925A : 14		26305
Zinc	ND	mg/L		0.008		E200.8	09/24/14 01:07 / dck	09/22/14 09:15	ICPMS204-B_140923B : 45		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02  
**Lab ID:** H14090349-005  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 14:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	1	mg/L		1		A2540 D	09/19/14 11:32 / SR		I24 (14410200)_140919B : 12		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	09/22/14 12:14 / SR		PHSC_101-H_140922A : 45		R100747
Bicarbonate as HCO <sub>3</sub>	150	mg/L		4		A2320 B	09/22/14 12:14 / SR		PHSC_101-H_140922A : 45		R100747
Chloride	2	mg/L		1		E300.0	09/19/14 13:14 / SR		IC102-H_140919A : 25		R100741
Sulfate	10	mg/L		1		E300.0	09/19/14 13:14 / SR		IC102-H_140919A : 25		R100741
Hardness as CaCO <sub>3</sub>	128	mg/L		1		A2340 B	09/23/14 12:01 / abb		CALC_140929B : 58		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.0	mg/L		0.5		A5310 C	09/23/14 17:36 / eli-c		SUB-C191469 : 10		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:03 / cm		FIA203-HE_140929B : 25		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:53 / cm		FIA203-HE_140922B : 38		R100767
Nitrogen, Total	0.08	mg/L		0.05		A4500 N-C	09/24/14 11:32 / cm	09/23/14 07:47	FIA203-HE_140924A : 78		26265
Phosphorus, Total as P	0.019	mg/L		0.005		E365.1	09/23/14 10:49 / cm	09/22/14 16:43	FIA202-HE_140923B : 33		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.005	mg/L		0.001		E200.8	09/24/14 23:00 / dck		ICPMS204-B_140924A : 66		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 23:00 / dck		ICPMS204-B_140924A : 66		R100883
Copper	ND	mg/L		0.001		E200.8	09/24/14 23:00 / dck		ICPMS204-B_140924A : 66		R100883
Lead	ND	mg/L		0.0003		E200.8	09/24/14 23:00 / dck		ICPMS204-B_140924A : 66		R100883
Zinc	ND	mg/L		0.008		E200.8	09/24/14 23:00 / dck		ICPMS204-B_140924A : 66		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.005	mg/L		0.001		E200.8	09/24/14 23:04 / dck	09/22/14 09:15	ICPMS204-B_140924A : 67		26241
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 23:04 / dck	09/22/14 09:15	ICPMS204-B_140924A : 67		26241
Calcium	37	mg/L		1		E200.7	09/23/14 12:01 / sld	09/22/14 09:15	ICP2-HE_140923A : 38		26241
Copper	ND	mg/L		0.001		E200.8	09/24/14 23:04 / dck	09/22/14 09:15	ICPMS204-B_140924A : 67		26241
Lead	ND	mg/L		0.0003		E200.8	09/24/14 23:04 / dck	09/22/14 09:15	ICPMS204-B_140924A : 67		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** LBR-CFR-02

**Lab ID:** H14090349-005

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/16/14 14:30

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	09/23/14 12:01 / sld	09/22/14 09:15	ICP2-HE_140923A : 38		26241
Zinc	ND	mg/L		0.008		E200.8	09/24/14 23:04 / dck	09/22/14 09:15	ICPMS204-B_140924A : 67		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H  
**Lab ID:** H14090349-006  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 16:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	09/19/14 11:32 / SR		I24 (14410200)_140919B : 13		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	09/22/14 12:20 / SR		PHSC_101-H_140922A : 47		R100747
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	09/22/14 12:20 / SR		PHSC_101-H_140922A : 47		R100747
Chloride	8	mg/L		1		E300.0	09/19/14 13:25 / SR		IC102-H_140919A : 26		R100741
Sulfate	63	mg/L		1		E300.0	09/19/14 13:25 / SR		IC102-H_140919A : 26		R100741
Hardness as CaCO <sub>3</sub>	188	mg/L		1		A2340 B	09/23/14 12:05 / abb		CALC_140929B : 69		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.3	mg/L		0.5		A5310 C	09/23/14 17:52 / eli-c		SUB-C191469 : 11		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:04 / cm		FIA203-HE_140929B : 26		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:54 / cm		FIA203-HE_140922B : 39		R100767
Nitrogen, Total	0.32	mg/L		0.05		A4500 N-C	09/24/14 11:33 / cm	09/23/14 07:47	FIA203-HE_140924A : 79		26265
Phosphorus, Total as P	0.028	mg/L		0.005		E365.1	09/23/14 10:50 / cm	09/22/14 16:43	FIA202-HE_140923B : 34		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.018	mg/L		0.001		E200.8	09/24/14 23:09 / dck		ICPMS204-B_140924A : 68		R100883
Cadmium	0.00003	mg/L		0.00003		E200.8	09/24/14 23:09 / dck		ICPMS204-B_140924A : 68		R100883
Copper	0.007	mg/L		0.001		E200.8	09/24/14 23:09 / dck		ICPMS204-B_140924A : 68		R100883
Lead	ND	mg/L		0.0003		E200.8	09/24/14 23:09 / dck		ICPMS204-B_140924A : 68		R100883
Zinc	ND	mg/L		0.008		E200.8	09/24/14 23:09 / dck		ICPMS204-B_140924A : 68		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	09/24/14 23:13 / dck	09/22/14 09:15	ICPMS204-B_140924A : 69		26241
Cadmium	0.00009	mg/L		0.00003		E200.8	09/24/14 23:13 / dck	09/22/14 09:15	ICPMS204-B_140924A : 69		26241
Calcium	54	mg/L		1		E200.7	09/23/14 12:05 / sld	09/22/14 09:15	ICP2-HE_140923A : 39		26241
Copper	0.019	mg/L		0.001		E200.8	09/24/14 23:13 / dck	09/22/14 09:15	ICPMS204-B_140924A : 69		26241
Lead	0.0018	mg/L		0.0003		E200.8	09/24/14 23:13 / dck	09/22/14 09:15	ICPMS204-B_140924A : 69		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-27H

**Lab ID:** H14090349-006

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/16/14 16:30

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	13	mg/L		1		E200.7	09/23/14 12:05 / sld	09/22/14 09:15	ICP2-HE_140923A : 39		26241
Zinc	0.015	mg/L		0.008		E200.8	09/24/14 23:13 / dck	09/22/14 09:15	ICPMS204-B_140924A : 69		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F  
**Lab ID:** H14090349-007  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 17:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/19/14 11:33 / SR		I24 (14410200)_140919B : 16		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	120	mg/L		4		A2320 B	09/22/14 12:26 / SR		PHSC_101-H_140922A : 49		R100747
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	09/22/14 12:26 / SR		PHSC_101-H_140922A : 49		R100747
Chloride	9	mg/L		1		E300.0	09/19/14 13:36 / SR		IC102-H_140919A : 27		R100741
Sulfate	79	mg/L		1		E300.0	09/19/14 13:36 / SR		IC102-H_140919A : 27		R100741
Hardness as CaCO <sub>3</sub>	204	mg/L		1		A2340 B	09/23/14 12:09 / abb		CALC_140929B : 80		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.7	mg/L		0.5		A5310 C	09/23/14 18:09 / eli-c		SUB-C191469 : 12		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:05 / cm		FIA203-HE_140929B : 27		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:55 / cm		FIA203-HE_140922B : 40		R100767
Nitrogen, Total	0.25	mg/L		0.05		A4500 N-C	09/24/14 11:34 / cm	09/23/14 07:47	FIA203-HE_140924A : 80		26265
Phosphorus, Total as P	0.037	mg/L		0.005		E365.1	09/23/14 10:51 / cm	09/22/14 16:43	FIA202-HE_140923B : 35		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.021	mg/L		0.001		E200.8	09/24/14 23:17 / dck		ICPMS204-B_140924A : 70		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/24/14 23:17 / dck		ICPMS204-B_140924A : 70		R100883
Copper	0.005	mg/L		0.001		E200.8	09/24/14 23:17 / dck		ICPMS204-B_140924A : 70		R100883
Lead	ND	mg/L		0.0003		E200.8	09/24/14 23:17 / dck		ICPMS204-B_140924A : 70		R100883
Zinc	ND	mg/L		0.008		E200.8	09/24/14 23:17 / dck		ICPMS204-B_140924A : 70		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	09/24/14 23:35 / dck	09/22/14 09:15	ICPMS204-B_140924A : 74		26241
Cadmium	0.00005	mg/L		0.00003		E200.8	09/24/14 23:35 / dck	09/22/14 09:15	ICPMS204-B_140924A : 74		26241
Calcium	58	mg/L		1		E200.7	09/23/14 12:09 / sld	09/22/14 09:15	ICP2-HE_140923A : 40		26241
Copper	0.008	mg/L		0.001		E200.8	09/24/14 23:35 / dck	09/22/14 09:15	ICPMS204-B_140924A : 74		26241
Lead	0.0005	mg/L		0.0003		E200.8	09/24/14 23:35 / dck	09/22/14 09:15	ICPMS204-B_140924A : 74		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-11F

**Lab ID:** H14090349-007

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/16/14 17:30

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	15	mg/L		1		E200.7	09/23/14 12:09 / sld	09/22/14 09:15	ICP2-HE_140923A : 40		26241
Zinc	ND	mg/L		0.008		E200.8	09/24/14 23:35 / dck	09/22/14 09:15	ICPMS204-B_140924A : 74		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-07D  
**Lab ID:** H14090349-008  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 09:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/19/14 11:34 / SR		I24 (14410200)_140919B : 17		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	120	mg/L		4		A2320 B	09/22/14 12:32 / SR		PHSC_101-H_140922A : 51		R100747
Bicarbonate as HCO <sub>3</sub>	140	mg/L		4		A2320 B	09/22/14 12:32 / SR		PHSC_101-H_140922A : 51		R100747
Chloride	9	mg/L		1		E300.0	09/19/14 13:48 / SR		IC102-H_140919A : 28		R100741
Sulfate	78	mg/L		1		E300.0	09/19/14 13:48 / SR		IC102-H_140919A : 28		R100741
Hardness as CaCO <sub>3</sub>	194	mg/L		1		A2340 B	09/23/14 12:31 / abb		CALC_140929B : 91		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.8	mg/L		0.5		A5310 C	09/23/14 18:25 / eli-c		SUB-C191469 : 13		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:09 / cm		FIA203-HE_140929B : 30		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 11:59 / cm		FIA203-HE_140922B : 43		R100767
Nitrogen, Total	0.17	mg/L		0.05		A4500 N-C	09/24/14 11:36 / cm	09/23/14 07:47	FIA203-HE_140924A : 81		26265
Phosphorus, Total as P	0.035	mg/L		0.005		E365.1	09/23/14 10:52 / cm	09/22/14 16:43	FIA202-HE_140923B : 36		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.020	mg/L		0.001		E200.8	09/24/14 23:57 / dck		ICPMS204-B_140924A : 79		R100883
Cadmium	0.00003	mg/L		0.00003		E200.8	09/24/14 23:57 / dck		ICPMS204-B_140924A : 79		R100883
Copper	0.005	mg/L		0.001		E200.8	09/24/14 23:57 / dck		ICPMS204-B_140924A : 79		R100883
Lead	ND	mg/L		0.0003		E200.8	09/24/14 23:57 / dck		ICPMS204-B_140924A : 79		R100883
Zinc	ND	mg/L		0.008		E200.8	09/24/14 23:57 / dck		ICPMS204-B_140924A : 79		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	09/25/14 00:01 / dck	09/22/14 09:15	ICPMS204-B_140924A : 80		26241
Cadmium	0.00005	mg/L		0.00003		E200.8	09/25/14 00:01 / dck	09/22/14 09:15	ICPMS204-B_140924A : 80		26241
Calcium	55	mg/L		1		E200.7	09/23/14 12:31 / sld	09/22/14 09:15	ICP2-HE_140923A : 46		26241
Copper	0.007	mg/L		0.001		E200.8	09/25/14 00:01 / dck	09/22/14 09:15	ICPMS204-B_140924A : 80		26241
Lead	0.0005	mg/L		0.0003		E200.8	09/25/14 00:01 / dck	09/22/14 09:15	ICPMS204-B_140924A : 80		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-07D

**Lab ID:** H14090349-008

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/17/14 09:15

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	14	mg/L		1		E200.7	09/23/14 12:31 / sld	09/22/14 09:15	ICP2-HE_140923A : 46		26241
Zinc	ND	mg/L		0.008		E200.8	09/25/14 00:01 / dck	09/22/14 09:15	ICPMS204-B_140924A : 80		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A  
**Lab ID:** H14090349-009  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 10:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	1	mg/L		1		A2540 D	09/19/14 11:34 / SR		I24 (14410200)_140919B : 18		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	110	mg/L		4		A2320 B	09/22/14 12:39 / SR		PHSC_101-H_140922A : 53		R100747
Bicarbonate as HCO <sub>3</sub>	110	mg/L		4		A2320 B	09/22/14 12:39 / SR		PHSC_101-H_140922A : 53		R100747
Chloride	10	mg/L		1		E300.0	09/19/14 14:21 / SR		IC102-H_140919A : 31		R100741
Sulfate	69	mg/L		1		E300.0	09/19/14 14:21 / SR		IC102-H_140919A : 31		R100741
Hardness as CaCO <sub>3</sub>	172	mg/L		1		A2340 B	09/23/14 12:35 / abb		CALC_140929B : 102		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.9	mg/L		0.5		A5310 C	09/23/14 18:40 / eli-c		SUB-C191469 : 14		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:10 / cm		FIA203-HE_140929B : 31		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 12:02 / cm		FIA203-HE_140922B : 46		R100767
Nitrogen, Total	0.22	mg/L		0.05		A4500 N-C	09/24/14 11:39 / cm	09/23/14 07:47	FIA203-HE_140924A : 84		26265
Phosphorus, Total as P	0.044	mg/L		0.005		E365.1	09/23/14 10:54 / cm	09/22/14 16:43	FIA202-HE_140923B : 37		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.021	mg/L		0.001		E200.8	09/25/14 00:05 / dck		ICPMS204-B_140924A : 81		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 00:05 / dck		ICPMS204-B_140924A : 81		R100883
Copper	0.004	mg/L		0.001		E200.8	09/25/14 00:05 / dck		ICPMS204-B_140924A : 81		R100883
Lead	ND	mg/L		0.0003		E200.8	09/25/14 00:05 / dck		ICPMS204-B_140924A : 81		R100883
Zinc	ND	mg/L		0.008		E200.8	09/25/14 00:05 / dck		ICPMS204-B_140924A : 81		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	09/25/14 00:10 / dck	09/22/14 09:15	ICPMS204-B_140924A : 82		26241
Cadmium	0.00004	mg/L		0.00003		E200.8	09/25/14 00:10 / dck	09/22/14 09:15	ICPMS204-B_140924A : 82		26241
Calcium	49	mg/L		1		E200.7	09/23/14 12:35 / sld	09/22/14 09:15	ICP2-HE_140923A : 47		26241
Copper	0.005	mg/L		0.001		E200.8	09/25/14 00:10 / dck	09/22/14 09:15	ICPMS204-B_140924A : 82		26241
Lead	0.0003	mg/L		0.0003		E200.8	09/25/14 00:10 / dck	09/22/14 09:15	ICPMS204-B_140924A : 82		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-03A

**Lab ID:** H14090349-009

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/17/14 10:30

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	12	mg/L		1		E200.7	09/23/14 12:35 / sld	09/22/14 09:15	ICP2-HE_140923A : 47		26241
Zinc	ND	mg/L		0.008		E200.8	09/27/14 00:51 / dck	09/22/14 09:15	ICPMS204-B_140926B : 31		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14090349-010  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 11:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/19/14 11:34 / SR		I24 (14410200)_140919B : 19		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	09/22/14 12:45 / SR		PHSC_101-H_140922A : 55		R100747
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	09/22/14 12:45 / SR		PHSC_101-H_140922A : 55		R100747
Chloride	1	mg/L		1		E300.0	09/19/14 14:54 / SR		IC102-H_140919A : 34		R100741
Sulfate	38	mg/L		1		E300.0	09/19/14 14:54 / SR		IC102-H_140919A : 34		R100741
Hardness as CaCO <sub>3</sub>	178	mg/L		1		A2340 B	09/23/14 12:39 / abb		CALC_140929B : 113		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.5	mg/L		0.5		A5310 C	09/23/14 18:56 / eli-c		SUB-C191469 : 15		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:11 / cm		FIA203-HE_140929B : 32		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 12:03 / cm		FIA203-HE_140922B : 47		R100767
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/24/14 11:43 / cm	09/23/14 07:47	FIA203-HE_140924A : 87		26265
Phosphorus, Total as P	0.008	mg/L		0.005		E365.1	09/23/14 10:55 / cm	09/22/14 16:43	FIA202-HE_140923B : 38		26261
<b>METALS, DISSOLVED</b>											
Arsenic	0.007	mg/L		0.001		E200.8	09/25/14 00:14 / dck		ICPMS204-B_140924A : 83		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 00:14 / dck		ICPMS204-B_140924A : 83		R100883
Copper	0.003	mg/L		0.001		E200.8	09/25/14 00:14 / dck		ICPMS204-B_140924A : 83		R100883
Lead	ND	mg/L		0.0003		E200.8	09/25/14 00:14 / dck		ICPMS204-B_140924A : 83		R100883
Zinc	ND	mg/L		0.008		E200.8	09/25/14 00:14 / dck		ICPMS204-B_140924A : 83		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.008	mg/L		0.001		E200.8	09/25/14 00:19 / dck	09/22/14 09:15	ICPMS204-B_140924A : 84		26241
Cadmium	0.00004	mg/L		0.00003		E200.8	09/25/14 00:19 / dck	09/22/14 09:15	ICPMS204-B_140924A : 84		26241
Calcium	53	mg/L		1		E200.7	09/23/14 12:39 / sld	09/22/14 09:15	ICP2-HE_140923A : 48		26241
Copper	0.006	mg/L		0.001		E200.8	09/25/14 00:19 / dck	09/22/14 09:15	ICPMS204-B_140924A : 84		26241
Lead	ND	mg/L		0.0003		E200.8	09/25/14 00:19 / dck	09/22/14 09:15	ICPMS204-B_140924A : 84		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** WSC-SBC

**Lab ID:** H14090349-010

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/17/14 11:15

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	11	mg/L		1		E200.7	09/23/14 12:39 / sld	09/22/14 09:15	ICP2-HE_140923A : 48		26241
Zinc	ND	mg/L		0.008		E200.8	09/25/14 00:19 / dck	09/22/14 09:15	ICPMS204-B_140924A : 84		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SS-25  
**Lab ID:** H14090349-011  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 12:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	1	mg/L		1		A2540 D	09/19/14 11:35 / SR		I24 (14410200)_140919B : 20		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	89	mg/L		4		A2320 B	09/22/14 12:50 / SR		PHSC_101-H_140922A : 57		R100747
Bicarbonate as HCO <sub>3</sub>	68	mg/L		4		A2320 B	09/22/14 12:50 / SR		PHSC_101-H_140922A : 57		R100747
Chloride	14	mg/L		1		E300.0	09/19/14 15:05 / SR		IC102-H_140919A : 35		R100741
Sulfate	83	mg/L		1		E300.0	09/19/14 15:05 / SR		IC102-H_140919A : 35		R100741
Hardness as CaCO <sub>3</sub>	165	mg/L		1		A2340 B	09/23/14 12:42 / abb		CALC_140929B : 124		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	4.9	mg/L		0.5		A5310 C	09/23/14 19:52 / eli-c		SUB-C191469 : 17		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:13 / cm		FIA203-HE_140929B : 33		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 12:05 / cm		FIA203-HE_140922B : 48		R100767
Nitrogen, Total	0.27	mg/L		0.05		A4500 N-C	09/24/14 11:44 / cm	09/23/14 07:47	FIA203-HE_140924A : 88		26265
Phosphorus, Total as P	0.067	mg/L		0.005		E365.1	09/23/14 11:00 / cm	09/22/14 16:45	FIA202-HE_140923B : 43		26262
<b>METALS, DISSOLVED</b>											
Arsenic	0.028	mg/L		0.001		E200.8	09/25/14 00:37 / dck		ICPMS204-B_140924A : 88		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 00:37 / dck		ICPMS204-B_140924A : 88		R100883
Copper	0.003	mg/L		0.001		E200.8	09/25/14 00:37 / dck		ICPMS204-B_140924A : 88		R100883
Lead	ND	mg/L		0.0003		E200.8	09/25/14 00:37 / dck		ICPMS204-B_140924A : 88		R100883
Zinc	ND	mg/L		0.008		E200.8	09/25/14 00:37 / dck		ICPMS204-B_140924A : 88		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.029	mg/L		0.001		E200.8	09/25/14 00:54 / dck	09/22/14 09:15	ICPMS204-B_140924A : 92		26241
Cadmium	ND	mg/L	D	0.00004		E200.8	09/25/14 00:54 / dck	09/22/14 09:15	ICPMS204-B_140924A : 92		26241
Calcium	46	mg/L		1		E200.7	09/23/14 12:42 / sld	09/22/14 09:15	ICP2-HE_140923A : 49		26241
Copper	0.004	mg/L		0.001		E200.8	09/25/14 00:54 / dck	09/22/14 09:15	ICPMS204-B_140924A : 92		26241
Lead	0.0004	mg/L		0.0003		E200.8	09/25/14 00:54 / dck	09/22/14 09:15	ICPMS204-B_140924A : 92		26241

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund

**Client Sample ID:** SS-25

**Lab ID:** H14090349-011

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/17/14 12:30

**Date Received:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	12	mg/L		1		E200.7	09/23/14 12:42 / sld	09/22/14 09:15	ICP2-HE_140923A : 49		26241
Zinc	ND	mg/L		0.008		E200.8	09/25/14 00:54 / dck	09/22/14 09:15	ICPMS204-B_140924A : 92		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14090349-012  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 13:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/19/14 11:35 / SR		I24 (14410200)_140919B : 21		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	99	mg/L		4		A2320 B	09/22/14 12:56 / SR		PHSC_101-H_140922A : 59		R100747
Bicarbonate as HCO <sub>3</sub>	110	mg/L		4		A2320 B	09/22/14 12:56 / SR		PHSC_101-H_140922A : 59		R100747
Chloride	4	mg/L		1		E300.0	09/19/14 15:16 / SR		IC102-H_140919A : 36		R100741
Sulfate	100	mg/L		1		E300.0	09/19/14 15:16 / SR		IC102-H_140919A : 36		R100741
Hardness as CaCO <sub>3</sub>	200	mg/L		1		A2340 B	09/23/14 12:46 / abb		CALC_140929B : 135		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.2	mg/L		0.5		A5310 C	09/23/14 20:43 / eli-c		SUB-C191469 : 20		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:14 / cm		FIA203-HE_140929B : 34		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 12:06 / cm		FIA203-HE_140922B : 49		R100767
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/24/14 11:45 / cm	09/23/14 07:47	FIA203-HE_140924A : 89		26265
Phosphorus, Total as P	0.014	mg/L		0.005		E365.1	09/23/14 11:01 / cm	09/22/14 16:45	FIA202-HE_140923B : 44		26262
<b>METALS, DISSOLVED</b>											
Arsenic	0.019	mg/L		0.001		E200.8	09/25/14 00:59 / dck		ICPMS204-B_140924A : 93		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 00:59 / dck		ICPMS204-B_140924A : 93		R100883
Copper	0.002	mg/L		0.001		E200.8	09/25/14 00:59 / dck		ICPMS204-B_140924A : 93		R100883
Lead	ND	mg/L		0.0003		E200.8	09/25/14 00:59 / dck		ICPMS204-B_140924A : 93		R100883
Zinc	ND	mg/L		0.008		E200.8	09/25/14 00:59 / dck		ICPMS204-B_140924A : 93		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.021	mg/L		0.001		E200.8	09/25/14 01:03 / dck	09/22/14 09:15	ICPMS204-B_140924A : 94		26241
Cadmium	0.00004	mg/L		0.00003		E200.8	09/25/14 01:03 / dck	09/22/14 09:15	ICPMS204-B_140924A : 94		26241
Calcium	58	mg/L		1		E200.7	09/23/14 12:46 / sld	09/22/14 09:15	ICP2-HE_140923A : 50		26241
Copper	0.003	mg/L		0.001		E200.8	09/25/14 01:03 / dck	09/22/14 09:15	ICPMS204-B_140924A : 94		26241
Lead	0.0004	mg/L		0.0003		E200.8	09/25/14 01:03 / dck	09/22/14 09:15	ICPMS204-B_140924A : 94		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14090349-012  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 13:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	14	mg/L		1		E200.7	09/23/14 12:46 / sld	09/22/14 09:15	ICP2-HE_140923A : 50		26241
Zinc	ND	mg/L		0.008		E200.8	09/25/14 01:03 / dck	09/22/14 09:15	ICPMS204-B_140924A : 94		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14090349-013  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 14:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	09/19/14 11:35 / SR		I24 (14410200)_140919B : 22		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	09/22/14 13:02 / SR		PHSC_101-H_140922A : 61		R100747
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	09/22/14 13:02 / SR		PHSC_101-H_140922A : 61		R100747
Chloride	ND	mg/L		1		E300.0	09/19/14 15:28 / SR		IC102-H_140919A : 37		R100741
Sulfate	ND	mg/L		1		E300.0	09/19/14 15:28 / SR		IC102-H_140919A : 37		R100741
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	09/30/14 07:56 / sld		WATERCALC_140930A : 1		R100959
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	ND	mg/L		0.5		A5310 C	09/23/14 20:59 / eli-c		SUB-C191469 : 21		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:15 / cm		FIA203-HE_140929B : 35		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 12:07 / cm		FIA203-HE_140922B : 50		R100767
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/24/14 11:46 / cm	09/23/14 07:47	FIA203-HE_140924A : 90		26265
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	09/23/14 11:02 / cm	09/22/14 16:45	FIA202-HE_140923B : 45		26262
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	09/25/14 01:07 / dck		ICPMS204-B_140924A : 95		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 01:07 / dck		ICPMS204-B_140924A : 95		R100883
Copper	ND	mg/L		0.001		E200.8	09/25/14 01:07 / dck		ICPMS204-B_140924A : 95		R100883
Lead	ND	mg/L		0.0003		E200.8	09/25/14 01:07 / dck		ICPMS204-B_140924A : 95		R100883
Zinc	0.012	mg/L		0.008		E200.8	09/25/14 01:07 / dck		ICPMS204-B_140924A : 95		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	09/25/14 01:12 / dck	09/22/14 09:15	ICPMS204-B_140924A : 96		26241
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 01:12 / dck	09/22/14 09:15	ICPMS204-B_140924A : 96		26241
Calcium	ND	mg/L		1		E200.7	09/23/14 12:50 / sld	09/22/14 09:15	ICP2-HE_140923A : 51		26241
Copper	ND	mg/L		0.001		E200.8	09/25/14 01:12 / dck	09/22/14 09:15	ICPMS204-B_140924A : 96		26241
Lead	ND	mg/L		0.0003		E200.8	09/25/14 01:12 / dck	09/22/14 09:15	ICPMS204-B_140924A : 96		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #2

**Lab ID:** H14090349-013

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/17/14 14:15

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	09/23/14 12:50 / sld	09/22/14 09:15	ICP2-HE_140923A : 51		26241
Zinc	ND	mg/L		0.008		E200.8	09/25/14 01:12 / dck	09/22/14 09:15	ICPMS204-B_140924A : 96		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14090349-014  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 14:45 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/19/14 11:36 / SR		I24 (14410200)_140919B : 23		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	83	mg/L		4		A2320 B	09/22/14 13:06 / SR		PHSC_101-H_140922A : 63		R100747
Bicarbonate as HCO <sub>3</sub>	100	mg/L		4		A2320 B	09/22/14 13:06 / SR		PHSC_101-H_140922A : 63		R100747
Chloride	1	mg/L		1		E300.0	09/19/14 15:39 / SR		IC102-H_140919A : 38		R100741
Sulfate	15	mg/L		1		E300.0	09/19/14 15:39 / SR		IC102-H_140919A : 38		R100741
Hardness as CaCO <sub>3</sub>	94	mg/L		1		A2340 B	09/23/14 12:54 / abb		CALC_140929B : 157		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.9	mg/L		0.5		A5310 C	09/23/14 21:18 / eli-c		SUB-C191469 : 22		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:16 / cm		FIA203-HE_140929B : 36		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 12:08 / cm		FIA203-HE_140922B : 51		R100767
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/24/14 11:48 / cm	09/23/14 07:47	FIA203-HE_140924A : 91		26265
Phosphorus, Total as P	0.018	mg/L		0.005		E365.1	09/23/14 11:03 / cm	09/22/14 16:45	FIA202-HE_140923B : 46		26262
<b>METALS, DISSOLVED</b>											
Arsenic	0.019	mg/L		0.001		E200.8	09/25/14 01:16 / dck		ICPMS204-B_140924A : 97		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 01:16 / dck		ICPMS204-B_140924A : 97		R100883
Copper	0.002	mg/L		0.001		E200.8	09/25/14 01:16 / dck		ICPMS204-B_140924A : 97		R100883
Lead	ND	mg/L		0.0003		E200.8	09/25/14 01:16 / dck		ICPMS204-B_140924A : 97		R100883
Zinc	ND	mg/L		0.008		E200.8	09/25/14 01:16 / dck		ICPMS204-B_140924A : 97		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	09/25/14 01:21 / dck	09/22/14 09:15	ICPMS204-B_140924A : 98		26241
Cadmium	0.00004	mg/L		0.00003		E200.8	09/25/14 01:21 / dck	09/22/14 09:15	ICPMS204-B_140924A : 98		26241
Calcium	26	mg/L		1		E200.7	09/23/14 12:54 / sld	09/22/14 09:15	ICP2-HE_140923A : 52		26241
Copper	0.004	mg/L		0.001		E200.8	09/25/14 01:21 / dck	09/22/14 09:15	ICPMS204-B_140924A : 98		26241
Lead	0.0008	mg/L		0.0003		E200.8	09/25/14 01:21 / dck	09/22/14 09:15	ICPMS204-B_140924A : 98		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** MCWC-MWB

**Lab ID:** H14090349-014

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/17/14 14:45

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	09/23/14 12:54 / sld	09/22/14 09:15	ICP2-HE_140923A : 52		26241
Zinc	ND	mg/L		0.008		E200.8	09/25/14 01:21 / dck	09/22/14 09:15	ICPMS204-B_140924A : 98		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB duplicate  
**Lab ID:** H14090349-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 14:45 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/19/14 11:36 / SR		I24 (14410200)_140919B : 24		TSS140919A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	84	mg/L		4		A2320 B	09/22/14 13:11 / SR		PHSC_101-H_140922A : 65		R100747
Bicarbonate as HCO <sub>3</sub>	100	mg/L		4		A2320 B	09/22/14 13:11 / SR		PHSC_101-H_140922A : 65		R100747
Chloride	1	mg/L		1		E300.0	09/19/14 15:50 / SR		IC102-H_140919A : 39		R100741
Sulfate	15	mg/L		1		E300.0	09/19/14 15:50 / SR		IC102-H_140919A : 39		R100741
Hardness as CaCO <sub>3</sub>	93	mg/L		1		A2340 B	09/23/14 12:58 / abb		CALC_140929B : 168		R100951
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.8	mg/L		0.5		A5310 C	09/23/14 21:34 / eli-c		SUB-C191469 : 23		C_R191469
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/29/14 11:17 / cm		FIA203-HE_140929B : 37		R100946
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	09/22/14 12:09 / cm		FIA203-HE_140922B : 52		R100767
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/24/14 11:49 / cm	09/23/14 07:47	FIA203-HE_140924A : 92		26265
Phosphorus, Total as P	0.017	mg/L		0.005		E365.1	09/23/14 11:04 / cm	09/22/14 16:45	FIA202-HE_140923B : 47		26262
<b>METALS, DISSOLVED</b>											
Arsenic	0.018	mg/L		0.001		E200.8	09/25/14 01:39 / dck		ICPMS204-B_140924A : 102		R100883
Cadmium	ND	mg/L		0.00003		E200.8	09/25/14 01:39 / dck		ICPMS204-B_140924A : 102		R100883
Copper	0.002	mg/L		0.001		E200.8	09/25/14 01:39 / dck		ICPMS204-B_140924A : 102		R100883
Lead	ND	mg/L		0.0003		E200.8	09/25/14 01:39 / dck		ICPMS204-B_140924A : 102		R100883
Zinc	ND	mg/L		0.008		E200.8	09/25/14 01:39 / dck		ICPMS204-B_140924A : 102		R100883
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	09/25/14 01:43 / dck	09/22/14 09:15	ICPMS204-B_140924A : 103		26241
Cadmium	0.00005	mg/L		0.00003		E200.8	09/25/14 01:43 / dck	09/22/14 09:15	ICPMS204-B_140924A : 103		26241
Calcium	26	mg/L		1		E200.7	09/23/14 12:58 / sld	09/22/14 09:15	ICP2-HE_140923A : 53		26241
Copper	0.003	mg/L		0.001		E200.8	09/25/14 01:43 / dck	09/22/14 09:15	ICPMS204-B_140924A : 103		26241
Lead	0.0008	mg/L		0.0003		E200.8	09/25/14 01:43 / dck	09/22/14 09:15	ICPMS204-B_140924A : 103		26241

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB duplicate  
**Lab ID:** H14090349-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 14:45 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	7	mg/L		1		E200.7	09/23/14 12:58 / sld	09/22/14 09:15	ICP2-HE_140923A : 53		26241
Zinc	ND	mg/L		0.008		E200.8	09/25/14 01:43 / dck	09/22/14 09:15	ICPMS204-B_140924A : 103		26241

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-84F

**Lab ID:** H14090349-016

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 09/16/14 11:30

**DateReceived:** 09/18/14

**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Mercury	0.000020	mg/L		5E-06		E245.1	09/25/14 12:10 / rgk	09/24/14 12:42	HGCV202-H_140925A : 15		26305

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A Sediment Sieve <0.065mm  
**Lab ID:** H14090349-018  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 09:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	26.7	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 1		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	67.9	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 21		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	13	mg/kg		1		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 27		26481
Cadmium	1.3	mg/kg		0.2		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 27		26481
Copper	179	mg/kg		5		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 27		26481
Lead	39	mg/kg		5		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 27		26481
Zinc	299	mg/kg		5		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 27		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	39	mg/kg-dry		1		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 81		26481
Cadmium	3.9	mg/kg-dry		0.4		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 81		26481
Copper	557	mg/kg-dry		5		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 81		26481
Lead	120	mg/kg-dry		5		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 81		26481
Zinc	933	mg/kg-dry		10		SW6020	10/10/14 12:33 / dck	10/08/14 16:18	ICPMS204-B_141010A : 81		26481

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Sediment Sieve <0.065mm  
**Lab ID:** H14090349-019  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 13:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	34.0	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 2		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	72.6	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 22		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	32	mg/kg		1		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 28		26481
Cadmium	0.7	mg/kg		0.2		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 28		26481
Copper	24	mg/kg		5		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 28		26481
Lead	73	mg/kg		5		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 28		26481
Zinc	215	mg/kg		5		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 28		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	116	mg/kg-dry		1		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 82		26481
Cadmium	2.7	mg/kg-dry		0.5		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 82		26481
Copper	87	mg/kg-dry		5		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 82		26481
Lead	266	mg/kg-dry		5		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 82		26481
Zinc	785	mg/kg-dry		10		SW6020	10/10/14 12:38 / dck	10/08/14 16:18	ICPMS204-B_141010A : 82		26481

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR duplicate Sediment Sieve <0.065mm  
**Lab ID:** H14090349-020  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 13:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	30.2	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 3		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	74.4	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 24		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	29	mg/kg		1		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 29		26481
Cadmium	0.7	mg/kg		0.2		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 29		26481
Copper	22	mg/kg		5		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 29		26481
Lead	67	mg/kg		5		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 29		26481
Zinc	197	mg/kg		5		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 29		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	112	mg/kg-dry		1		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 83		26481
Cadmium	2.6	mg/kg-dry		0.5		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 83		26481
Copper	87	mg/kg-dry		5		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 83		26481
Lead	262	mg/kg-dry		5		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 83		26481
Zinc	770	mg/kg-dry		10		SW6020	10/10/14 12:42 / dck	10/08/14 16:18	ICPMS204-B_141010A : 83		26481

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02 Sediment Sieve <0.065mm  
**Lab ID:** H14090349-021  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 14:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	2.4	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 4		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	64.9	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 25		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	10	mg/kg		1		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 30		26481
Cadmium	0.7	mg/kg		0.2		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 30		26481
Copper	17	mg/kg		5		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 30		26481
Lead	26	mg/kg		5		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 30		26481
Zinc	75	mg/kg		5		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 30		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	29	mg/kg-dry		1		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 84		26481
Cadmium	2.0	mg/kg-dry		0.4		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 84		26481
Copper	47	mg/kg-dry		5		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 84		26481
Lead	74	mg/kg-dry		5		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 84		26481
Zinc	213	mg/kg-dry		10		SW6020	10/10/14 12:46 / dck	10/08/14 16:18	ICPMS204-B_141010A : 84		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H Sediment Sieve <0.065mm  
**Lab ID:** H14090349-022  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 16:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	1.2	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 5		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	47.5	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 26		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	53	mg/kg		1		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 31		26481
Cadmium	3.8	mg/kg		0.2		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 31		26481
Copper	692	mg/kg		5		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 31		26481
Lead	102	mg/kg		5		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 31		26481
Zinc	596	mg/kg		5		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 31		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	101	mg/kg-dry		1		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 85		26481
Cadmium	7.2	mg/kg-dry		0.3		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 85		26481
Copper	1320	mg/kg-dry		5		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 85		26481
Lead	194	mg/kg-dry		5		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 85		26481
Zinc	1140	mg/kg-dry		7		SW6020	10/10/14 12:51 / dck	10/08/14 16:18	ICPMS204-B_141010A : 85		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F Sediment Sieve <0.065mm  
**Lab ID:** H14090349-023  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/16/14 17:30 **Date Received:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	7.7	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 6		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	46.9	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 27		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	80	mg/kg		1		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 35		26481
Cadmium	2.3	mg/kg		0.2		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 35		26481
Copper	650	mg/kg		5		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 35		26481
Lead	115	mg/kg		5		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 35		26481
Zinc	511	mg/kg		5		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 35		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	151	mg/kg-dry		1		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 86		26481
Cadmium	4.4	mg/kg-dry		0.3		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 86		26481
Copper	1220	mg/kg-dry		5		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 86		26481
Lead	216	mg/kg-dry		5		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 86		26481
Zinc	963	mg/kg-dry		7		SW6020	10/10/14 13:08 / dck 10/08/14 16:18		ICPMS204-B_141010A : 86		26481

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-07D Sediment Sieve <0.065mm  
**Lab ID:** H14090349-024  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 09:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	3.5	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 7		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	53.9	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 28		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	89	mg/kg		1		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 36		26481
Cadmium	3.0	mg/kg		0.2		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 36		26481
Copper	873	mg/kg		5		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 36		26481
Lead	118	mg/kg		5		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 36		26481
Zinc	659	mg/kg		5		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 36		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	192	mg/kg-dry		1		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 87		26481
Cadmium	6.5	mg/kg-dry		0.3		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 87		26481
Copper	1890	mg/kg-dry		5		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 87		26481
Lead	255	mg/kg-dry		5		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 87		26481
Zinc	1430	mg/kg-dry		8		SW6020	10/10/14 13:13 / dck 10/08/14 16:18		ICPMS204-B_141010A : 87		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A Sediment Sieve <0.065mm  
**Lab ID:** H14090349-025  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 10:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	6.9	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 8		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	66.5	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 29		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	64	mg/kg		1		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 37		26481
Cadmium	3.1	mg/kg		0.2		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 37		26481
Copper	660	mg/kg		5		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 37		26481
Lead	95	mg/kg		5		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 37		26481
Zinc	530	mg/kg		5		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 37		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	192	mg/kg-dry		1		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 88		26481
Cadmium	9.1	mg/kg-dry		0.5		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 88		26481
Copper	1970	mg/kg-dry		5		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 88		26481
Lead	283	mg/kg-dry		5		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 88		26481
Zinc	1580	mg/kg-dry		10		SW6020	10/10/14 13:17 / dck	10/08/14 16:18	ICPMS204-B_141010A : 88		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC Sediment Sieve <0.065mm  
**Lab ID:** H14090349-026  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 11:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	22.8	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 9		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	69.3	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 30		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	32	mg/kg		1		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 38		26481
Cadmium	1.4	mg/kg		0.2		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 38		26481
Copper	341	mg/kg		5		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 38		26481
Lead	41	mg/kg		5		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 38		26481
Zinc	169	mg/kg		5		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 38		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	105	mg/kg-dry		1		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 89		26481
Cadmium	4.7	mg/kg-dry		0.4		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 89		26481
Copper	1110	mg/kg-dry		5		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 89		26481
Lead	133	mg/kg-dry		5		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 89		26481
Zinc	550	mg/kg-dry		10		SW6020	10/10/14 13:21 / dck	10/08/14 16:18	ICPMS204-B_141010A : 89		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SS-25 Sediment Sieve <0.065mm  
**Lab ID:** H14090349-027  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 12:30 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	1.2	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 10		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	62.1	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 31		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	45	mg/kg		1		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 39		26481
Cadmium	3.0	mg/kg		0.2		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 39		26481
Copper	283	mg/kg		5		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 39		26481
Lead	126	mg/kg		5		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 39		26481
Zinc	976	mg/kg		5		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 39		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	119	mg/kg-dry		1		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 90		26481
Cadmium	7.9	mg/kg-dry		0.3		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 90		26481
Copper	748	mg/kg-dry		5		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 90		26481
Lead	332	mg/kg-dry		5		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 90		26481
Zinc	2580	mg/kg-dry		9		SW6020	10/10/14 13:26 / dck	10/08/14 16:18	ICPMS204-B_141010A : 90		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC Sediment Sieve <0.065mm  
**Lab ID:** H14090349-028  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 13:15 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	1.8	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 11		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	69.2	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 32		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	64	mg/kg		1		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 40		26481
Cadmium	2.5	mg/kg		0.2		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 40		26481
Copper	92	mg/kg		5		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 40		26481
Lead	47	mg/kg		5		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 40		26481
Zinc	309	mg/kg		5		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 40		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	209	mg/kg-dry		1		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 91		26481
Cadmium	8.1	mg/kg-dry		0.4		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 91		26481
Copper	300	mg/kg-dry		5		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 91		26481
Lead	153	mg/kg-dry		5		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 91		26481
Zinc	1000	mg/kg-dry		10		SW6020	10/10/14 13:30 / dck 10/08/14 16:18		ICPMS204-B_141010A : 91		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Sediment Sieve <0.065mm  
**Lab ID:** H14090349-029  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 14:45 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	3.5	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 12		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	70.9	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 34		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	41	mg/kg		1		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 41		26481
Cadmium	2.8	mg/kg		0.2		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 41		26481
Copper	118	mg/kg		5		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 41		26481
Lead	59	mg/kg		5		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 41		26481
Zinc	186	mg/kg		5		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 41		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	141	mg/kg-dry		1		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 92		26481
Cadmium	9.6	mg/kg-dry		0.5		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 92		26481
Copper	405	mg/kg-dry		5		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 92		26481
Lead	204	mg/kg-dry		5		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 92		26481
Zinc	640	mg/kg-dry		10		SW6020	10/10/14 13:35 / dck	10/08/14 16:18	ICPMS204-B_141010A : 92		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB duplicate Sediment Sieve <0.065mm  
**Lab ID:** H14090349-030  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 14:45 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	3.7	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 13		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	70.0	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 35		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	35	mg/kg		1		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 42		26481
Cadmium	2.5	mg/kg		0.2		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 42		26481
Copper	113	mg/kg		5		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 42		26481
Lead	57	mg/kg		5		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 42		26481
Zinc	188	mg/kg		5		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 42		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	118	mg/kg-dry		1		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 93		26481
Cadmium	8.5	mg/kg-dry		0.4		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 93		26481
Copper	377	mg/kg-dry		5		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 93		26481
Lead	189	mg/kg-dry		5		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 93		26481
Zinc	625	mg/kg-dry		10		SW6020	10/10/14 13:39 / dck 10/08/14 16:18		ICPMS204-B_141010A : 93		26481

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LC-7.5 Sediment Sieve <0.065mm  
**Lab ID:** H14090349-031  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 16:00 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	3.0	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 14		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	60.4	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 36		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	36	mg/kg		1		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 43		26481
Cadmium	1.0	mg/kg		0.2		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 43		26481
Copper	118	mg/kg		5		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 43		26481
Lead	59	mg/kg		5		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 43		26481
Zinc	149	mg/kg		5		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 43		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	91	mg/kg-dry		1		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 94		26481
Cadmium	2.5	mg/kg-dry		0.3		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 94		26481
Copper	298	mg/kg-dry		5		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 94		26481
Lead	149	mg/kg-dry		5		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 94		26481
Zinc	375	mg/kg-dry		9		SW6020	10/10/14 13:43 / dck	10/08/14 16:18	ICPMS204-B_141010A : 94		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** RTC-1.5 Sediment Sieve <0.065mm  
**Lab ID:** H14090349-032  
**Matrix:** Sediment

**Project:** CFR Monitoring-474374  
**Collection Date:** 09/17/14 16:45 **DateReceived:** 09/18/14  
**Report Date:** 10/24/14

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL CHARACTERISTICS</b>											
No. 230 Sieve	1.1	wt% Passed		0.1		ASA15-2	10/08/14 13:09 / edp		MISC SOILS_141008A : 15		R101298
<b>PHYSICAL CHARACTERISTICS</b>											
Moisture	64.1	wt%		0.2		D2974	10/13/14 13:57 / edp		RYING OVEN 2_141010A : 37		R101349
<b>3050 EXTRACTABLE METALS</b>											
Arsenic	11	mg/kg		1		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 48		26481
Cadmium	0.7	mg/kg		0.2		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 48		26481
Copper	39	mg/kg		5		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 48		26481
Lead	68	mg/kg		5		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 48		26481
Zinc	72	mg/kg		5		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 48		26481
<b>METAL, DRY WEIGHT</b>											
Arsenic	30	mg/kg-dry		1		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 95		26481
Cadmium	1.9	mg/kg-dry		0.4		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 95		26481
Copper	108	mg/kg-dry		5		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 95		26481
Lead	189	mg/kg-dry		5		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 95		26481
Zinc	201	mg/kg-dry		10		SW6020	10/10/14 14:01 / dck 10/08/14 16:18		ICPMS204-B_141010A : 95		26481

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 140925wa

Run ID :Run Order: <b>HGCV202-H_140925A: 1</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>09/25/14 11:11</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00021	0.00010	0.0002	0	<b>104</b>	90	110				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

Run ID :Run Order: <b>HGCV202-H_140925A: 2</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>			
Analysis Date: <b>09/25/14 11:15</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>100</b>	95	105				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

Run ID :Run Order: <b>HGCV202-H_140925A: 36</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>09/25/14 14:58</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>102</b>	90	110				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 140925wa

Run ID :Run Order: <b>HGCV202-H_140925A: 1</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>09/25/14 11:11</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00021	0.00010	0.0002	0	<b>104</b>	90	110				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

Run ID :Run Order: <b>HGCV202-H_140925A: 2</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>			
Analysis Date: <b>09/25/14 11:15</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>100</b>	95	105				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

Run ID :Run Order: <b>HGCV202-H_140925A: 36</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>09/25/14 14:58</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>102</b>	90	110				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 26241**

**Date:** 24-Oct-14

Run ID :Run Order: ICP2-HE_140923A: 26			SampType: Method Blank			Lab ID: MB-26241			Method: E200.7				
Analysis Date: 09/23/14 11:16			Units: mg/L			Prep Info: Prep Date: 9/22/2014			Prep Method: E200.2				
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium			0.04	0.03									
Magnesium			ND	0.03									

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 27				SampType: Laboratory Control Sample				Lab ID: LCS-26241				Method: E200.7			
Analysis Date: 09/23/14 11:20				Units: mg/L				Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2			
Analytes <u>2</u>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium				25.6	1.0	25	0.04461	102	85	115					
Magnesium				26.8	1.0	25	0	107	85	115					

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 30				SampType: Sample Matrix Spike				Lab ID: H14090187-002BMS3				Method: E200.7		
Analysis Date: 09/23/14 11:31				Units: mg/L				Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2		
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium				31.6	1.0	25	6.665	100	70	130				
Magnesium				28.0	1.0	25	1.914	104	70	130				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 33				SampType: Sample Matrix Spike Duplicate				Lab ID: H14090187-002BMSD3				Method: E200.7		
Analysis Date: 09/23/14 11:42				Units: mg/L		Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2				
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium				31.6	1.0	25	6.665	100	70	130	31.62	0.0	20	
Magnesium				28.3	1.0	25	1.914	106	70	130	27.96	1.2	20	

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 41		SampType: Serial Dilution			Lab ID: H14090349-007CDIL				Method: E200.7		
Analysis Date: 09/23/14 12:13		Units: mg/L			Prep Info: Prep Date: 9/22/2014				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	59.0	1.0		0		0	0	57.68	<u>2.2</u>	10	
Magnesium	14.6	1.0		0		0	0	14.53	0.8	10	

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



Client: MT DEQ-Federal Superfund  
Work Order: H14090349

## ANALYTICAL QC SUMMARY REPORT

Date: 24-Oct-14

Project: CFR Monitoring-474374

BatchID: 26241

Run ID :Run Order: ICP2-HE_140923A: 41				SampType: Serial Dilution				Lab ID: H14090349-007CDIL				Method: E200.7		
Analysis Date: 09/23/14 12:13				Units: mg/L				Prep Info: Prep Date: 9/22/2014				Prep Method:		
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 42		SampType: Sample Matrix Spike			Lab ID: H14090349-007CMS3				Method: E200.7		
Analysis Date: 09/23/14 12:16		Units: mg/L		Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	82.0	1.0	25	57.68	97	70	130				
Magnesium	40.3	1.0	25	14.53	103	70	130				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 45				SampType: Sample Matrix Spike Duplicate				Lab ID: H14090349-007CMSD3				Method: E200.7		
Analysis Date: 09/23/14 12:27				Units: mg/L				Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2		
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium				81.5	1.0	25	57.68	95	70	130	81.96	0.6	20	
Magnesium				40.2	1.0	25	14.53	103	70	130	40.33	0.3	20	

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 26241

Run ID :Run Order: ICPMS204-B_140923B: 20			SampType: Method Blank			Lab ID: MB-26241			Method: E200.8		
Analysis Date: 09/23/14 23:18			Units: mg/L		Prep Info: Prep Date: 9/22/2014			Prep Method: E200.2			
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8E-05	6E-05									
Cadmium	ND	3E-05									
Calcium	ND	0.02									
Copper	ND	0.0003									
Lead	ND	3E-05									
Magnesium	ND	0.002									
Zinc	0.002	0.001									

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICPMS204-B_140923B: 21			SampType: Laboratory Control Sample			Lab ID: LCS-26241			Method: E200.8		
Analysis Date: 09/23/14 23:22		Units: mg/L		Prep Info: Prep Date: 9/22/2014			Prep Method: E200.2				
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.517	0.0010	0.5	0.0000817	103	85	115				
Cadmium	0.246	0.0010	0.25	0	98	85	115				
Calcium	25.5	1.0	25	0	102	85	115				
Copper	0.523	0.0050	0.5	0	105	85	115				
Lead	0.488	0.0010	0.5	0	98	85	115				
Magnesium	25.5	1.0	25	0	102	85	115				
Zinc	0.511	0.010	0.5	0.001766	102	85	115				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICPMS204-B_140923B: 26		SampType: Sample Matrix Spike			Lab ID: H14090187-002BMS3				Method: E200.8		
Analysis Date: 09/23/14 23:44		Units: mg/L		Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2			
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.504	0.0010	0.5	0	101	70	130				
Cadmium	0.239	0.0010	0.25	0	96	70	130				
Calcium	30.6	1.0	25	0	122	70	130				
Copper	0.520	0.0050	0.5	0	104	70	130				
Lead	0.486	0.0010	0.5	0	97	70	130				
Magnesium	26.7	1.0	25	0	107	70	130				
Zinc	0.492	0.010	0.5	0	98	70	130				

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 26241**

**Date:** 24-Oct-14

Run ID :Run Order: ICPMS204-B_140923B: 26				SampType: Sample Matrix Spike				Lab ID: H14090187-002BMS3				Method: E200.8	
Analysis Date: 09/23/14 23:44				Units: mg/L				Prep Info: Prep Date: 9/22/2014		Prep Method: E200.2			
Analytes 7		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Associated samples: **H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C**

Run ID :Run Order: ICPMS204-B_140923B: 27			SampType: Sample Matrix Spike Duplicate			Lab ID: H14090187-002BMSD3			Method: E200.8		
Analysis Date: 09/23/14 23:48		Units: mg/L		Prep Info: Prep Date: 9/22/2014					Prep Method: E200.2		
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.502	0.0010	0.5	0	100	70	130	0.5036	0.3	20	
Cadmium	0.240	0.0010	0.25	0	96	70	130	0.2394	0.1	20	
Calcium	30.8	1.0	25	0	123	70	130	30.6	0.6	20	
Copper	0.511	0.0050	0.5	0	102	70	130	0.5204	1.8	20	
Lead	0.484	0.0010	0.5	0	97	70	130	0.4864	0.5	20	
Magnesium	26.5	1.0	25	0	106	70	130	26.68	0.8	20	
Zinc	0.486	0.010	0.5	0	97	70	130	0.4921	1.2	20	

Associated samples: **H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C**

Run ID :Run Order: ICPMS204-B_140923B: 55		SampType: Sample Matrix Spike				Lab ID: H14090349-007CMS3				Method: E200.8		
Analysis Date: 09/24/14 01:52		Units: mg/L		Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2				
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.533	0.0010	0.5	0.02231	102	70	130					
Cadmium	0.236	0.0010	0.25	0.0000441	95	70	130					
Calcium	74.1	1.0	25	51.52	90	70	130					
Copper	0.525	0.0050	0.5	0.008638	103	70	130					
Lead	0.488	0.0010	0.5	0.0004597	98	70	130					
Magnesium	38.9	1.0	25	13.95	100	70	130					
Zinc	0.489	0.010	0.5	0.005024	97	70	130					

Associated samples: **H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C**

Run ID :Run Order: ICPMS204-B_140923B: 56				SampType: Sample Matrix Spike Duplicate				Lab ID: H14090349-007CMSD3				Method: E200.8	
Analysis Date: 09/24/14 01:55		Units: mg/L		Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2					
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Arsenic	0.537	0.0010	0.5	0.02231	103	70	130	0.5331	0.7	20			
Cadmium	0.233	0.0010	0.25	0.0000441	93	70	130	0.2363	1.5	20			

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 26241

Run ID :Run Order: ICPMS204-B_140923B: 56	SampType: Sample Matrix Spike Duplicate				Lab ID: H14090349-007CMSD3				Method: E200.8		
Analysis Date: 09/24/14 01:55	Units: mg/L				Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2		
Analytes <b>Z</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	74.5	1.0	25	51.52	92	70	130	74.06	0.6	20	
Copper	0.524	0.0050	0.5	0.008638	103	70	130	0.5255	0.2	20	
Lead	0.477	0.0010	0.5	0.0004597	95	70	130	0.4883	2.4	20	
Magnesium	39.0	1.0	25	13.95	100	70	130	38.94	0.1	20	
Zinc	0.494	0.010	0.5	0.005024	98	70	130	0.4888	1.0	20	

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICPMS204-B_140924A: 65	SampType: Method Blank				Lab ID: MB-26241				Method: E200.8		
Analysis Date: 09/24/14 22:55	Units: mg/L				Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2		
Analytes <b>Z</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0002	6E-05									
Cadmium	ND	3E-05									
Calcium	ND	0.02									
Copper	ND	0.0003									
Lead	ND	3E-05									
Magnesium	ND	0.002									
Zinc	0.002	0.001									

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICPMS204-B_140924A: 75	SampType: Sample Matrix Spike				Lab ID: H14090349-007CMS3				Method: E200.8		
Analysis Date: 09/24/14 23:40	Units: mg/L				Prep Info: Prep Date: 9/22/2014				Prep Method: E200.2		
Analytes <b>Z</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.0010	0.5	0.02125	98	70	130				
Cadmium	0.254	0.0010	0.25	0.0000462	102	70	130				
Calcium	73.9	1.0	25	49.94	96	70	130				
Copper	0.486	0.0050	0.5	0.0079	96	70	130				
Lead	0.493	0.0010	0.5	0.0004779	99	70	130				
Magnesium	38.2	1.0	25	13.61	98	70	130				
Zinc	0.478	0.010	0.5	0.004946	95	70	130				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 26241

Run ID :Run Order: <b>ICPMS204-B_140924A: 76</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14090349-007CMSD3</b>				Method: <b>E200.8</b>		
Analysis Date: <b>09/24/14 23:44</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>9/22/2014</b>				Prep Method: <b>E200.2</b>		
Analytes <b>Z</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.0010	0.5	0.02125	<b>98</b>	70	130	0.5133	<b>0.1</b>	20	
Cadmium	0.253	0.0010	0.25	0.0000462	<b>101</b>	70	130	0.2542	<b>0.6</b>	20	
Calcium	73.0	1.0	25	49.94	<b>92</b>	70	130	73.93	<b>1.3</b>	20	
Copper	0.492	0.0050	0.5	0.0079	<b>97</b>	70	130	0.4865	<b>1.0</b>	20	
Lead	0.491	0.0010	0.5	0.0004779	<b>98</b>	70	130	0.4935	<b>0.6</b>	20	
Magnesium	38.1	1.0	25	13.61	<b>98</b>	70	130	38.18	<b>0.3</b>	20	
Zinc	0.480	0.010	0.5	0.004946	<b>95</b>	70	130	0.4783	<b>0.3</b>	20	

Associated samples: **H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C**

Run ID :Run Order: <b>ICPMS204-B_140926B: 30</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-26241</b>				Method: <b>E200.8</b>		
Analysis Date: <b>09/27/14 00:46</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>9/22/2014</b>				Prep Method: <b>E200.2</b>		
Analytes <b>Z</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0002	6E-05									
Cadmium	0.0001	3E-05									
Calcium	ND	0.02									
Copper	0.001	0.0003									
Lead	ND	3E-05									
Magnesium	0.006	0.002									
Zinc	0.002	0.001									

Associated samples: **H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

**Project:** CFR Monitoring-474374

**BatchID:** 26261

Run ID :Run Order: <b>FIA202-HE_140923B: 11</b>				SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-26261</b>				Method: <b>E365.1</b>		
Analysis Date: <b>09/23/14 10:27</b>				Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>9/22/2014</b>				Prep Method: <b>E365.1</b>		
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P				0.370	0.010	0.4	0	93	90	110				

Associated samples: **H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D**

Run ID :Run Order: <b>FIA202-HE_140923B: 12</b>				SampType: <b>Method Blank</b>				Lab ID: <b>MB-26261</b>				Method: <b>E365.1</b>		
Analysis Date: <b>09/23/14 10:28</b>				Units: <b>mg/L</b>				<b>Prep Info:</b>		Prep Date: <b>9/22/2014</b>		Prep Method: <b>E365.1</b>		
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P				ND	0.001									

Associated samples: **H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D**

Run ID :Run Order: <b>FIA202-HE_140923B: 28</b>				SampType: <b>Sample Matrix Spike</b>		Lab ID: <b>H14090349-001Dms</b>				Method: <b>E365.1</b>		
Analysis Date: <b>09/23/14 10:44</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>9/22/2014</b>				Prep Method: <b>E365.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.198	0.010	0.2	0.01724	90	90	110					

Associated samples: **H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D**

Run ID :Run Order: <b>FIA202-HE_140923B: 29</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14090349-001Dmsd</b>				Method: <b>E365.1</b>		
Analysis Date: <b>09/23/14 10:45</b>				Units: <b>mg/L</b>				<b>Prep Info:</b>		Prep Date: <b>9/22/2014</b>		Prep Method: <b>E365.1</b>		
Analytes <b>1</b>				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P				0.198	0.010	0.2	0.01724	90	90	110	0.1979	0.0	20	

Associated samples: **H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 26262**

**Date:** 24-Oct-14

Run ID :Run Order: <b>FIA202-HE_140923B: 41</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-26262</b>				Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 10:58</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>9/22/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.368	0.010	0.4	0	<b>92</b>	90	110					

Associated samples: **H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D**

Run ID :Run Order: <b>FIA202-HE_140923B: 42</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-26262</b>				Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 10:59</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>9/22/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	ND	0.001										

Associated samples: **H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D**

Run ID :Run Order: <b>FIA202-HE_140923B: 49</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14090354-001Cms</b>				Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 11:06</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>9/22/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.202	0.010	0.2	0.01719	<b>92</b>	90	110					

Associated samples: **H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D**

Run ID :Run Order: <b>FIA202-HE_140923B: 50</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14090354-001Cmsd</b>				Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 11:07</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>9/22/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.203	0.010	0.2	0.01719	<b>93</b>	90	110	0.2016	<b>0.5</b>	20		

Associated samples: **H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 26265

Run ID :Run Order: FIA203-HE_140924A: 66				SampType: Laboratory Control Sample		Lab ID: LCS-26265			Method: A4500 N-C		
Analysis Date: 09/24/14 11:18		Units: mg/L		Prep Info: Prep Date: 9/23/2014			Prep Method: A4500 N-C				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	14.4	0.30	15.2	0	95	90	110				

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: FIA203-HE_140924A: 67				SampType: Method Blank				Lab ID: MB-26265				Method: A4500 N-C			
Analysis Date: 09/24/14 11:19				Units: mg/L				Prep Info: Prep Date: 9/23/2014				Prep Method: A4500 N-C			
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total				ND	0.02										

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: FIA203-HE_140924A: 74				SampType: Sample Matrix Spike		Lab ID: H14090349-002AMS				Method: A4500 N-C		
Analysis Date: 09/24/14 11:27		Units: mg/L		Prep Info: Prep Date: 9/23/2014				Prep Method: A4500 N-C				
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total		0.934	0.10	1	0	93	90	110				

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: FIA203-HE_140924A: 75				SampType: Sample Matrix Spike Duplicate				Lab ID: H14090349-002AMSD				Method: A4500 N-C	
Analysis Date: 09/24/14 11:28				Units: mg/L		Prep Info: Prep Date: 9/23/2014				Prep Method: A4500 N-C			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total		0.950	0.10	1	0	95	90	110	0.9339	1.7	20		

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: FIA203-HE_140924A: 94				SampType: Sample Matrix Spike		Lab ID: H14090354-001BMS				Method: A4500 N-C		
Analysis Date: 09/24/14 11:51		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	
Nitrogen, Total	1.25	0.10	1	0.09302	116	90	110				S	

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 26265

Run ID :Run Order: FIA203-HE_140924A: 95				SampType: Sample Matrix Spike Duplicate			Lab ID: H14090354-001BMSD			Method: A4500 N-C		
Analysis Date: 09/24/14 11:52		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	
Nitrogen, Total	1.17	0.10	1	0.09302	108	90	110	1.249	6.5	20		

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** 26305

Run ID :Run Order: <b>HGCV202-H_140925A: 4</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-26235</b>				Method: <b>E245.1</b>		
Analysis Date: <b>09/25/14 11:23</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>9/24/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	3E-06	1E-06									

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

Run ID :Run Order: <b>HGCV202-H_140925A: 6</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-26305</b>				Method: <b>E245.1</b>		
Analysis Date: <b>09/25/14 11:32</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>9/24/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00016	0.00010	0.00015	0.00000296	<b>106</b>	90	110				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

Run ID :Run Order: <b>HGCV202-H_140925A: 17</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14090352-001CMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>09/25/14 12:18</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>9/24/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00015	0.00010	0.00015	0.00001631	<b>87</b>	70	130				

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

Run ID :Run Order: <b>HGCV202-H_140925A: 18</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14090352-001CMSD</b>				Method: <b>E245.1</b>		
Analysis Date: <b>09/25/14 12:22</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>9/24/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00016	0.00010	0.00015	0.00001631	<b>98</b>	70	130	0.0001472	<b>10</b>	20	

Associated samples: **H14090349-002C, H14090349-003C, H14090349-004C, H14090349-016A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 26481**

**Date:** 24-Oct-14

Run ID :Run Order: ICPMS204-B_141010A: 23			SampType: Method Blank			Lab ID: MB-26481			Method: SW6020		
Analysis Date: 10/10/14 12:15		Units: mg/kg		Prep Info: Prep Date: 10/8/2014			Prep Method: SW3050 B				
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.3									
Cadmium	ND	0.2									
Copper	ND	0.7									
Lead	ND	0.2									
Zinc	4	4									

Associated samples: H14090349-018A, H14090349-018B, H14090349-019A, H14090349-019B, H14090349-020A, H14090349-020B, H14090349-021A, H14090349-021B, H14090349-022A, H14090349-022B, H14090349-023A, H14090349-023B, H14090349-024A, H14090349-024B, H14090349-025A, H14090349-025B, H14090349-026A, H14090349-026B, H14090349-027A, H14090349-027B, H14090349-028A, H14090349-028B, H14090349-029A, H14090349-029B, H14090349-030A, H14090349-030B, H14090349-031A, H14090349-031B, H14090349-032A, H14090349-032B

Run ID :Run Order: ICPMS204-B_141010A: 24		SampType: Laboratory Control Sample				Lab ID: LCS-26481				Method: SW6020		
Analysis Date: 10/10/14 12:20		Units: mg/kg				Prep Info: Prep Date: 10/8/2014				Prep Method: SW3050 B		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	286	1.0	343	0	84	72.3	106.4					
Cadmium	118	1.0	137	0	86	73	105.1					
Copper	254	1.0	280	0	91	77.5	109.6					
Lead	172	1.0	187	0	92	75.9	108.6					
Zinc	201	3.7	213	4.395	92	74.2	109.9					

Associated samples: H14090349-018A, H14090349-018B, H14090349-019A, H14090349-019B, H14090349-020A, H14090349-020B, H14090349-021A, H14090349-021B, H14090349-022A, H14090349-022B, H14090349-023A, H14090349-023B, H14090349-024A, H14090349-024B, H14090349-025A, H14090349-025B, H14090349-026A, H14090349-026B, H14090349-027A, H14090349-027B, H14090349-028A, H14090349-028B, H14090349-029A, H14090349-029B, H14090349-030A, H14090349-030B, H14090349-031A, H14090349-031B, H14090349-032A, H14090349-032B

Run ID :Run Order: ICPMS204-B_141010A: 25		SampType: Laboratory Fortified Blank				Lab ID: LFB-26481				Method: SW6020		
Analysis Date: 10/10/14 12:24		Units: mg/kg				Prep Info: Prep Date: 10/8/2014				Prep Method: SW3050 B		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	48.7	1.0	50	0	97	80	120					
Cadmium	24.8	1.0	25	0	99	80	120					
Copper	50.0	1.0	50	0	100	80	120					
Lead	47.6	1.0	50	0	95	80	120					
Zinc	53.5	3.5	50	4.395	98	80	120					

Associated samples: H14090349-018A, H14090349-018B, H14090349-019A, H14090349-019B, H14090349-020A, H14090349-020B, H14090349-021A, H14090349-021B, H14090349-022A, H14090349-022B, H14090349-023A, H14090349-023B, H14090349-024A, H14090349-024B, H14090349-025A, H14090349-025B, H14090349-026A, H14090349-026B, H14090349-027A, H14090349-027B, H14090349-028A, H14090349-028B, H14090349-029A, H14090349-029B, H14090349-030A, H14090349-030B, H14090349-031A, H14090349-031B, H14090349-032A, H14090349-032B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

Prepared by Helena, MT Branch

**BatchID:** 26481

Run ID :Run Order: ICPMS204-B_141010A: 51	SampType: Sample Matrix Spike				Lab ID: H14090349-032AMS				Method: SW6020			
Analysis Date: 10/10/14 14:14	Units: mg/kg				Prep Info: Prep Date: 10/8/2014				Prep Method: SW3050 B			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	61.2	1.0	52.08	10.65	97	75	125					
Cadmium	27.6	1.0	26.04	0.6971	103	75	125					
Copper	89.1	1.0	52.08	38.61	97	75	125					
Lead	117	1.0	52.08	67.79	94	75	125					
Zinc	128	3.7	52.08	72.29	107	75	125					

Associated samples: H14090349-018A, H14090349-018B, H14090349-019A, H14090349-019B, H14090349-020A, H14090349-020B, H14090349-021A, H14090349-021B, H14090349-022A, H14090349-022B, H14090349-023A, H14090349-023B, H14090349-024A, H14090349-024B, H14090349-025A, H14090349-025B, H14090349-026A, H14090349-026B, H14090349-027A, H14090349-027B, H14090349-028A, H14090349-028B, H14090349-029A, H14090349-029B, H14090349-030A, H14090349-030B, H14090349-031A, H14090349-031B, H14090349-032A, H14090349-032B

Run ID :Run Order: ICPMS204-B_141010A: 52	SampType: Sample Matrix Spike Duplicate				Lab ID: H14090349-032AMSD				Method: SW6020			
Analysis Date: 10/10/14 14:18	Units: mg/kg				Prep Info: Prep Date: 10/8/2014				Prep Method: SW3050 B			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	60.4	1.0	51.55	10.65	96	75	125	61.22	1.4	20		
Cadmium	27.6	1.0	25.77	0.6971	104	75	125	27.55	0.0	20		
Copper	89.2	1.0	51.55	38.61	98	75	125	89.09	0.1	20		
Lead	113	1.0	51.55	67.79	88	75	125	116.6	2.8	20		
Zinc	122	3.6	51.55	72.29	97	75	125	128.2	4.7	20		

Associated samples: H14090349-018A, H14090349-018B, H14090349-019A, H14090349-019B, H14090349-020A, H14090349-020B, H14090349-021A, H14090349-021B, H14090349-022A, H14090349-022B, H14090349-023A, H14090349-023B, H14090349-024A, H14090349-024B, H14090349-025A, H14090349-025B, H14090349-026A, H14090349-026B, H14090349-027A, H14090349-027B, H14090349-028A, H14090349-028B, H14090349-029A, H14090349-029B, H14090349-030A, H14090349-030B, H14090349-031A, H14090349-031B, H14090349-032A, H14090349-032B

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: C\_R191469**

**Date:** 24-Oct-14

Run ID :Run Order: SUB-C191469: 1	SampType: Method Blank	Lab ID: MBLK	Method: A5310 C
Analysis Date: 09/23/14 15:13	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	ND 0.04		
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

Run ID :Run Order: SUB-C191469: 2	SampType: Initial Calibration Verification Standard	Lab ID: ICV-8116	Method: A5310 C
Analysis Date: 09/23/14 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
Organic Carbon, Dissolved (DOC)	10.0 0.50 10 0	100 90 110 0	
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

Run ID :Run Order: SUB-C191469: 3	SampType: Continuing Calibration Verification Standar	Lab ID: CCV-7923	Method: A5310 C
Analysis Date: 09/23/14 15:43	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	9.98 0.50 10 0	100 90 110 0	
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

Run ID :Run Order: SUB-C191469: 5	SampType: Sample Matrix Spike	Lab ID: H14090349-001E	Method: A5310 C
Analysis Date: 09/23/14 16:15	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	7.22 0.50 5 2.059	103 85 115 0	
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

Run ID :Run Order: SUB-C191469: 6	SampType: Sample Matrix Spike Duplicate	Lab ID: H14090349-001E	Method: A5310 C
Analysis Date: 09/23/14 16:31	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
Organic Carbon, Dissolved (DOC)	7.21 0.50 5 2.059	103 85 115 7.215	0.1 10
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** C\_R191469

Run ID :Run Order: SUB-C191469: 16	SampType: Continuing Calibration Verification Standar	Lab ID: CCV-7923	Method: A5310 C
Analysis Date: 09/23/14 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
Organic Carbon, Dissolved (DOC)	9.96 0.50 10 0	100 90 110 0	
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

Run ID :Run Order: SUB-C191469: 18	SampType: Sample Matrix Spike	Lab ID: H14090349-011E	Method: A5310 C
Analysis Date: 09/23/14 20:13	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Dissolved (DOC)	10.1 0.50 5 4.911	104 85 115 0	
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

Run ID :Run Order: SUB-C191469: 19	SampType: Sample Matrix Spike Duplicate	Lab ID: H14090349-011E	Method: A5310 C
Analysis Date: 09/23/14 20:28	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
Organic Carbon, Dissolved (DOC)	10.5 0.50 5 4.911	111 85 115 10.13	3.4 10
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

Run ID :Run Order: SUB-C191469: 24	SampType: Laboratory Control Sample	Lab ID: LCS-8116	Method: A5310 C
Analysis Date: 09/23/14 21:50	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
Organic Carbon, Dissolved (DOC)	10.0 0.50 10 0	100 90 110 0	
Associated samples: H14090349-001E, H14090349-002E, H14090349-003E, H14090349-004E, H14090349-005E, H14090349-006E, H14090349-007E, H14090349-008E, H14090349-009E, H14090349-010E, H14090349-011E, H14090349-012E, H14090349-013E, H14090349-014E, H14090349-015E			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** R100741

Run ID :Run Order: IC102-H_140919A: 12		SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E300.0		
Analysis Date: 09/19/14 10:50		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	100	1.0	100	0	101	90	110				
Sulfate	400	1.0	400	0	101	90	110				

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 13			SampType: Method Blank			Lab ID: ICB			Method: E300.0		
Analysis Date: 09/19/14 11:01		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.008									
Sulfate	ND	0.08									

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 14				SampType: Laboratory Fortified Blank			Lab ID: LFB			Method: E300.0		
Analysis Date: 09/19/14 11:12		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	95	90	110					
Sulfate	190	1.0	200	0	97	90	110					

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 15			SampType: Continuing Calibration Verification Standard				Lab ID: CCV091914-1			Method: E300.0			
Analysis Date: 09/19/14 11:23			Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride			100	1.0	100	0	102	90	110				
Sulfate			410	1.0	400	0	102	90	110				

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 18		SampType: Sample Matrix Spike				Lab ID: H14090339-001AMS				Method: E300.0	
Analysis Date: 09/19/14 11:57		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	50	54.04	103	90	110				
Sulfate	310	1.0	200	96.12	107	90	110				

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100741**

**Date:** 24-Oct-14

Run ID :Run Order: IC102-H_140919A: 18	SampType: Sample Matrix Spike	Lab ID: H14090339-001AMS	Method: E300.0
Analysis Date: 09/19/14 11:57	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 19	SampType: Sample Matrix Spike Duplicate	Lab ID: H14090339-001AMSD	Method: E300.0
Analysis Date: 09/19/14 12:08	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	110 1.0 50 54.04	104 90 110 105.8	0.3 20
Sulfate	320 1.0 200 96.12	109 90 110 311	1.3 20

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 29	SampType: Continuing Calibration Verification Standar	Lab ID: CCV091914-2	Method: E300.0
Analysis Date: 09/19/14 13:59	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	100 1.0 100 0	101 90 110	
Sulfate	410 1.0 400 0	102 90 110	

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 32	SampType: Sample Matrix Spike	Lab ID: H14090349-009AMS	Method: E300.0
Analysis Date: 09/19/14 14:32	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chloride	60 1.0 50 9.853	100 90 110	
Sulfate	280 1.0 200 69.24	107 90 110	

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

Run ID :Run Order: IC102-H_140919A: 33	SampType: Sample Matrix Spike Duplicate	Lab ID: H14090349-009AMSD	Method: E300.0
Analysis Date: 09/19/14 14:43	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	61 1.0 50 9.853	101 90 110 59.74	1.4 20
Sulfate	290 1.0 200 69.24	108 90 110 282.6	1.1 20

Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100747**

**Date:** 24-Oct-14

Run ID :Run Order: PHSC_101-H_140922A: 21				SampType: Method Blank				Lab ID: MB				Method: A2320 B													
Analysis Date: 09/22/14 10:40				Units: mg/L				Prep Info:		Prep Date:		Prep Method:													
Analytes 1				Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual	
Alkalinity, Total as CaCO3				2		2																			
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A																									

Run ID :Run Order: PHSC_101-H_140922A: 23				SampType: Laboratory Control Sample		Lab ID: LCS			Method: A2320 B		
Analysis Date: 09/22/14 10:46		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	590	4.0	600	2.12	98	90	110				
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A											

Run ID :Run Order: PHSC_101-H_140922A: 28		SampType: Sample Duplicate			Lab ID: H14090336-001ADUP				Method: A2320 B		
Analysis Date: 09/22/14 11:10		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	130	4.0		0				126.6	0.8	10	
Bicarbonate as HCO3	150	4.0		0				153.8	0.8	10	
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A											

Run ID :Run Order: PHSC_101-H_140922A: 32				SampType: Sample Matrix Spike		Lab ID: H14090336-002AMS				Method: A2320 B		
Analysis Date: 09/22/14 11:21		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	700	4.0	600	122.6	96	80	120					
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A												

Run ID :Run Order: PHSC_101-H_140922A: 67		SampType: Sample Duplicate			Lab ID: H14090349-015ADUP				Method: A2320 B		
Analysis Date: 09/22/14 13:16		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
Alkalinity, Total as CaCO3	84	4.0		0				83.6	1.1	10	
Bicarbonate as HCO3	100	4.0		0				101.4	1.1	10	
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A											

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** R100747

Run ID :Run Order: PHSC_101-H_140922A: 69				SampType: Method Blank				Lab ID: MB				Method: A2320 B			
Analysis Date: 09/22/14 13:21				Units: mg/L				Prep Info:		Prep Date:		Prep Method:			
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3				ND	2										
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A															

Run ID :Run Order: PHSC_101-H_140922A: 71				SampType: Laboratory Control Sample				Lab ID: LCS				Method: A2320 B			
Analysis Date: 09/22/14 13:26				Units: mg/L				Prep Info:		Prep Date:		Prep Method:			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Alkalinity, Total as CaCO3		590	4.0	600	0	99	90	110							
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A															

Run ID :Run Order: PHSC_101-H_140922A: 74		SampType: Sample Duplicate			Lab ID: H14090357-002ADUP				Method: A2320 B		
Analysis Date: 09/22/14 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
Alkalinity, Total as CaCO3	200	4.0		0				199.4	0.6	10	
Bicarbonate as HCO3	240	4.0		0				242.7	0.6	10	
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A											

Run ID :Run Order: PHSC_101-H_140922A: 78				SampType: Sample Matrix Spike		Lab ID: H14090357-005AMS				Method: A2320 B		
Analysis Date: 09/22/14 13:57		Units: mg/L		Prep Info: Prep Date:				Prep Method:				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	660	4.0	600	127.8	88	80	120					
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A												

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

Prepared by Helena, MT Branch

**BatchID:** R100767

Run ID :Run Order: <b>FIA203-HE_140922B: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E353.2</b>		
Analysis Date: <b>09/22/14 11:17</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	1.01	0.010	1	0	<b>101</b>	90	110			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										
Run ID :Run Order: <b>FIA203-HE_140922B: 9</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E353.2</b>		
Analysis Date: <b>09/22/14 11:18</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.902	0.011	1	0	<b>90</b>	90	110			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										
Run ID :Run Order: <b>FIA203-HE_140922B: 11</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E353.2</b>		
Analysis Date: <b>09/22/14 11:20</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.00865	0.010		0		0	0			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										
Run ID :Run Order: <b>FIA203-HE_140922B: 13</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MBLK</b>			Method: <b>E353.2</b>		
Analysis Date: <b>09/22/14 11:23</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	ND	0.001								
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										
Run ID :Run Order: <b>FIA203-HE_140922B: 15</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14080533-004HDUP</b>			Method: <b>E353.2</b>		
Analysis Date: <b>09/22/14 11:25</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.00961	0.010		0				0.01281		20
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100767**

**Date:** 24-Oct-14

Run ID :Run Order: <b>FIA203-HE_140922B: 28</b>	SampType: <b>Continuing Calibration Verification Standar</b>	Lab ID: <b>CCV</b>	Method: <b>E353.2</b>
Analysis Date: <b>09/22/14 11:41</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.468 0.010 0.5 0	94 90 110	
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

Run ID :Run Order: <b>FIA203-HE_140922B: 34</b>	SampType: <b>Sample Matrix Spike</b>	Lab ID: <b>H14090349-002DMS</b>	Method: <b>E353.2</b>
Analysis Date: <b>09/22/14 11:48</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.876 0.011 1 0	88 90 110	S
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

Run ID :Run Order: <b>FIA203-HE_140922B: 35</b>	SampType: <b>Sample Matrix Spike Duplicate</b>	Lab ID: <b>H14090349-002DMSD</b>	Method: <b>E353.2</b>
Analysis Date: <b>09/22/14 11:49</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.881 0.011 1 0	88 90 110 0.876	0.5 20 S
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

Run ID :Run Order: <b>FIA203-HE_140922B: 42</b>	SampType: <b>Continuing Calibration Verification Standar</b>	Lab ID: <b>CCV</b>	Method: <b>E353.2</b>
Analysis Date: <b>09/22/14 11:57</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.465 0.010 0.5 0	93 90 110	
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

Run ID :Run Order: <b>FIA203-HE_140922B: 44</b>	SampType: <b>Sample Matrix Spike</b>	Lab ID: <b>H14090349-008DMS</b>	Method: <b>E353.2</b>
Analysis Date: <b>09/22/14 12:00</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.874 0.011 1 0	87 90 110	S
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

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



Client: MT DEQ-Federal Superfund  
Work Order: H14090349  
Project: CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Date: 24-Oct-14

Prepared by Helena, MT Branch

BatchID: R100767

Run ID :Run Order: FIA203-HE_140922B: 45	SampType: Sample Matrix Spike Duplicate	Lab ID: H14090349-008DMSD	Method: E353.2
Analysis Date: 09/22/14 12:01	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	0.895 0.011 1 0	89 90 110 0.8743	2.3 20 S
Associated samples: H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D			

Run ID :Run Order: FIA203-HE_140922B: 58	SampType: Sample Matrix Spike	Lab ID: H14090353-001CMS	Method: E353.2
Analysis Date: 09/22/14 12:16	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
Nitrogen, Nitrate+Nitrite as N	1.21 0.011 1 0.3256	88 90 110	S
Associated samples: H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D			

Run ID :Run Order: FIA203-HE_140922B: 59	SampType: Sample Matrix Spike Duplicate	Lab ID: H14090353-001CMSD	Method: E353.2
Analysis Date: 09/22/14 12:18	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 1	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Nitrate+Nitrite as N	1.22 0.011 1 0.3256	90 90 110 1.21	1.2 20
Associated samples: H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D			

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100792**

**Date:** 24-Oct-14

Run ID :Run Order: <b>FIA202-HE_140923B: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 10:24</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.228	0.010	0.25	0	<b>91</b>	90	110				
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>											

Run ID :Run Order: <b>FIA202-HE_140923B: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 10:26</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.000370	0.010		0		0	0				
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>											

Run ID :Run Order: <b>FIA202-HE_140923B: 26</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 10:42</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0926	0.010	0.1	0	<b>93</b>	90	110				
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>											

Run ID :Run Order: <b>FIA202-HE_140923B: 40</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>09/23/14 10:57</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0942	0.010	0.1	0	<b>94</b>	90	110				
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100807**

**Date:** 24-Oct-14

Run ID :Run Order: ICP2-HE_140923A: 6		SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E200.7		
Analysis Date: 09/23/14 10:01		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
Calcium	39.3	1.0	40	0	98	95	105				
Magnesium	39.9	1.0	40	0	100	95	105				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 7		SampType: Continuing Calibration Verification Standar				Lab ID: CCV-1		Method: E200.7			
Analysis Date: 09/23/14 10:05		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
Calcium	25.2	1.0	25	0	101	95	105				
Magnesium	25.2	1.0	25	0	101	95	105				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 10		SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.7		
Analysis Date: 09/23/14 10:16		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
Calcium	480	1.0	500	0	96	80	120				
Magnesium	518	1.0	500	0	104	80	120				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 11		SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7		
Analysis Date: 09/23/14 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
Calcium	484	1.0	500	0	97	80	120				
Magnesium	527	1.0	500	0	105	80	120				

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 31		SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E200.7		
Analysis Date: 09/23/14 11:35		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.1	1.0	25	0	100	90	110				
Magnesium	26.1	1.0	25	0	104	90	110				

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

Prepared by Helena, MT Branch

**BatchID:** R100807

Run ID :Run Order: ICP2-HE_140923A: 31	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7
Analysis Date: 09/23/14 11:35	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <u>2</u>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

Run ID :Run Order: ICP2-HE_140923A: 43	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7
Analysis Date: 09/23/14 12:20	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes <u>2</u>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Calcium	25.4 1.0 25 0	102 90 110	
Magnesium	26.2 1.0 25 0	105 90 110	

Associated samples: H14090349-001C, H14090349-002C, H14090349-003C, H14090349-004C, H14090349-005C, H14090349-006C, H14090349-007C, H14090349-008C, H14090349-009C, H14090349-010C, H14090349-011C, H14090349-012C, H14090349-013C, H14090349-014C, H14090349-015C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** R100819

Run ID :Run Order: ICPMS204-B_140923B: 9			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 09/23/14 22:29		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0602	0.0050	0.06	0	100	90	110				
Cadmium	0.0312	0.0010	0.03	0	104	90	110				
Copper	0.0626	0.010	0.06	0	104	90	110				
Lead	0.0593	0.010	0.06	0	99	90	110				
Zinc	0.0618	0.010	0.06	0	103	90	110				

Associated samples: H14090349-001B, H14090349-001C, H14090349-002B, H14090349-002C, H14090349-003B, H14090349-003C, H14090349-004B, H14090349-004C

Run ID :Run Order: ICPMS204-B_140923B: 10			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 09/23/14 22:33		Units: mg/L		Prep Info: Prep Date:			Prep Method:				
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000100	0.0050		0							
Cadmium	0.000609	0.0010		0							
Copper	0.000402	0.010		0							
Lead	0.000241	0.010		0							
Zinc	0.00190	0.010		0							

Associated samples: H14090349-001B, H14090349-001C, H14090349-002B, H14090349-002C, H14090349-003B, H14090349-003C, H14090349-004B, H14090349-004C

Run ID :Run Order: ICPMS204-B_140923B: 11				SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 09/23/14 22:38		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0110	0.0050	0.01	0	110	70	130					
Cadmium	0.00983	0.0010	0.01	0	98	70	130					
Copper	0.0215	0.010	0.02	0	108	70	130					
Lead	0.000258	0.010		0		0	0					
Zinc	0.0119	0.010	0.01	0	119	70	130					

Associated samples: H14090349-001B, H14090349-001C, H14090349-002B, H14090349-002C, H14090349-003B, H14090349-003C, H14090349-004B, H14090349-004C

Run ID :Run Order: ICPMS204-B_140923B: 16				SampType: Method Blank				Lab ID: ICB				Method: E200.8			
Analysis Date: 09/23/14 23:00				Units: mg/L				Prep Info:		Prep Date:		Prep Method:			
Analytes 5				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic				ND	3E-05										
Cadmium				ND	6E-06										
Copper				ND	3E-05										

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** R100819

Run ID :Run Order: ICPMS204-B_140923B: 16	SampType: Method Blank	Lab ID: ICB	Method: E200.8
Analysis Date: 09/23/14 23:00	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
Lead	ND 8E-06		
Zinc	0.0004 0.0003		

Associated samples: H14090349-001B, H14090349-002B, H14090349-003B, H14090349-004B

Run ID :Run Order: ICPMS204-B_140923B: 17	SampType: Laboratory Fortified Blank	Lab ID: LFB	Method: E200.8
Analysis Date: 09/23/14 23:04	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
Arsenic	0.0498 0.0050 0.05 0	100 85 115	
Cadmium	0.0502 0.0010 0.05 0	100 85 115	
Copper	0.0515 0.010 0.05 0	103 85 115	
Lead	0.0493 0.010 0.05 0	99 85 115	
Zinc	0.0524 0.010 0.05 0.0003699	104 85 115	

Associated samples: H14090349-001B, H14090349-002B, H14090349-003B, H14090349-004B

Run ID :Run Order: ICPMS204-B_140923B: 36	SampType: Sample Matrix Spike	Lab ID: H14090349-001BMS	Method: E200.8
Analysis Date: 09/24/14 00:27	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 5	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.0604 0.0010 0.05 0.007202	106 70 130	
Cadmium	0.0508 0.0010 0.05 0.0000193	102 70 130	
Copper	0.0559 0.0050 0.05 0.003225	105 70 130	
Lead	0.0508 0.0010 0.05 0.0000428	102 70 130	
Zinc	0.0580 0.010 0.05 0.006601	103 70 130	

Associated samples: H14090349-001B, H14090349-002B, H14090349-003B, H14090349-004B

Run ID :Run Order: ICPMS204-B_140923B: 37	SampType: Sample Matrix Spike Duplicate	Lab ID: H14090349-001BMDS	Method: E200.8
Analysis Date: 09/24/14 00:32	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 5	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.0604 0.0010 0.05 0.007202	106 70 130 0.06035	0.0 20
Cadmium	0.0505 0.0010 0.05 0.0000193	101 70 130 0.05081	0.6 20
Copper	0.0563 0.0050 0.05 0.003225	106 70 130 0.05594	0.6 20
Lead	0.0509 0.0010 0.05 0.0000428	102 70 130 0.05082	0.2 20
Zinc	0.0580 0.010 0.05 0.006601	103 70 130 0.05804	0.2 20

Associated samples: H14090349-001B, H14090349-002B, H14090349-003B, H14090349-004B

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

**BatchID:** R100819

Run ID :Run Order: ICPMS204-B_140923B: 69		SampType: Sample Matrix Spike			Lab ID: H14090349-011BMS				Method: E200.8		
Analysis Date: 09/24/14 02:53		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0815	0.0010	0.05	0.02873	106	70	130				
Cadmium	0.0493	0.0010	0.05	0.0000198	99	70	130				
Copper	0.0563	0.0050	0.05	0.003044	106	70	130				
Lead	0.0509	0.0010	0.05	0.0001529	101	70	130				
Zinc	0.0551	0.010	0.05	0.003561	103	70	130				

Associated samples: H14090349-001B, H14090349-002B, H14090349-003B, H14090349-004B

Run ID :Run Order: ICPMS204-B_140923B: 70				SampType: Sample Matrix Spike Duplicate			Lab ID: H14090349-011BMSD			Method: E200.8		
Analysis Date: 09/24/14 02:57		Units: mg/L			Prep Info:		Prep Date:		Prep Method:			
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0811	0.0010	0.05	0.02873	105	70	130	0.0815	0.5	20		
Cadmium	0.0497	0.0010	0.05	0.0000198	99	70	130	0.0493	0.8	20		
Copper	0.0572	0.0050	0.05	0.003044	108	70	130	0.05626	1.7	20		
Lead	0.0510	0.0010	0.05	0.0001529	102	70	130	0.0509	0.1	20		
Zinc	0.0554	0.010	0.05	0.003561	104	70	130	0.0551	0.5	20		

Associated samples: H14090349-001B, H14090349-002B, H14090349-003B, H14090349-004B

Run ID :Run Order: ICPMS204-B_140923B: 124		SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.8		
Analysis Date: 09/24/14 06:57		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.00E-05	0.0050		0							
Cadmium	0.000564	0.0010		0							
Copper	0.000372	0.010		0							
Lead	0.000213	0.010		0							
Zinc	0.00168	0.010		0							

Associated samples: H14090349-001B, H14090349-001C, H14090349-002B, H14090349-002C, H14090349-003B, H14090349-003C, H14090349-004B, H14090349-004C

Run ID :Run Order: ICPMS204-B_140923B: 125			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 09/24/14 07:01		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
Arsenic	0.0111	0.0050	0.01	0	111	70	130				
Cadmium	0.00974	0.0010	0.01	0	97	70	130				
Copper	0.0220	0.010	0.02	0	110	70	130				

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

Prepared by Helena, MT Branch

**BatchID:** R100819

Run ID :Run Order: <b>ICPMS204-B_140923B: 125</b>			SampType: <b>Interference Check Sample AB</b>			Lab ID: <b>ICSAB</b>			Method: <b>E200.8</b>		
Analysis Date: <b>09/24/14 07:01</b>			Units: <b>mg/L</b>		Prep Info: Prep Date:			Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.000242	0.010		0		0	0				
Zinc	0.0120	0.010	0.01	0	120	70	130				

Associated samples: **H14090349-001B, H14090349-001C, H14090349-002B, H14090349-002C, H14090349-003B, H14090349-003C, H14090349-004B, H14090349-004C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** R100829

Run ID :Run Order: FIA203-HE_140924A: 10	SampType: Initial Calibration Blank, Instrument Blank	Lab ID: ICB	Method: A4500 N-C
Analysis Date: 09/24/14 10:11	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
Nitrogen, Total	-0.0437 0.10 0 0 0		
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A			
Run ID :Run Order: FIA203-HE_140924A: 61	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: A4500 N-C
Analysis Date: 09/24/14 11:12	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
Nitrogen, Total	0.470 0.10 0.5 0 94 90 110		
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A			
Run ID :Run Order: FIA203-HE_140924A: 83	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: A4500 N-C
Analysis Date: 09/24/14 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
Nitrogen, Total	0.533 0.10 0.5 0 107 90 110		
Associated samples: H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: R100883**

**Date:** 24-Oct-14

Run ID :Run Order: ICPMS204-B_140924A: 10	SampType: Initial Calibration Verification Standard				Lab ID: ICV STD				Method: E200.8			
Analysis Date: 09/24/14 14:35	Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0607	0.0050	0.06	0	101	90	110					
Cadmium	0.0319	0.0010	0.03	0	106	90	110					
Copper	0.0634	0.010	0.06	0	106	90	110					
Lead	0.0602	0.010	0.06	0	100	90	110					
Zinc	0.0632	0.010	0.06	0	105	90	110					

Associated samples: H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C

Run ID :Run Order: ICPMS204-B_140924A: 11	SampType: Interference Check Sample A				Lab ID: ICSA				Method: E200.8			
Analysis Date: 09/24/14 14:40	Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.000109	0.0050		0								
Cadmium	0.000840	0.0010		0								
Copper	0.000385	0.010		0								
Lead	0.000242	0.010		0								
Zinc	0.00150	0.010		0								

Associated samples: H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C

Run ID :Run Order: ICPMS204-B_140924A: 12	SampType: Interference Check Sample AB				Lab ID: ICSAB				Method: E200.8			
Analysis Date: 09/24/14 14:44	Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0102	0.0050	0.01	0	102	70	130					
Cadmium	0.00984	0.0010	0.01	0	98	70	130					
Copper	0.0204	0.010	0.02	0	102	70	130					
Lead	0.000248	0.010		0		0	0					
Zinc	0.0114	0.010	0.01	0	114	70	130					

Associated samples: H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: R100883**

**Date:** 24-Oct-14

Run ID :Run Order: ICPMS204-B_140924A: 18			SampType: Method Blank			Lab ID: ICB			Method: E200.8		
Analysis Date: 09/24/14 15:15			Units: mg/L			Prep Info: Prep Date:			Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Cadmium	ND	6E-06									
Copper	ND	3E-05									
Lead	ND	8E-06									
Zinc	ND	0.0003									

Associated samples: **H14090349-005B, H14090349-006B, H14090349-007B, H14090349-008B, H14090349-009B, H14090349-010B, H14090349-011B, H14090349-012B, H14090349-013B, H14090349-014B, H14090349-015B**

Run ID :Run Order: ICPMS204-B_140924A: 19		SampType: Laboratory Fortified Blank				Lab ID: LFB			Method: E200.8		
Analysis Date: 09/24/14 15:20		Units: mg/L				Prep Info:		Prep Date:		Prep Method:	
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0492	0.0050	0.05	0	98	85	115				
Cadmium	0.0492	0.0010	0.05	0	98	85	115				
Copper	0.0510	0.010	0.05	0	102	85	115				
Lead	0.0488	0.010	0.05	0	98	85	115				
Zinc	0.0524	0.010	0.05	0	105	85	115				

Associated samples: **H14090349-005B, H14090349-006B, H14090349-007B, H14090349-008B, H14090349-009B, H14090349-010B, H14090349-011B, H14090349-012B, H14090349-013B, H14090349-014B, H14090349-015B**

Run ID :Run Order: ICPMS204-B_140924A: 50		SampType: Initial Calibration Verification Standard				Lab ID: ICV STD			Method: E200.8		
Analysis Date: 09/24/14 17:59		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0597	0.0050	0.06	0	99	90	110				
Cadmium	0.0317	0.0010	0.03	0	106	90	110				
Copper	0.0620	0.010	0.06	0	103	90	110				
Lead	0.0604	0.010	0.06	0	101	90	110				
Zinc	0.0622	0.010	0.06	0	104	90	110				

Associated samples: **H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C**

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** R100883

Run ID :Run Order: ICPMS204-B_140924A: 51	SampType: Interference Check Sample A				Lab ID: ICSA				Method: E200.8			
Analysis Date: 09/24/14 18:03	Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.000111	0.0050		0								
Cadmium	0.000826	0.0010		0								
Copper	0.000392	0.010		0								
Lead	0.000239	0.010		0								
Zinc	0.00169	0.010		0								

Associated samples: H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C

Run ID :Run Order: ICPMS204-B_140924A: 52	SampType: Interference Check Sample AB				Lab ID: ICSAB				Method: E200.8			
Analysis Date: 09/24/14 18:07	Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0104	0.0050	0.01	0	104	70	130					
Cadmium	0.0100	0.0010	0.01	0	100	70	130					
Copper	0.0196	0.010	0.02	0	98	70	130					
Lead	0.000258	0.010		0		0	0					
Zinc	0.0113	0.010	0.01	0	113	70	130					

Associated samples: H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C

Run ID :Run Order: ICPMS204-B_140924A: 89	SampType: Sample Matrix Spike				Lab ID: H14090349-011BMS				Method: E200.8			
Analysis Date: 09/25/14 00:41	Units: mg/L				Prep Info: Prep Date:				Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0784	0.0010	0.05	0.02781	101	70	130					
Cadmium	0.0495	0.0010	0.05	0.0000227	99	70	130					
Copper	0.0530	0.0050	0.05	0.002889	100	70	130					
Lead	0.0496	0.0010	0.05	0.0001652	99	70	130					
Zinc	0.0537	0.010	0.05	0.003264	101	70	130					

Associated samples: H14090349-005B, H14090349-006B, H14090349-007B, H14090349-008B, H14090349-009B, H14090349-010B, H14090349-011B, H14090349-012B, H14090349-013B, H14090349-014B, H14090349-015B

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100883**

**Date:** 24-Oct-14

Run ID :Run Order: ICPMS204-B_140924A: 90		SampType: Sample Matrix Spike Duplicate				Lab ID: H14090349-011BMSD			Method: E200.8		
Analysis Date: 09/25/14 00:45		Units: mg/L				Prep Info:		Prep Date:		Prep Method:	
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0779	0.0010	0.05	0.02781	100	70	130	0.0784	0.6	20	
Cadmium	0.0496	0.0010	0.05	0.0000227	99	70	130	0.04947	0.3	20	
Copper	0.0526	0.0050	0.05	0.002889	99	70	130	0.05296	0.7	20	
Lead	0.0495	0.0010	0.05	0.0001652	99	70	130	0.04961	0.2	20	
Zinc	0.0534	0.010	0.05	0.003264	100	70	130	0.05367	0.6	20	

Associated samples: H14090349-005B, H14090349-006B, H14090349-007B, H14090349-008B, H14090349-009B, H14090349-010B, H14090349-011B, H14090349-012B, H14090349-013B, H14090349-014B, H14090349-015B

Run ID :Run Order: ICPMS204-B_140924A: 188		SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8			
Analysis Date: 09/25/14 08:36		Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000118	0.0050		0							
Cadmium	0.000741	0.0010		0							
Copper	0.000305	0.010		0							
Lead	0.000227	0.010		0							
Zinc	0.00152	0.010		0							

Associated samples: H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C

Run ID :Run Order: ICPMS204-B_140924A: 189			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 09/25/14 08:41		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0108	0.0050	0.01	0	108	70	130				
Cadmium	0.00970	0.0010	0.01	0	97	70	130				
Copper	0.0200	0.010	0.02	0	100	70	130				
Lead	0.000247	0.010		0		0	0				
Zinc	0.0113	0.010	0.01	0	113	70	130				

Associated samples: H14090349-005B, H14090349-005C, H14090349-006B, H14090349-006C, H14090349-007B, H14090349-007C, H14090349-008B, H14090349-008C, H14090349-009B, H14090349-009C, H14090349-010B, H14090349-010C, H14090349-011B, H14090349-011C, H14090349-012B, H14090349-012C, H14090349-013B, H14090349-013C, H14090349-014B, H14090349-014C, H14090349-015B, H14090349-015C

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

Prepared by Helena, MT Branch

**BatchID:** R100918

Run ID :Run Order: ICPMS204-B_140926B: 10	SampType: Initial Calibration Verification Standard				Lab ID: ICV STD			Method: E200.8			
Analysis Date: 09/26/14 19:52	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0613	0.010	0.06	0	102	90	110				

Associated samples: **H14090349-009C**

Run ID :Run Order: ICPMS204-B_140926B: 11	SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.8			
Analysis Date: 09/26/14 19:56	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.00157	0.010		0							

Associated samples: **H14090349-009C**

Run ID :Run Order: ICPMS204-B_140926B: 12	SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.8			
Analysis Date: 09/26/14 20:00	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0116	0.010	0.01	0	116	70	130				

Associated samples: **H14090349-009C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100946**

**Date:** 24-Oct-14

Run ID :Run Order: <b>FIA203-HE_140929B: 8</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E350.1</b>		
Analysis Date: <b>09/29/14 10:43</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Ammonia as N	1.04	0.055	1	0	<b>104</b>	90	110			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										

Run ID :Run Order: <b>FIA203-HE_140929B: 9</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E350.1</b>		
Analysis Date: <b>09/29/14 10:44</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Ammonia as N	0.455	0.050	0.5	0	<b>91</b>	90	110			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										

Run ID :Run Order: <b>FIA203-HE_140929B: 11</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E350.1</b>		
Analysis Date: <b>09/29/14 10:46</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Ammonia as N	-0.0328	0.050		0		0	0			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										

Run ID :Run Order: <b>FIA203-HE_140929B: 14</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E350.1</b>		
Analysis Date: <b>09/29/14 10:50</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Ammonia as N	14.8	0.50	15.2	0	<b>98</b>	90	110			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										

Run ID :Run Order: <b>FIA203-HE_140929B: 20</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14090349-001DMS</b>			Method: <b>E350.1</b>		
Analysis Date: <b>09/29/14 10:57</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit Qual
Nitrogen, Ammonia as N	0.808	0.055	1	0	<b>81</b>	80	120			
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>										

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R100946**

**Date:** 24-Oct-14

Run ID :Run Order: <b>FIA203-HE_140929B: 21</b>	SampType: <b>Sample Matrix Spike Duplicate</b>	Lab ID: <b>H14090349-001DMSD</b>	Method: <b>E350.1</b>
Analysis Date: <b>09/29/14 10:58</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Ammonia as N	0.824 0.055 1 0	82 80 120 0.8083	1.9 10
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

Run ID :Run Order: <b>FIA203-HE_140929B: 28</b>	SampType: <b>Continuing Calibration Verification Standar</b>	Lab ID: <b>CCV</b>	Method: <b>E350.1</b>
Analysis Date: <b>09/29/14 11:07</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Ammonia as N	0.454 0.050 0.5 0	91 90 110	
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

Run ID :Run Order: <b>FIA203-HE_140929B: 40</b>	SampType: <b>Sample Matrix Spike</b>	Lab ID: <b>H14090354-001AMS</b>	Method: <b>E350.1</b>
Analysis Date: <b>09/29/14 11:21</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Ammonia as N	0.798 0.055 1 0	80 80 120	
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

Run ID :Run Order: <b>FIA203-HE_140929B: 41</b>	SampType: <b>Sample Matrix Spike Duplicate</b>	Lab ID: <b>H14090354-001AMSD</b>	Method: <b>E350.1</b>
Analysis Date: <b>09/29/14 11:22</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrogen, Ammonia as N	0.777 0.055 1 0	78 80 120 0.7983	2.6 10 S
Associated samples: <b>H14090349-001D, H14090349-002D, H14090349-003D, H14090349-004D, H14090349-005D, H14090349-006D, H14090349-007D, H14090349-008D, H14090349-009D, H14090349-010D, H14090349-011D, H14090349-012D, H14090349-013D, H14090349-014D, H14090349-015D</b>			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

Prepared by Helena, MT Branch

**BatchID:** R101303

Run ID :Run Order: ICPMS204-B_141010A: 10			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: SW6020		
Analysis Date: 10/10/14 11:03		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0604	0.0010	0.06	0	101	90	110				
Cadmium	0.0315	0.0010	0.03	0	105	90	110				
Copper	0.0616	0.0010	0.06	0	103	90	110				
Lead	0.0596	0.0010	0.06	0	99	90	110				
Zinc	0.0631	0.0010	0.06	0	105	90	110				

Associated samples: H14090349-018A, H14090349-018B, H14090349-019A, H14090349-019B, H14090349-020A, H14090349-020B, H14090349-021A, H14090349-021B, H14090349-022A, H14090349-022B, H14090349-023A, H14090349-023B, H14090349-024A, H14090349-024B, H14090349-025A, H14090349-025B, H14090349-026A, H14090349-026B, H14090349-027A, H14090349-027B, H14090349-028A, H14090349-028B, H14090349-029A, H14090349-029B, H14090349-030A, H14090349-030B, H14090349-031A, H14090349-031B, H14090349-032A, H14090349-032B

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 24-Oct-14

Prepared by Helena, MT Branch

**BatchID:** R101349

Run ID :Run Order: <b>SOIL DRYING OVEN 2_141010A: 2</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14090349-019BDUP</b>	Method: <b>D2974</b>
Analysis Date: <b>10/13/14 13:57</b>	Units: <b>wt%</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result	PQL	SPK value
Moisture	62.6	0.20	0

Associated samples: **H14090349-018B, H14090349-019B, H14090349-020B, H14090349-021B, H14090349-022B, H14090349-023B, H14090349-024B, H14090349-025B, H14090349-026B, H14090349-027B, H14090349-028B, H14090349-029B, H14090349-030B, H14090349-031B, H14090349-032B**

Run ID :Run Order: <b>SOIL DRYING OVEN 2_141010A: 3</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14090349-028BDUP</b>	Method: <b>D2974</b>
Analysis Date: <b>10/13/14 13:57</b>	Units: <b>wt%</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result	PQL	SPK value
Moisture	65.2	0.20	0

Associated samples: **H14090349-018B, H14090349-019B, H14090349-020B, H14090349-021B, H14090349-022B, H14090349-023B, H14090349-024B, H14090349-025B, H14090349-026B, H14090349-027B, H14090349-028B, H14090349-029B, H14090349-030B, H14090349-031B, H14090349-032B**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: TSS140919A**

**Date:** 24-Oct-14

Run ID :Run Order: <b>ACCU-124 (14410200)_140919B: 1</b>	SampType: <b>Method Blank</b>	Lab ID: <b>MB-1_140919A</b>	Method: <b>A2540 D</b>
Analysis Date: <b>09/19/14 11:28</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	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: <b>H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A</b>			

Run ID :Run Order: <b>ACCU-124 (14410200)_140919B: 2</b>	SampType: <b>Laboratory Control Sample</b>	Lab ID: <b>LCS-2_140919A</b>	Method: <b>A2540 D</b>
Analysis Date: <b>09/19/14 11:29</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Solids, Total Suspended TSS @ 105 C	93.0 10 100 0	93 80 120	
Associated samples: <b>H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A</b>			

Run ID :Run Order: <b>ACCU-124 (14410200)_140919B: 4</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14090336-001A DUP</b>	Method: <b>A2540 D</b>
Analysis Date: <b>09/19/14 11:29</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Solids, Total Suspended TSS @ 105 C	ND 10 0	0	5
Associated samples: <b>H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A</b>			

Run ID :Run Order: <b>ACCU-124 (14410200)_140919B: 1</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14090338-001B DUP</b>	Method: <b>A2540 D</b>
Analysis Date: <b>09/19/14 11:33</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Solids, Total Suspended TSS @ 105 C	ND 10 0	0	5
Associated samples: <b>H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A</b>			

Run ID :Run Order: <b>ACCU-124 (14410200)_140919B: 2</b>	SampType: <b>Method Blank</b>	Lab ID: <b>MB-25_140919A</b>	Method: <b>A2540 D</b>
Analysis Date: <b>09/19/14 11:36</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	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: <b>H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A</b>			

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14090349  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 24-Oct-14

**BatchID:** TSS140919A

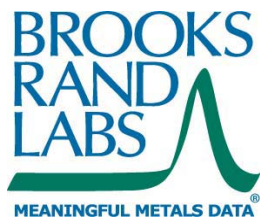
Run ID :Run Order: <b>ACCU-124 (14410200)_140919B: 2</b>	SampType: <b>Laboratory Control Sample</b>	Lab ID: <b>LCS-26_140919A</b>	Method: <b>A2540 D</b>
Analysis Date: <b>09/19/14 11:36</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Solids, Total Suspended TSS @ 105 C	99.0 10 100 0	99 80 120	
Associated samples: <b>H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A</b>			

Run ID :Run Order: <b>ACCU-124 (14410200)_140919B: 2</b>	SampType: <b>Sample Duplicate</b>	Lab ID: <b>H14090350-001A DUP</b>	Method: <b>A2540 D</b>
Analysis Date: <b>09/19/14 12:50</b>	Units: <b>mg/L</b>	Prep Info: Prep Date:	Prep Method:
Analytes <b>1</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Solids, Total Suspended TSS @ 105 C	137 33 0	136.7 0.0 5	
Associated samples: <b>H14090349-001A, H14090349-002A, H14090349-003A, H14090349-004A, H14090349-005A, H14090349-006A, H14090349-007A, H14090349-008A, H14090349-009A, H14090349-010A, H14090349-011A, H14090349-012A, H14090349-013A, H14090349-014A, H14090349-015A</b>			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



October 15, 2014

Energy Laboratories, Inc.  
ATTN: Jonathan Dee Hager  
PO Box 5688  
Helena MT 59604  
jhager@energylab.com

RE: Project ENL-HL1201

Client Project: H14090349

Dear Jonathan Dee Hager,

This report contains results for the 5 samples received by Brooks Rand Labs (BRL) on September 23, 2014. The samples were logged-in for the contracted analyses according to the chain-of-custody form(s). The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were method blank corrected as described in the calculations section of the relevant BRL SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details. All data is reported without qualification (with the exception of concentration qualifiers), and all associated quality control sample results meet the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Lydia Greaves  
Project Manager  
Lydia@brooksrands.com

## Report Information

### Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksrand.com/about/accreditations-certifications/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BLK</b>	method blank	<b>MS</b>	matrix spike
<b>BRL</b>	Brooks Rand Labs	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>RSD</b>	relative standard deviation
<b>IBL</b>	instrument blank	<b>SCV</b>	secondary calibration verification
<b>ICV</b>	initial calibration verification	<b>SOP</b>	standard operating procedure
<b>MDL</b>	method detection limit	<b>SRM</b>	standard reference material
<b>MRL</b>	method reporting limit	<b>T</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.

**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1439012  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12973

## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H14090349-002F	1439012-01	DIW	Field Blank	09/16/2014	09/23/2014
H14090349-003F	1439012-02	Water	Sample	09/16/2014	09/23/2014
H14090349-004F	1439012-03	Water	Field Duplicate	09/16/2014	09/23/2014
H14090349-016B	1439012-04	Water	Sample	09/16/2014	09/23/2014
H14090349-017A	1439012-05	DIW	Trip Blank	09/16/2014	09/23/2014

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	09/29/2014	10/01/2014	B141764	1400835



## Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>H14090349-002F</b>										
1439012-01	MeHg	DIW	T	0.020	U	0.020	0.050	ng/L	B141764	1400835
<b>H14090349-003F</b>										
1439012-02	MeHg	Water	T	0.455		0.020	0.049	ng/L	B141764	1400835
<b>H14090349-004F</b>										
1439012-03	MeHg	Water	T	0.618		0.019	0.049	ng/L	B141764	1400835
<b>H14090349-016B</b>										
1439012-04	MeHg	Water	T	0.237		0.019	0.048	ng/L	B141764	1400835
<b>H14090349-017A</b>										
1439012-05	MeHg	DIW	T	0.020	U	0.020	0.050	ng/L	B141764	1400835

## Accuracy & Precision Summary

Batch: B141764  
Lab Matrix: Water  
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B141764-BS1	Laboratory Fortified Blank (1438002) MeHg		1.000	1.125	ng/L	112% 67-133	
B141764-BS2	Laboratory Fortified Blank (1438002) MeHg		1.000	0.885	ng/L	88% 67-133	
B141764-MS2	Matrix Spike (1439022-02) MeHg	0.138	1.250	1.119	ng/L	78% 65-135	
B141764-MSD2	Matrix Spike Duplicate (1439022-02) MeHg	0.138	1.250	1.519	ng/L	110% 65-135	30% 35

## Method Blanks & Reporting Limits

Batch: B141764  
Matrix: Water  
Method: EPA 1630  
Analyte: MeHg

Sample	Result	Units
B141764-BLK1	0.007	ng/L
B141764-BLK2	0.009	ng/L
B141764-BLK3	0.006	ng/L
B141764-BLK4	0.014	ng/L
Average: 0.009		Standard Deviation: 0.004
Limit: 0.045		Limit: 0.015
		MDL: 0.020
		MRL: 0.050

**Project ID:** ENL-HL1201  
**PM:** Lydia Greaves



BRL Report 1439012  
**Client PM:** Jonathan Dee Hager  
**Client PO:** H12973

## Sample Containers

<b>Lab ID:</b> 1439012-01 <b>Sample:</b> H14090349-002F			<b>Report Matrix:</b> DIW <b>Sample Type:</b> Field Blank			<b>Collected:</b> 09/16/2014 <b>Received:</b> 09/23/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0106	2mL 6N HCl (PP)	1434013	<2	Cooler
<b>Lab ID:</b> 1439012-02 <b>Sample:</b> H14090349-003F			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample			<b>Collected:</b> 09/16/2014 <b>Received:</b> 09/23/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0106	2mL 6N HCl (PP)	1434013	<2	Cooler
<b>Lab ID:</b> 1439012-03 <b>Sample:</b> H14090349-004F			<b>Report Matrix:</b> Water <b>Sample Type:</b> Field Duplicate			<b>Collected:</b> 09/16/2014 <b>Received:</b> 09/23/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0106	2mL 6N HCl (PP)	1434013	<2	Cooler
<b>Lab ID:</b> 1439012-04 <b>Sample:</b> H14090349-016B			<b>Report Matrix:</b> Water <b>Sample Type:</b> Sample			<b>Collected:</b> 09/16/2014 <b>Received:</b> 09/23/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0106	2mL 6N HCl (PP)	1434013	<2	Cooler
<b>Lab ID:</b> 1439012-05 <b>Sample:</b> H14090349-017A			<b>Report Matrix:</b> DIW <b>Sample Type:</b> Trip Blank			<b>Collected:</b> 09/16/2014 <b>Received:</b> 09/23/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>	<b>pH</b>	<b>Ship. Cont.</b>
A	Bottle FLPE Hg-SP	250mL	14-0106	2mL 6N HCl (PP)	1434013	<2	Cooler

## Shipping Containers

### Cooler

**Received:** September 23, 2014 9:30  
**Tracking No:** 1Z37EW970152316719 via UPS  
**Coolant Type:** Ice  
**Temperature:** 1.7 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No

**Custody seals present?** Yes  
**Custody seals intact?** Yes  
**COC present?** Yes

3161 East Lyndale Avenue  
Helena, MT 59601  
(406) 442-0711

BRL-Report 1439012  
Page 1 of 4  
19-Sep-14

# CHAIN-OF-CUSTODY RECORD

Custody Seal:	Y	N
Intacted:	Y	N
Signature Match:	Y	N

Shipped By: \_\_\_\_\_

Receipt Temp: \_\_\_\_\_



H14090349

**Subcontractor:**

Brooks Rand Labs  
3958 6th Ave NW  
Seattle, WA 98106  
TEL: (206) 632-6206  
Acct #:  
FAX: (206) 632-6017

**Subcontractor's Client:**

Rush	Sample ID	Matrix	Collection Date	Bottle Type
<input type="checkbox"/>	H14090349-002F	Aqueous	09/16/14 12:45 P	1-CLIENT-SLD
<input type="checkbox"/>	H14090349-003F	Aqueous	09/16/14 01:00 P	1-CLIENT-SLD
<input type="checkbox"/>	H14090349-004F	Aqueous	09/16/14 01:00 P	1-CLIENT-SLD
<input type="checkbox"/>	H14090349-016B	Aqueous	09/16/14 11:30 A	1-CLIENT-SLD
<input type="checkbox"/>	H14090349-017A	Aqueous	09/16/14 09:00 A	1-CLIENT-SLD

Requested Tests					
SUB-BROOKSRAND	1	1	1	1	1

**Earliest Due Date:** 10/2/2014

**Comments:**  
PO# H12973

QC Level:

**ST**

Date/Time

**Relinquished by:**

David

9/23/14 0930 Received by:

Cori With

**Relinquished by:**

Received by: 9/19/14 11:30



# Workorder Receipt Checklist

MT DEQ-Federal Superfund

H14090349

Login completed by: Tracy L. Lorash

Date Received: 9/18/2014

Reviewed by: BL2000\sdull

Received by: abb

Reviewed Date: 9/23/2014

Carrier Hand Del  
name:

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

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Per Erich's conversation with Amanda, we are to analyze sediments as historical.  
Sample ID on COC is LBR-CFR-02 -ID on bottles is LBR-CFR. Logged in with ID from COC.  
Sample ID on COC is FC-CFR duplicate -ID on 500 mL bottle is FC=CFR-duplicate. Logged in with ID from COC.  
Cooler 1 was received at 4.6°C, Cooler 2 at 0.9°C, Cooler 3 at 0.7°C, Cooler 4 at 1.2°C. Samples were received on wet ice. Sediments were in Cooler 1. TI 9/19/14



# Chain of Custody and Analytical Request Record

Page 1 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (via Respec)</b>		Project Name, PWS, Permit, Etc. <b>CFRou Monitoring</b>		Sample Origin State: <b>MT</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>erich.weber@respec.com joe.naughton@respec.com gary.infman@respec.com benquinones@mt.gov</b>		Contact Name: <b>Ben Quinones</b>		Cell: <b>439-0563</b>		Sampler: (Please Print) <b>J. Naughton H. McAdams E. Weber</b>	
Invoice Address (Required): <b>MT DEQ P.O. Box 200901 Helena, MT 59620-0901</b>		Invoice Contact & Phone: <b>Ben Quinones 406.841.5709</b>		Purchase Order: <b>4758/15703</b>		Quote/Bottle Order:	

Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> Format: <input type="checkbox"/> State: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: <input type="checkbox"/> 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) <b>R U S H</b>		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page		Shipped by: <b>Ward del.</b> Cooler ID(s): <b>Y</b>									
Matrix		TRA, Cd, Cu, Pb, Zn		Diss As, Cd, Cu, Pb, Zn		TPN		NH <sub>3</sub> , NO <sub>3</sub> , TP		TSS		Tot Alk., SO <sub>4</sub> , Cl <sup>-</sup>		Hardness (TRCa+Mg)		DOC		Tot As, Cd, Cu, Pb, Zn (DW)	
CFR-116A		9-16-2014		09:00		6W, 1S		X		X		X		X		X		X	
Field Blank #1		9-16-2014		12:45		6W		X		X		X		X		X		X	
FC-CFR		9-16-2014		13:00		6W, 1S		X		X		X		X		X		X	
FC-CFR duplicate		9-16-2014		13:00		6W, 1S		X		X		X		X		X		X	
LBR-CFR-02		9-16-2014		14:30		6W, 1S		X		X		X		X		X		X	
CFR-27H		9-16-2014		16:30		6W, 1S		X		X		X		X		X		X	
CFR-11F		9-16-2014		17:30		6W, 1S		X		X		X		X		X		X	
CFR-07D		9-17-2014		09:15		6W, 1S		X		X		X		X		X		X	
CFR-03A		9-17-2014		10:30		6W, 1S		X		X		X		X		X		X	
WSC-SBC		9-17-2014		11:15		6W, 1S		X		X		X		X		X		X	

Relinquished by (print): <b>Erich Weber</b>		Date/Time: <b>9-18-2014 14:05</b>		Signature: <b>[Signature]</b>	
Relinquished by (print):		Date/Time:		Signature:	
Sample Disposal:		Return to Client:		Lab Disposal:	
Received by Laboratory: <b>Amanda Backoun</b>		Date/Time: <b>9/18/14 14:05</b>		Signature: <b>[Signature]</b>	

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](http://www.energylab.com) for additional information.



# Chain of Custody and Analytical Request Record

Page 2 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (via Respec)</b>		Project Name, PWS, Permit, Etc. <b>CFRAN Monitoring</b>		Sample Origin State: <b>MT</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>See page 1</b>		Contact Name: <b>See page 1</b>		Cell:		Sampler: (Please Print) <b>J. Naughton E. Weber H. McAdams</b>	
<input type="checkbox"/> No Hard Copy Email:		Invoice Contact & Phone: <b>See page 1</b>		Purchase Order:		Quote/Bottle Order: <b>H950/15703</b>	
Invoice Address (Required): <b>See page 1</b>		ANALYSIS REQUESTED		Standard Turnaround (TAT)		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:		Matrix		SEE ATTACHED		Comments:	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	TSS		Sieve sediment for <0.063mm fraction only, analyze for Total Metals as dry weight.	
1 SS-25	9-17-2014	12:30	6W, 1S	X		R	
2 MWB-SBC	9-17-2014	13:15	6W, 1S	X		U	
3 Field Blank #2	9-17-2014	14:15	6W	X		S	
4 MCWC-MWJB	9-17-2014	14:45	6W, 1S	X		H	
5 MCWC-MWJB duplicate	9-17-2014	14:45	6W, 1S	X			
6 LC-7.5	9-17-2014	16:00	1S	X			
7 RTC-1.5	9-17-2014	16:45	1S	X			
8							
9							
10							
Custody Record MUST be Signed		Signature: <b>Erich Weber</b>		Received by (print): <b>See page 1</b>		Date/Time: <b>9-18-2014 14:05</b>	
Sample Disposal:		Return to Client:		Received by (print):		Date/Time:	
Signature: <b>Aronda Backoun</b>		Signature: <b>Aronda Backoun</b>		Received by Laboratory:		Date/Time: <b>9/18/14 14:05</b>	
Lab Disposal:		Return to Client:		Signature:		Date/Time:	

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](http://www.energylab.com) for additional information.



# Chain of Custody and Analytical Request Record

Page 3 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEP (via Respec)</b>	Project Name, PWS, Permit, Etc. <b>CFROW Monitoring</b>	Sample Origin State: <b>MT</b>	EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>
Report Mail Address (Required):  <b>See page 1</b>	Contact Name: <b>See page 1</b>	Cell: <b>See page 1</b>	Sampler: (Please Print) <b>J. Naughton H. McAdams E. Weber</b>
<input type="checkbox"/> No Hard Copy Email:	Invoice Contact & Phone: <b>See page 1</b>	Purchase Order: <b>H95B/15703</b>	Quote/Bottle Order: <b>H95B/15703</b>

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	ANALYSIS REQUESTED		Standard Turnaround (TAT)	Comments:	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Shipped by: <b>McAdams</b>
				Number of Containers Sample Type: A W S V B O DW Vegetation Bioassay Other DW - Drinking Water	Methy Hg (Contract)				
1 CFR-84F	9-16-2014	11:30	2W	X	X				
2 Field Blank #1	9-16-2014	12:45	1W						
3 FC-CFR	9-16-2014	13:00	1W						
4 FC-CFR duplicate	9-16-2014	13:00	1W						
5									
6									
7									
8									
9									
10									

<b>Custody Record MUST be Signed</b>	Relinquished by (print): <b>Enrich Weber</b>	Date/Time: <b>9-19-2014 14:05</b>	Signature: <b>SDR</b>	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:	Date/Time:	Signature:
	<b>Amador Blackman 9/18/14 14:05</b>					

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.enrslabs.com](http://www.enrslabs.com) for additional information.

**APPENDIX B4**  
**ANALYTICAL LABORATORY RESULTS**  
**4<sup>TH</sup> QUARTER MONITORING**

---

## ANALYTICAL SUMMARY REPORT

January 07, 2015

MT DEQ-Federal Superfund  
PO Box 200901  
Helena, MT 59620-0901

Work Order: H14120106 Quote ID: H958

Project Name: CFR Monitoring-474374

Energy Laboratories Inc Helena MT received the following 16 samples for MT DEQ-Federal Superfund on 12/5/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14120106-001	CFR-116A	12/01/14 9:30	12/05/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14120106-002	Field Blank #1	12/01/14 12:00	12/05/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Mercury, Total Recoverable Hardness as CaCO <sub>3</sub> Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H14120106-003	FC-CFR	12/01/14 13:00	12/05/14	Aqueous	Same As Above
H14120106-004	FC-CFR Duplicate	12/01/14 13:00	12/05/14	Aqueous	Same As Above

## ANALYTICAL SUMMARY REPORT

H14120106-005	LBR-CFR-02	12/01/14 14:00	12/05/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Carbon, Dissolved Organic Conductivity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H14120106-006	CFR-27H	12/01/14 16:00	12/05/14	Aqueous	Same As Above
H14120106-007	CFR-11F	12/02/14 9:00	12/05/14	Aqueous	Same As Above
H14120106-008	CFR-07D	12/02/14 11:00	12/05/14	Aqueous	Same As Above
H14120106-009	CFR-03A	12/02/14 12:15	12/05/14	Aqueous	Same As Above
H14120106-010	WSC-SBC	12/02/14 12:45	12/05/14	Aqueous	Same As Above
H14120106-011	SS-25	12/02/14 13:45	12/05/14	Aqueous	Same As Above
H14120106-012	MWB-SBC	12/02/14 14:30	12/05/14	Aqueous	Same As Above
H14120106-013	Field Blank #2	12/02/14 15:30	12/05/14	Aqueous	Same As Above
H14120106-014	MCWC-MWB	12/02/14 16:00	12/05/14	Aqueous	Same As Above
H14120106-015	MCWC-MWB Duplicate	12/02/14 16:00	12/05/14	Aqueous	Same As Above
H14120106-016	CFR-84F	12/01/14 10:45	12/05/14	Aqueous	Mercury, Total Recoverable Digestion, Mercury by CVAA Subcontracted, Analytics

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

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

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

Report Approved By:



**CLIENT:** MT DEQ-Federal Superfund  
**Project:** CFR Monitoring-474374  
**Work Order:** H14120106

**Report Date:** 01/07/15

## **CASE NARRATIVE**

---

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

Samples for Methyl Mercury were submitted to BrooksRand Laboratories. The report is attached. Wj 1/7/15



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-116A  
**Lab ID:** H14120106-001  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 09:30 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	7	mg/L		1		A2540 D	12/05/14 14:16 / SR		I24 (14410200)_141205A : 11		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	12/09/14 13:03 / SR		PHSC_101-H_141209A : 24		R102712
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	12/09/14 13:03 / SR		PHSC_101-H_141209A : 24		R102712
Chloride	4	mg/L		1		E300.0	12/08/14 13:42 / SR		IC102-H_141208A : 28		R102706
Sulfate	45	mg/L		1		E300.0	12/08/14 13:42 / SR		IC102-H_141208A : 28		R102706
Hardness as CaCO <sub>3</sub>	162	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 1		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.7	mg/L		0.5		A5310 C	12/11/14 22:11 / eli-c		SUB-C194275 : 7		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:29 / cm		FIA203-HE_141208C : 25		R102707
Nitrogen, Nitrate+Nitrite as N	0.17	mg/L		0.05		E353.2	12/08/14 11:17 / cm		FIA203-HE_141208A : 28		R102687
Nitrogen, Total	0.46	mg/L		0.05		A4500 N-C	12/10/14 16:02 / cm	12/09/14 08:09	FIA203-HE_141210C : 15		27321
Phosphorus, Total as P	0.037	mg/L		0.005		E365.1	12/08/14 14:25 / cm	12/08/14 13:28	FIA202-HE_141208A : 33		27310
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	12/09/14 22:43 / dck		ICPMS204-B_141209B : 108		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/09/14 22:43 / dck		ICPMS204-B_141209B : 108		R102739
Copper	0.004	mg/L		0.001		E200.8	12/09/14 22:43 / dck		ICPMS204-B_141209B : 108		R102739
Lead	ND	mg/L		0.0003		E200.8	12/09/14 22:43 / dck		ICPMS204-B_141209B : 108		R102739
Zinc	0.009	mg/L		0.008		E200.8	12/09/14 22:43 / dck		ICPMS204-B_141209B : 108		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.007	mg/L		0.001		E200.8	12/09/14 23:11 / dck	12/08/14 08:42	ICPMS204-B_141209B : 114		27296
Cadmium	0.00006	mg/L		0.00003		E200.8	12/09/14 23:11 / dck	12/08/14 08:42	ICPMS204-B_141209B : 114		27296
Calcium	46	mg/L		1		E200.7	12/09/14 13:20 / sld	12/08/14 08:42	ICP2-HE_141209B : 36		27296
Copper	0.009	mg/L		0.001		E200.8	12/09/14 23:11 / dck	12/08/14 08:42	ICPMS204-B_141209B : 114		27296
Lead	0.0010	mg/L		0.0003		E200.8	12/09/14 23:11 / dck	12/08/14 08:42	ICPMS204-B_141209B : 114		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-116A

**Lab ID:** H14120106-001

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/01/14 09:30

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	12	mg/L		1		E200.7	12/09/14 13:20 / sld	12/08/14 08:42	ICP2-HE_141209B : 36		27296
Zinc	0.015	mg/L		0.008		E200.8	12/09/14 23:11 / dck	12/08/14 08:42	ICPMS204-B_141209B : 114		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #1  
**Lab ID:** H14120106-002  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 12:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	12/05/14 14:16 / SR		I24 (14410200)_141205A : 12		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	12/09/14 13:14 / SR		PHSC_101-H_141209A : 28		R102712
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	12/09/14 13:14 / SR		PHSC_101-H_141209A : 28		R102712
Chloride	ND	mg/L		1		E300.0	12/08/14 13:53 / SR		IC102-H_141208A : 29		R102706
Sulfate	ND	mg/L		1		E300.0	12/08/14 13:53 / SR		IC102-H_141208A : 29		R102706
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 2		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	0.5	mg/L		0.5		A5310 C	12/11/14 22:25 / eli-c		SUB-C194275 : 8		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:33 / cm		FIA203-HE_141208C : 28		R102707
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	12/08/14 11:20 / cm		FIA203-HE_141208A : 31		R102687
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	12/10/14 16:03 / cm	12/09/14 08:09	FIA203-HE_141210C : 16		27321
Phosphorus, Total as P	ND	mg/L		0.005		E365.1	12/08/14 14:26 / cm	12/08/14 13:28	FIA202-HE_141208A : 34		27310
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	12/09/14 23:51 / dck		ICPMS204-B_141209B : 123		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/09/14 23:51 / dck		ICPMS204-B_141209B : 123		R102739
Copper	ND	mg/L		0.001		E200.8	12/09/14 23:51 / dck		ICPMS204-B_141209B : 123		R102739
Lead	ND	mg/L		0.0003		E200.8	12/09/14 23:51 / dck		ICPMS204-B_141209B : 123		R102739
Zinc	0.009	mg/L		0.008		E200.8	12/09/14 23:51 / dck		ICPMS204-B_141209B : 123		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	12/09/14 23:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 124		27296
Cadmium	ND	mg/L		0.00003		E200.8	12/09/14 23:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 124		27296
Calcium	ND	mg/L		1		E200.7	12/09/14 13:35 / sld	12/08/14 08:42	ICP2-HE_141209B : 40		27296
Copper	ND	mg/L		0.001		E200.8	12/09/14 23:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 124		27296
Lead	ND	mg/L		0.0003		E200.8	12/09/14 23:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 124		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #1

**Lab ID:** H14120106-002

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/01/14 12:00

**Date Received:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	12/09/14 13:35 / sld	12/08/14 08:42	ICP2-HE_141209B : 40		27296
Mercury	ND	mg/L		5E-06		E245.1	12/11/14 16:52 / rgk	12/09/14 09:43	HGCV202-H_141211A : 79		27324
Zinc	ND	mg/L		0.008		E200.8	12/09/14 23:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 124		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR  
**Lab ID:** H14120106-003  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 13:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		1		A2540 D	12/05/14 14:16 / SR		I24 (14410200)_141205A : 13		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	180	mg/L		4		A2320 B	12/09/14 13:18 / SR		PHSC_101-H_141209A : 30		R102712
Bicarbonate as HCO <sub>3</sub>	220	mg/L		4		A2320 B	12/09/14 13:18 / SR		PHSC_101-H_141209A : 30		R102712
Chloride	4	mg/L		1		E300.0	12/08/14 14:04 / SR		IC102-H_141208A : 30		R102706
Sulfate	16	mg/L		1		E300.0	12/08/14 14:04 / SR		IC102-H_141208A : 30		R102706
Hardness as CaCO <sub>3</sub>	170	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 3		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.3	mg/L		0.5		A5310 C	12/11/14 22:41 / eli-c		SUB-C194275 : 9		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:34 / cm		FIA203-HE_141208C : 29		R102707
Nitrogen, Nitrate+Nitrite as N	0.21	mg/L		0.05		E353.2	12/08/14 11:21 / cm		FIA203-HE_141208A : 32		R102687
Nitrogen, Total	0.50	mg/L		0.05		A4500 N-C	12/10/14 16:07 / cm	12/09/14 08:09	FIA203-HE_141210C : 19		27321
Phosphorus, Total as P	0.046	mg/L		0.005		E365.1	12/08/14 14:29 / cm	12/08/14 13:28	FIA202-HE_141208A : 37		27310
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	12/10/14 00:01 / dck		ICPMS204-B_141209B : 125		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 00:01 / dck		ICPMS204-B_141209B : 125		R102739
Copper	ND	mg/L		0.001		E200.8	12/10/14 00:01 / dck		ICPMS204-B_141209B : 125		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 00:01 / dck		ICPMS204-B_141209B : 125		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 00:01 / dck		ICPMS204-B_141209B : 125		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.007	mg/L		0.001		E200.8	12/10/14 00:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 126		27296
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 00:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 126		27296
Calcium	46	mg/L		1		E200.7	12/09/14 13:39 / sld	12/08/14 08:42	ICP2-HE_141209B : 41		27296
Copper	0.002	mg/L		0.001		E200.8	12/10/14 00:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 126		27296
Lead	0.0020	mg/L		0.0003		E200.8	12/10/14 00:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 126		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** FC-CFR

**Lab ID:** H14120106-003

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/01/14 13:00

**Date Received:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	14	mg/L		1		E200.7	12/09/14 13:39 / sld	12/08/14 08:42	ICP2-HE_141209B : 41		27296
Mercury	0.00019	mg/L		5E-06		E245.1	12/11/14 16:56 / rgk	12/09/14 09:43	HGCV202-H_141211A : 80		27324
Zinc	ND	mg/L		0.008		E200.8	12/10/14 00:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 126		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14120106-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 13:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	8	mg/L		2		A2540 D	12/05/14 14:16 / SR		I24 (14410200)_141205A : 14		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	180	mg/L		4		A2320 B	12/09/14 13:24 / SR		PHSC_101-H_141209A : 32		R102712
Bicarbonate as HCO <sub>3</sub>	210	mg/L		4		A2320 B	12/09/14 13:24 / SR		PHSC_101-H_141209A : 32		R102712
Chloride	4	mg/L		1		E300.0	12/08/14 14:37 / SR		IC102-H_141208A : 33		R102706
Sulfate	16	mg/L		1		E300.0	12/08/14 14:37 / SR		IC102-H_141208A : 33		R102706
Hardness as CaCO <sub>3</sub>	169	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 4		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.3	mg/L		0.5		A5310 C	12/11/14 23:01 / eli-c		SUB-C194275 : 10		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:35 / cm		FIA203-HE_141208C : 30		R102707
Nitrogen, Nitrate+Nitrite as N	0.20	mg/L		0.05		E353.2	12/08/14 11:23 / cm		FIA203-HE_141208A : 33		R102687
Nitrogen, Total	0.40	mg/L		0.05		A4500 N-C	12/10/14 16:08 / cm	12/09/14 08:09	FIA203-HE_141210C : 20		27321
Phosphorus, Total as P	0.048	mg/L		0.005		E365.1	12/08/14 14:30 / cm	12/08/14 13:28	FIA202-HE_141208A : 38		27310
<b>METALS, DISSOLVED</b>											
Arsenic	0.006	mg/L		0.001		E200.8	12/10/14 00:10 / dck		ICPMS204-B_141209B : 127		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 00:10 / dck		ICPMS204-B_141209B : 127		R102739
Copper	ND	mg/L		0.001		E200.8	12/10/14 00:10 / dck		ICPMS204-B_141209B : 127		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 00:10 / dck		ICPMS204-B_141209B : 127		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 00:10 / dck		ICPMS204-B_141209B : 127		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.007	mg/L		0.001		E200.8	12/10/14 00:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 128		27296
Cadmium	ND	mg/L	D	0.00004		E200.8	12/10/14 00:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 128		27296
Calcium	45	mg/L		1		E200.7	12/09/14 13:43 / sld	12/08/14 08:42	ICP2-HE_141209B : 42		27296
Copper	0.007	mg/L		0.001		E200.8	12/10/14 00:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 128		27296
Lead	0.0016	mg/L		0.0003		E200.8	12/10/14 00:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 128		27296

**Report** RL - Analyte reporting limit.  
**Definitions:** D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** FC-CFR Duplicate  
**Lab ID:** H14120106-004  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 13:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	14	mg/L		1		E200.7	12/09/14 13:43 / sld	12/08/14 08:42	ICP2-HE_141209B : 42		27296
Mercury	0.00012	mg/L		5E-06		E245.1	12/12/14 13:19 / rgk	12/10/14 12:59	HGCV202-H_141212A : 13		27352
Zinc	0.009	mg/L		0.008		E200.8	12/10/14 00:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 128		27296

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02  
**Lab ID:** H14120106-005  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 14:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	12/05/14 14:17 / SR		I24 (14410200)_141205A : 16		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	12/09/14 13:30 / SR		PHSC_101-H_141209A : 34		R102712
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	12/09/14 13:30 / SR		PHSC_101-H_141209A : 34		R102712
Chloride	2	mg/L		1		E300.0	12/08/14 15:11 / SR		IC102-H_141208A : 36		R102706
Sulfate	13	mg/L		1		E300.0	12/08/14 15:11 / SR		IC102-H_141208A : 36		R102706
Hardness as CaCO <sub>3</sub>	131	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 5		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.1	mg/L		0.5		A5310 C	12/11/14 23:18 / eli-c		SUB-C194275 : 11		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:36 / cm		FIA203-HE_141208C : 31		R102707
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	12/08/14 11:24 / cm		FIA203-HE_141208A : 34		R102687
Nitrogen, Total	0.20	mg/L		0.05		A4500 N-C	12/10/14 16:09 / cm	12/09/14 08:09	FIA203-HE_141210C : 21		27321
Phosphorus, Total as P	0.034	mg/L		0.005		E365.1	12/08/14 15:44 / cm	12/08/14 13:30	FIA202-HE_141208A : 109		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.004	mg/L		0.001		E200.8	12/10/14 00:19 / dck		ICPMS204-B_141209B : 129		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 00:19 / dck		ICPMS204-B_141209B : 129		R102739
Copper	ND	mg/L		0.001		E200.8	12/10/14 00:19 / dck		ICPMS204-B_141209B : 129		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 00:19 / dck		ICPMS204-B_141209B : 129		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 00:19 / dck		ICPMS204-B_141209B : 129		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.004	mg/L		0.001		E200.8	12/10/14 00:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 135		27296
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 00:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 135		27296
Calcium	38	mg/L		1		E200.7	12/09/14 13:47 / sld	12/08/14 08:42	ICP2-HE_141209B : 43		27296
Copper	ND	mg/L		0.001		E200.8	12/10/14 00:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 135		27296
Lead	ND	mg/L		0.0003		E200.8	12/10/14 00:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 135		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** LBR-CFR-02  
**Lab ID:** H14120106-005  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 14:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	9	mg/L		1		E200.7	12/09/14 13:47 / sld	12/08/14 08:42	ICP2-HE_141209B : 43		27296
Zinc	ND	mg/L		0.008		E200.8	12/10/14 00:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 135		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-27H  
**Lab ID:** H14120106-006  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/01/14 16:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	18	mg/L		1		A2540 D	12/05/14 14:17 / SR		I24 (14410200)_141205A : 17		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	170	mg/L		4		A2320 B	12/09/14 13:36 / SR		PHSC_101-H_141209A : 36		R102712
Bicarbonate as HCO <sub>3</sub>	210	mg/L		4		A2320 B	12/09/14 13:36 / SR		PHSC_101-H_141209A : 36		R102712
Chloride	10	mg/L		1		E300.0	12/08/14 15:22 / SR		IC102-H_141208A : 37		R102706
Sulfate	100	mg/L		1		E300.0	12/08/14 15:22 / SR		IC102-H_141208A : 37		R102706
Hardness as CaCO <sub>3</sub>	254	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 6		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.0	mg/L		0.5		A5310 C	12/11/14 23:35 / eli-c		SUB-C194275 : 12		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:37 / cm		FIA203-HE_141208C : 32		R102707
Nitrogen, Nitrate+Nitrite as N	0.44	mg/L		0.05		E353.2	12/08/14 11:25 / cm		FIA203-HE_141208A : 35		R102687
Nitrogen, Total	0.82	mg/L		0.05		A4500 N-C	12/10/14 16:10 / cm	12/09/14 08:09	FIA203-HE_141210C : 22		27321
Phosphorus, Total as P	0.031	mg/L		0.005		E365.1	12/08/14 15:45 / cm	12/08/14 13:30	FIA202-HE_141208A : 110		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.012	mg/L		0.001		E200.8	12/10/14 00:51 / dck		ICPMS204-B_141209B : 136		R102739
Cadmium	0.00005	mg/L		0.00003		E200.8	12/10/14 00:51 / dck		ICPMS204-B_141209B : 136		R102739
Copper	0.007	mg/L		0.001		E200.8	12/10/14 00:51 / dck		ICPMS204-B_141209B : 136		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 00:51 / dck		ICPMS204-B_141209B : 136		R102739
Zinc	0.013	mg/L		0.008		E200.8	12/10/14 00:51 / dck		ICPMS204-B_141209B : 136		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.014	mg/L		0.001		E200.8	12/10/14 00:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 137		27296
Cadmium	0.00013	mg/L		0.00003		E200.8	12/10/14 00:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 137		27296
Calcium	74	mg/L		1		E200.7	12/09/14 13:58 / sld	12/08/14 08:42	ICP2-HE_141209B : 46		27296
Copper	0.024	mg/L		0.001		E200.8	12/10/14 00:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 137		27296
Lead	0.0026	mg/L		0.0003		E200.8	12/10/14 00:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 137		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-27H

**Lab ID:** H14120106-006

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/01/14 16:00

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	17	mg/L		1		E200.7	12/09/14 13:58 / sld	12/08/14 08:42	ICP2-HE_141209B : 46		27296
Zinc	0.027	mg/L		0.008		E200.8	12/10/14 00:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 137		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-11F  
**Lab ID:** H14120106-007  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 09:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	12/05/14 14:18 / SR		I24 (14410200)_141205A : 18		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	170	mg/L		4		A2320 B	12/09/14 13:41 / SR		PHSC_101-H_141209A : 38		R102712
Bicarbonate as HCO <sub>3</sub>	210	mg/L		4		A2320 B	12/09/14 13:41 / SR		PHSC_101-H_141209A : 38		R102712
Chloride	10	mg/L		1		E300.0	12/08/14 15:33 / SR		IC102-H_141208A : 38		R102706
Sulfate	130	mg/L		1		E300.0	12/08/14 15:33 / SR		IC102-H_141208A : 38		R102706
Hardness as CaCO <sub>3</sub>	272	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 7		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.8	mg/L		0.5		A5310 C	12/11/14 23:51 / eli-c		SUB-C194275 : 13		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:38 / cm		FIA203-HE_141208C : 33		R102707
Nitrogen, Nitrate+Nitrite as N	0.32	mg/L		0.05		E353.2	12/08/14 11:26 / cm		FIA203-HE_141208A : 36		R102687
Nitrogen, Total	0.66	mg/L		0.05		A4500 N-C	12/10/14 16:11 / cm	12/09/14 08:09	FIA203-HE_141210C : 23		27321
Phosphorus, Total as P	0.024	mg/L		0.005		E365.1	12/08/14 15:46 / cm	12/08/14 13:30	FIA202-HE_141208A : 111		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.011	mg/L		0.001		E200.8	12/10/14 01:01 / dck		ICPMS204-B_141209B : 138		R102739
Cadmium	0.00005	mg/L		0.00003		E200.8	12/10/14 01:01 / dck		ICPMS204-B_141209B : 138		R102739
Copper	0.005	mg/L		0.001		E200.8	12/10/14 01:01 / dck		ICPMS204-B_141209B : 138		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 01:01 / dck		ICPMS204-B_141209B : 138		R102739
Zinc	0.012	mg/L		0.008		E200.8	12/10/14 01:01 / dck		ICPMS204-B_141209B : 138		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	12/10/14 01:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 139		27296
Cadmium	0.00007	mg/L	D	0.00004		E200.8	12/10/14 01:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 139		27296
Calcium	79	mg/L		1		E200.7	12/09/14 14:01 / sld	12/08/14 08:42	ICP2-HE_141209B : 47		27296
Copper	0.009	mg/L		0.001		E200.8	12/10/14 01:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 139		27296
Lead	0.0007	mg/L		0.0003		E200.8	12/10/14 01:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 139		27296

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund

**Client Sample ID:** CFR-11F

**Lab ID:** H14120106-007

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/02/14 09:00

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	18	mg/L		1		E200.7	12/09/14 14:01 / sld	12/08/14 08:42	ICP2-HE_141209B : 47		27296
Zinc	0.015	mg/L		0.008		E200.8	12/10/14 01:05 / dck	12/08/14 08:42	ICPMS204-B_141209B : 139		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-07D  
**Lab ID:** H14120106-008  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 11:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	12/05/14 14:18 / SR		I24 (14410200)_141205A : 19		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	160	mg/L		4		A2320 B	12/09/14 13:47 / SR		PHSC_101-H_141209A : 40		R102712
Bicarbonate as HCO <sub>3</sub>	190	mg/L		4		A2320 B	12/09/14 13:47 / SR		PHSC_101-H_141209A : 40		R102712
Chloride	10	mg/L		1		E300.0	12/08/14 15:44 / SR		IC102-H_141208A : 39		R102706
Sulfate	120	mg/L		1		E300.0	12/08/14 15:44 / SR		IC102-H_141208A : 39		R102706
Hardness as CaCO <sub>3</sub>	259	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 8		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.7	mg/L		0.5		A5310 C	12/12/14 00:08 / eli-c		SUB-C194275 : 14		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:40 / cm		FIA203-HE_141208C : 34		R102707
Nitrogen, Nitrate+Nitrite as N	0.31	mg/L		0.05		E353.2	12/08/14 11:27 / cm		FIA203-HE_141208A : 37		R102687
Nitrogen, Total	0.70	mg/L		0.05		A4500 N-C	12/10/14 16:13 / cm	12/09/14 08:09	FIA203-HE_141210C : 24		27321
Phosphorus, Total as P	0.023	mg/L		0.005		E365.1	12/08/14 15:47 / cm	12/08/14 13:30	FIA202-HE_141208A : 112		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.011	mg/L		0.001		E200.8	12/10/14 01:10 / dck		ICPMS204-B_141209B : 140		R102739
Cadmium	0.00004	mg/L		0.00003		E200.8	12/10/14 01:10 / dck		ICPMS204-B_141209B : 140		R102739
Copper	0.004	mg/L		0.001		E200.8	12/10/14 01:10 / dck		ICPMS204-B_141209B : 140		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 01:10 / dck		ICPMS204-B_141209B : 140		R102739
Zinc	0.012	mg/L		0.008		E200.8	12/10/14 01:10 / dck		ICPMS204-B_141209B : 140		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	12/10/14 01:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 141		27296
Cadmium	0.00007	mg/L	D	0.00004		E200.8	12/10/14 01:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 141		27296
Calcium	75	mg/L		1		E200.7	12/09/14 14:05 / sld	12/08/14 08:42	ICP2-HE_141209B : 48		27296
Copper	0.008	mg/L		0.001		E200.8	12/10/14 01:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 141		27296
Lead	0.0008	mg/L		0.0003		E200.8	12/10/14 01:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 141		27296

**Report** RL - Analyte reporting limit.  
**Definitions:** D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-07D

**Lab ID:** H14120106-008

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/02/14 11:00

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	17	mg/L		1		E200.7	12/09/14 14:05 / sld	12/08/14 08:42	ICP2-HE_141209B : 48		27296
Zinc	0.015	mg/L		0.008		E200.8	12/10/14 01:14 / dck	12/08/14 08:42	ICPMS204-B_141209B : 141		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** CFR-03A  
**Lab ID:** H14120106-009  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 12:15 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	4	mg/L		1		A2540 D	12/05/14 14:18 / SR		I24 (14410200)_141205A : 20		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	12/09/14 13:53 / SR		PHSC_101-H_141209A : 42		R102712
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	12/09/14 13:53 / SR		PHSC_101-H_141209A : 42		R102712
Chloride	13	mg/L		1		E300.0	12/08/14 15:55 / SR		IC102-H_141208A : 40		R102706
Sulfate	120	mg/L		1		E300.0	12/08/14 15:55 / SR		IC102-H_141208A : 40		R102706
Hardness as CaCO <sub>3</sub>	237	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 9		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.0	mg/L		0.5		A5310 C	12/12/14 01:19 / eli-c		SUB-C194275 : 16		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:41 / cm		FIA203-HE_141208C : 35		R102707
Nitrogen, Nitrate+Nitrite as N	0.20	mg/L		0.05		E353.2	12/08/14 11:29 / cm		FIA203-HE_141208A : 38		R102687
Nitrogen, Total	0.64	mg/L		0.05		A4500 N-C	12/10/14 16:14 / cm	12/09/14 08:09	FIA203-HE_141210C : 25		27321
Phosphorus, Total as P	0.032	mg/L		0.005		E365.1	12/08/14 15:48 / cm	12/08/14 13:30	FIA202-HE_141208A : 113		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.010	mg/L		0.001		E200.8	12/10/14 01:19 / dck		ICPMS204-B_141209B : 142		R102739
Cadmium	0.00005	mg/L		0.00003		E200.8	12/10/14 01:19 / dck		ICPMS204-B_141209B : 142		R102739
Copper	0.004	mg/L		0.001		E200.8	12/10/14 01:19 / dck		ICPMS204-B_141209B : 142		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 01:19 / dck		ICPMS204-B_141209B : 142		R102739
Zinc	0.013	mg/L		0.008		E200.8	12/10/14 01:19 / dck		ICPMS204-B_141209B : 142		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.012	mg/L		0.001		E200.8	12/10/14 01:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 143		27296
Cadmium	0.00009	mg/L		0.00003		E200.8	12/10/14 01:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 143		27296
Calcium	68	mg/L		1		E200.7	12/09/14 14:09 / sld	12/08/14 08:42	ICP2-HE_141209B : 49		27296
Copper	0.009	mg/L		0.001		E200.8	12/10/14 01:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 143		27296
Lead	0.0011	mg/L		0.0003		E200.8	12/10/14 01:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 143		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-03A

**Lab ID:** H14120106-009

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/02/14 12:15

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	16	mg/L		1		E200.7	12/09/14 14:09 / sld	12/08/14 08:42	ICP2-HE_141209B : 49		27296
Zinc	0.019	mg/L		0.008		E200.8	12/10/14 01:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 143		27296

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14120106-010  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 12:45 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	12/05/14 14:18 / SR		I24 (14410200)_141205A : 21		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	140	mg/L		4		A2320 B	12/09/14 13:58 / SR		PHSC_101-H_141209A : 44		R102712
Bicarbonate as HCO <sub>3</sub>	170	mg/L		4		A2320 B	12/09/14 13:58 / SR		PHSC_101-H_141209A : 44		R102712
Chloride	1	mg/L		1		E300.0	12/08/14 16:06 / SR		IC102-H_141208A : 41		R102706
Sulfate	40	mg/L		1		E300.0	12/08/14 16:06 / SR		IC102-H_141208A : 41		R102706
Hardness as CaCO <sub>3</sub>	173	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 10		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.1	mg/L		0.5		A5310 C	12/12/14 01:36 / eli-c		SUB-C194275 : 17		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:42 / cm		FIA203-HE_141208C : 36		R102707
Nitrogen, Nitrate+Nitrite as N	0.13	mg/L		0.05		E353.2	12/08/14 11:30 / cm		FIA203-HE_141208A : 39		R102687
Nitrogen, Total	0.16	mg/L		0.05		A4500 N-C	12/11/14 08:40 / cm	12/09/14 08:09	FIA203-HE_141211A : 13		27321
Phosphorus, Total as P	0.015	mg/L		0.005		E365.1	12/08/14 15:49 / cm	12/08/14 13:30	FIA202-HE_141208A : 114		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.005	mg/L		0.001		E200.8	12/10/14 01:28 / dck		ICPMS204-B_141209B : 144		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 01:28 / dck		ICPMS204-B_141209B : 144		R102739
Copper	0.002	mg/L		0.001		E200.8	12/10/14 01:28 / dck		ICPMS204-B_141209B : 144		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 01:28 / dck		ICPMS204-B_141209B : 144		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 01:28 / dck		ICPMS204-B_141209B : 144		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.006	mg/L		0.001		E200.8	12/10/14 01:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 148		27296
Cadmium	ND	mg/L	D	0.00004		E200.8	12/10/14 01:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 148		27296
Calcium	52	mg/L		1		E200.7	12/09/14 14:13 / sld	12/08/14 08:42	ICP2-HE_141209B : 50		27296
Copper	0.008	mg/L		0.001		E200.8	12/10/14 01:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 148		27296
Lead	0.0005	mg/L		0.0003		E200.8	12/10/14 01:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 148		27296

**Report** RL - Analyte reporting limit.  
**Definitions:** 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-Federal Superfund  
**Client Sample ID:** WSC-SBC  
**Lab ID:** H14120106-010  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 12:45 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	10	mg/L		1		E200.7	12/09/14 14:13 / sld	12/08/14 08:42	ICP2-HE_141209B : 50		27296
Zinc	ND	mg/L		0.008		E200.8	12/10/14 01:47 / dck	12/08/14 08:42	ICPMS204-B_141209B : 148		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** SS-25  
**Lab ID:** H14120106-011  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 13:45 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	12/05/14 14:19 / SR		I24 (14410200)_141205A : 22		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	12/09/14 14:09 / SR		PHSC_101-H_141209A : 48		R102712
Bicarbonate as HCO <sub>3</sub>	150	mg/L		4		A2320 B	12/09/14 14:09 / SR		PHSC_101-H_141209A : 48		R102712
Chloride	21	mg/L		1		E300.0	12/08/14 16:17 / SR		IC102-H_141208A : 42		R102706
Sulfate	140	mg/L		1		E300.0	12/08/14 16:17 / SR		IC102-H_141208A : 42		R102706
Hardness as CaCO <sub>3</sub>	243	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 11		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	3.7	mg/L		0.5		A5310 C	12/12/14 01:59 / eli-c		SUB-C194275 : 18		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	0.05	mg/L		0.05		E350.1	12/08/14 15:46 / cm		FIA203-HE_141208C : 39		R102707
Nitrogen, Nitrate+Nitrite as N	0.26	mg/L		0.05		E353.2	12/08/14 11:33 / cm		FIA203-HE_141208A : 42		R102687
Nitrogen, Total	0.67	mg/L		0.05		A4500 N-C	12/11/14 08:41 / cm	12/09/14 08:09	FIA203-HE_141211A : 14		27321
Phosphorus, Total as P	0.039	mg/L		0.005		E365.1	12/08/14 15:50 / cm	12/08/14 13:30	FIA202-HE_141208A : 115		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.009	mg/L		0.001		E200.8	12/10/14 01:51 / dck		ICPMS204-B_141209B : 149		R102739
Cadmium	0.00008	mg/L		0.00003		E200.8	12/10/14 01:51 / dck		ICPMS204-B_141209B : 149		R102739
Copper	0.005	mg/L		0.001		E200.8	12/10/14 01:51 / dck		ICPMS204-B_141209B : 149		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 01:51 / dck		ICPMS204-B_141209B : 149		R102739
Zinc	0.020	mg/L		0.008		E200.8	12/10/14 01:51 / dck		ICPMS204-B_141209B : 149		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.011	mg/L		0.001		E200.8	12/10/14 01:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 150		27296
Cadmium	0.00013	mg/L		0.00003		E200.8	12/10/14 01:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 150		27296
Calcium	71	mg/L		1		E200.7	12/09/14 14:17 / sld	12/08/14 08:42	ICP2-HE_141209B : 51		27296
Copper	0.008	mg/L		0.001		E200.8	12/10/14 01:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 150		27296
Lead	0.0012	mg/L		0.0003		E200.8	12/10/14 01:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 150		27296

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** SS-25

**Lab ID:** H14120106-011

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/02/14 13:45

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	16	mg/L		1		E200.7	12/09/14 14:17 / sld	12/08/14 08:42	ICP2-HE_141209B : 51		27296
Zinc	0.027	mg/L		0.008		E200.8	12/10/14 01:56 / dck	12/08/14 08:42	ICPMS204-B_141209B : 150		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14120106-012  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 14:30 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	12/05/14 14:19 / SR		I24 (14410200)_141205A : 23		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	130	mg/L		4		A2320 B	12/09/14 14:14 / SR		PHSC_101-H_141209A : 50		R102712
Bicarbonate as HCO <sub>3</sub>	160	mg/L		4		A2320 B	12/09/14 14:14 / SR		PHSC_101-H_141209A : 50		R102712
Chloride	6	mg/L		1		E300.0	12/08/14 16:28 / SR		IC102-H_141208A : 43		R102706
Sulfate	190	mg/L		1		E300.0	12/08/14 16:28 / SR		IC102-H_141208A : 43		R102706
Hardness as CaCO <sub>3</sub>	287	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 12		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	2.5	mg/L		0.5		A5310 C	12/12/14 02:15 / eli-c		SUB-C194275 : 19		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:49 / cm		FIA203-HE_141208C : 42		R102707
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.05		E353.2	12/08/14 11:37 / cm		FIA203-HE_141208A : 45		R102687
Nitrogen, Total	0.31	mg/L		0.05		A4500 N-C	12/11/14 08:42 / cm	12/09/14 08:09	FIA203-HE_141211A : 15		27321
Phosphorus, Total as P	0.021	mg/L		0.005		E365.1	12/08/14 15:51 / cm	12/08/14 13:30	FIA202-HE_141208A : 116		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.014	mg/L		0.001		E200.8	12/10/14 02:18 / dck		ICPMS204-B_141209B : 155		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 02:18 / dck		ICPMS204-B_141209B : 155		R102739
Copper	0.002	mg/L		0.001		E200.8	12/10/14 02:18 / dck		ICPMS204-B_141209B : 155		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 02:18 / dck		ICPMS204-B_141209B : 155		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 02:18 / dck		ICPMS204-B_141209B : 155		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.016	mg/L		0.001		E200.8	12/10/14 02:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 156		27296
Cadmium	0.00005	mg/L		0.00003		E200.8	12/10/14 02:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 156		27296
Calcium	85	mg/L		1		E200.7	12/09/14 14:32 / sld	12/08/14 08:42	ICP2-HE_141209B : 55		27296
Copper	0.003	mg/L		0.001		E200.8	12/10/14 02:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 156		27296
Lead	0.0007	mg/L		0.0003		E200.8	12/10/14 02:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 156		27296

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MWB-SBC  
**Lab ID:** H14120106-012  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 14:30 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	18	mg/L		1		E200.7	12/09/14 14:32 / sld	12/08/14 08:42	ICP2-HE_141209B : 55		27296
Zinc	0.010	mg/L		0.008		E200.8	12/10/14 02:23 / dck	12/08/14 08:42	ICPMS204-B_141209B : 156		27296

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** Field Blank #2  
**Lab ID:** H14120106-013  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 15:30 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	12/05/14 14:19 / SR		I24 (14410200)_141205A : 24		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	ND	mg/L		4		A2320 B	12/09/14 14:21 / SR		PHSC_101-H_141209A : 52		R102712
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		4		A2320 B	12/09/14 14:21 / SR		PHSC_101-H_141209A : 52		R102712
Chloride	ND	mg/L		1		E300.0	12/08/14 16:39 / SR		IC102-H_141208A : 44		R102706
Sulfate	ND	mg/L		1		E300.0	12/08/14 16:39 / SR		IC102-H_141208A : 44		R102706
Hardness as CaCO <sub>3</sub>	ND	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 13		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	ND	mg/L		0.5		A5310 C	12/12/14 02:31 / eli-c		SUB-C194275 : 20		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:50 / cm		FIA203-HE_141208C : 43		R102707
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.05		E353.2	12/08/14 11:38 / cm		FIA203-HE_141208A : 46		R102687
Nitrogen, Total	0.11	mg/L		0.05		A4500 N-C	12/11/14 08:44 / cm	12/09/14 08:09	FIA203-HE_141211A : 16		27321
Phosphorus, Total as P	0.005	mg/L		0.005		E365.1	12/08/14 15:52 / cm	12/08/14 13:30	FIA202-HE_141208A : 117		27311
Confirmed detection with duplicate analysis.											
<b>METALS, DISSOLVED</b>											
Arsenic	ND	mg/L		0.001		E200.8	12/10/14 02:27 / dck		ICPMS204-B_141209B : 157		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 02:27 / dck		ICPMS204-B_141209B : 157		R102739
Copper	ND	mg/L		0.001		E200.8	12/10/14 02:27 / dck		ICPMS204-B_141209B : 157		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 02:27 / dck		ICPMS204-B_141209B : 157		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 02:27 / dck		ICPMS204-B_141209B : 157		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	ND	mg/L		0.001		E200.8	12/10/14 02:32 / dck	12/08/14 08:42	ICPMS204-B_141209B : 158		27296
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 02:32 / dck	12/08/14 08:42	ICPMS204-B_141209B : 158		27296
Calcium	ND	mg/L		1		E200.7	12/09/14 14:43 / sld	12/08/14 08:42	ICP2-HE_141209B : 58		27296
Copper	ND	mg/L		0.001		E200.8	12/10/14 02:32 / dck	12/08/14 08:42	ICPMS204-B_141209B : 158		27296
Lead	ND	mg/L		0.0003		E200.8	12/10/14 02:32 / dck	12/08/14 08:42	ICPMS204-B_141209B : 158		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** Field Blank #2

**Lab ID:** H14120106-013

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/02/14 15:30

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	ND	mg/L		1		E200.7	12/09/14 14:43 / sld	12/08/14 08:42	ICP2-HE_141209B : 58		27296
Zinc	ND	mg/L		0.008		E200.8	12/10/14 02:32 / dck	12/08/14 08:42	ICPMS204-B_141209B : 158		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB  
**Lab ID:** H14120106-014  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 16:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	37	mg/L		2		A2540 D	12/05/14 14:20 / SR		I24 (14410200)_141205A : 27		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	98	mg/L		4		A2320 B	12/09/14 14:25 / SR		PHSC_101-H_141209A : 54		R102712
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	12/09/14 14:25 / SR		PHSC_101-H_141209A : 54		R102712
Chloride	2	mg/L		1		E300.0	12/08/14 17:13 / SR		IC102-H_141208A : 47		R102706
Sulfate	24	mg/L		1		E300.0	12/08/14 17:13 / SR		IC102-H_141208A : 47		R102706
Hardness as CaCO <sub>3</sub>	108	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 14		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.7	mg/L		0.5		A5310 C	12/12/14 02:46 / eli-c		SUB-C194275 : 21		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:52 / cm		FIA203-HE_141208C : 44		R102707
Nitrogen, Nitrate+Nitrite as N	0.12	mg/L		0.05		E353.2	12/08/14 11:39 / cm		FIA203-HE_141208A : 47		R102687
Nitrogen, Total	0.42	mg/L		0.05		A4500 N-C	12/11/14 08:47 / cm	12/09/14 08:09	FIA203-HE_141211A : 19		27321
Phosphorus, Total as P	0.059	mg/L		0.005		E365.1	12/08/14 15:55 / cm	12/08/14 13:30	FIA202-HE_141208A : 120		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.011	mg/L		0.001		E200.8	12/10/14 02:37 / dck		ICPMS204-B_141209B : 159		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 02:37 / dck		ICPMS204-B_141209B : 159		R102739
Copper	0.001	mg/L		0.001		E200.8	12/10/14 02:37 / dck		ICPMS204-B_141209B : 159		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 02:37 / dck		ICPMS204-B_141209B : 159		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 12:48 / dck		ICPMS204-B_141209B : 289		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.019	mg/L		0.001		E200.8	12/10/14 02:55 / dck	12/08/14 08:42	ICPMS204-B_141209B : 163		27296
Cadmium	0.00034	mg/L		0.00003		E200.8	12/10/14 02:55 / dck	12/08/14 08:42	ICPMS204-B_141209B : 163		27296
Calcium	30	mg/L		1		E200.7	12/09/14 14:47 / sld	12/08/14 08:42	ICP2-HE_141209B : 59		27296
Copper	0.034	mg/L		0.001		E200.8	12/10/14 02:55 / dck	12/08/14 08:42	ICPMS204-B_141209B : 163		27296
Lead	0.0112	mg/L		0.0003		E200.8	12/10/14 02:55 / dck	12/08/14 08:42	ICPMS204-B_141209B : 163		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** MCWC-MWB

**Lab ID:** H14120106-014

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/02/14 16:00

**DateReceived:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	12/09/14 14:47 / sld	12/08/14 08:42	ICP2-HE_141209B : 59		27296
Zinc	0.054	mg/L		0.008		E200.8	12/10/14 02:55 / dck	12/08/14 08:42	ICPMS204-B_141209B : 163		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14120106-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 16:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>PHYSICAL PROPERTIES</b>											
Solids, Total Suspended TSS @ 105 C	35	mg/L		2		A2540 D	12/05/14 14:21 / SR		I24 (14410200)_141205A : 29		TSS141205A
<b>INORGANICS</b>											
Alkalinity, Total as CaCO <sub>3</sub>	99	mg/L		4		A2320 B	12/08/14 18:45 / SR		PHSC_101-H_141208A : 182		R102675
Bicarbonate as HCO <sub>3</sub>	120	mg/L		4		A2320 B	12/08/14 18:45 / SR		PHSC_101-H_141208A : 182		R102675
Chloride	2	mg/L		1		E300.0	12/08/14 17:46 / SR		IC102-H_141208A : 50		R102706
Sulfate	24	mg/L		1		E300.0	12/08/14 17:46 / SR		IC102-H_141208A : 50		R102706
Hardness as CaCO <sub>3</sub>	108	mg/L		1		A2340 B	12/10/14 09:55 / sld		WATERCALC_141210B : 15		R102749
<b>AGGREGATE ORGANICS</b>											
Organic Carbon, Dissolved (DOC)	1.7	mg/L		0.5		A5310 C	12/12/14 03:02 / eli-c		SUB-C194275 : 22		C_R194275
<b>NUTRIENTS</b>											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	12/08/14 15:53 / cm		FIA203-HE_141208C : 45		R102707
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.05		E353.2	12/08/14 11:41 / cm		FIA203-HE_141208A : 48		R102687
Nitrogen, Total	0.45	mg/L		0.05		A4500 N-C	12/11/14 08:48 / cm	12/09/14 08:09	FIA203-HE_141211A : 20		27321
Phosphorus, Total as P	0.058	mg/L		0.005		E365.1	12/08/14 14:50 / cm	12/08/14 13:30	FIA202-HE_141208A : 57		27311
<b>METALS, DISSOLVED</b>											
Arsenic	0.012	mg/L		0.001		E200.8	12/10/14 03:00 / dck		ICPMS204-B_141209B : 164		R102739
Cadmium	ND	mg/L		0.00003		E200.8	12/10/14 03:00 / dck		ICPMS204-B_141209B : 164		R102739
Copper	0.001	mg/L		0.001		E200.8	12/10/14 03:00 / dck		ICPMS204-B_141209B : 164		R102739
Lead	ND	mg/L		0.0003		E200.8	12/10/14 03:00 / dck		ICPMS204-B_141209B : 164		R102739
Zinc	ND	mg/L		0.008		E200.8	12/10/14 03:00 / dck		ICPMS204-B_141209B : 164		R102739
<b>METALS, TOTAL RECOVERABLE</b>											
Arsenic	0.020	mg/L		0.001		E200.8	12/10/14 03:18 / dck	12/08/14 08:42	ICPMS204-B_141209B : 168		27296
Cadmium	0.00035	mg/L		0.00003		E200.8	12/10/14 03:18 / dck	12/08/14 08:42	ICPMS204-B_141209B : 168		27296
Calcium	31	mg/L		1		E200.7	12/09/14 14:50 / sld	12/08/14 08:42	ICP2-HE_141209B : 60		27296
Copper	0.034	mg/L		0.001		E200.8	12/10/14 03:18 / dck	12/08/14 08:42	ICPMS204-B_141209B : 168		27296
Lead	0.0112	mg/L		0.0003		E200.8	12/10/14 03:18 / dck	12/08/14 08:42	ICPMS204-B_141209B : 168		27296

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund  
**Client Sample ID:** MCWC-MWB Duplicate  
**Lab ID:** H14120106-015  
**Matrix:** Aqueous

**Project:** CFR Monitoring-474374  
**Collection Date:** 12/02/14 16:00 **DateReceived:** 12/05/14  
**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Magnesium	8	mg/L		1		E200.7	12/09/14 14:50 / sld	12/08/14 08:42	ICP2-HE_141209B : 60		27296
Zinc	0.055	mg/L		0.008		E200.8	12/10/14 03:18 / dck	12/08/14 08:42	ICPMS204-B_141209B : 168		27296

**Report** RL - Analyte reporting limit.  
**Definitions:**

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** MT DEQ-Federal Superfund

**Client Sample ID:** CFR-84F

**Lab ID:** H14120106-016

**Matrix:** Aqueous

**Project:** CFR Monitoring-474374

**Collection Date:** 12/01/14 10:45

**Date Received:** 12/05/14

**Report Date:** 01/07/15

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
<b>METALS, TOTAL RECOVERABLE</b>											
Mercury	0.000013	mg/L		5E-06		E245.1	12/12/14 13:32 / rgk	12/10/14 12:59	HGCV202-H_141212A : 16		27352

**Report Definitions:** RL - Analyte reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** 141211wa

Run ID :Run Order: <b>HGCV202-H_141211A: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>12/11/14 10:34</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>100</b>	90	110				

Associated samples: **H14120106-002C, H14120106-003C**

Run ID :Run Order: <b>HGCV202-H_141211A: 47</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>12/11/14 14:25</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>99</b>	90	110				

Associated samples: **H14120106-002C, H14120106-003C**

Run ID :Run Order: <b>HGCV202-H_141211A: 48</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>			
Analysis Date: <b>12/11/14 14:30</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>102</b>	95	105				

Associated samples: **H14120106-002C, H14120106-003C**

Run ID :Run Order: <b>HGCV202-H_141211A: 69</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E245.1</b>			
Analysis Date: <b>12/11/14 16:09</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00020	0.00010	0.0002	0	<b>102</b>	90	110				

Associated samples: **H14120106-002C, H14120106-003C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 08-Jan-15

**BatchID:** 141212Dwa

Run ID :Run Order: <b>HGCV202-H_141212A: 8</b>				SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E245.1</b>		
Analysis Date: <b>12/12/14 12:55</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:				
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00019	0.00010	0.0002	0	97	90	110					

Associated samples: **H14120106-004C, H14120106-016A**

Run ID :Run Order: <b>HGCV202-H_141212A: 9</b>			SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV1</b>			Method: <b>E245.1</b>		
Analysis Date: <b>12/12/14 12:59</b>		Units: <b>mg/L</b>		<b>Prep Info:</b>			Prep Date:		Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury	0.00020	0.00010	0.0002	0	99	95	105					

Associated samples: **H14120106-004C, H14120106-016A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 27296**

**Date:** 08-Jan-15

Run ID :Run Order: ICP2-HE_141209B: 34				SampType: Method Blank				Lab ID: MB-27296				Method: E200.7			
Analysis Date: 12/09/14 13:13				Units: mg/L				Prep Info: Prep Date: 12/8/2014				Prep Method: E200.2			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Calcium		0.05	0.03												
Magnesium		ND	0.03												

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 35		SampType: Laboratory Control Sample				Lab ID: LCS-27296			Method: E200.7		
Analysis Date: 12/09/14 13:16		Units: mg/L		Prep Info:			Prep Date: 12/8/2014		Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.4	1.0	25	0.0462	101	85	115				
Magnesium	25.3	1.0	25	0	101	85	115				

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 37				SampType: Serial Dilution		Lab ID: H14120106-001CDIL				Method: E200.7		
Analysis Date: 12/09/14 13:24		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method:				
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium		48.0	1.0		0		0	0	45.84	4.5	10	
Magnesium		11.9	1.0		0		0	0	11.51	3.1	10	

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 38		SampType: Sample Matrix Spike				Lab ID: H14120106-001CMS3				Method: E200.7	
Analysis Date: 12/09/14 13:28		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	68.7	1.0	25	45.84	91	70	130				
Magnesium	34.9	1.0	25	11.51	94	70	130				

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 39		SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-001CMSD3			Method: E200.7		
Analysis Date: 12/09/14 13:31		Units: mg/L		Prep Info:			Prep Date: 12/8/2014		Prep Method: E200.2		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	71.7	1.0	25	45.84	103	70	130	68.69	4.2	20	
Magnesium	36.7	1.0	25	11.51	101	70	130	34.91	5.0	20	

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 27296**

**Date:** 08-Jan-15

Run ID :Run Order: ICP2-HE_141209B: 39				SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-001CMSD3				Method: E200.7		
Analysis Date: 12/09/14 13:31				Units: mg/L				Prep Info: Prep Date: 12/8/2014		Prep Method: E200.2				
Analytes 2				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C**

Run ID :Run Order: ICP2-HE_141209B: 52				SampType: Serial Dilution		Lab ID: H14120106-011CDIL				Method: E200.7		
Analysis Date: 12/09/14 14:20		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method:				
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Calcium	70.8	1.0		0		0	0	70.75	0.0	10		
Magnesium	15.9	1.0		0		0	0	16.01	0.5	10		

Associated samples: **H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C**

Run ID :Run Order: ICP2-HE_141209B: 53		SampType: Sample Matrix Spike				Lab ID: H14120106-011CMS3				Method: E200.7	
Analysis Date: 12/09/14 14:24		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	95.6	1.0	25	70.75	100	70	130				
Magnesium	40.5	1.0	25	16.01	98	70	130				

Associated samples: **H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C**

Run ID :Run Order: ICP2-HE_141209B: 54		SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-011CMSD3				Method: E200.7	
Analysis Date: 12/09/14 14:28		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method: E200.2			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	96.2	1.0	25	70.75	102	70	130	95.63	0.6	20	
Magnesium	40.8	1.0	25	16.01	99	70	130	40.5	0.7	20	

Associated samples: **H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 27296**

**Date:** 08-Jan-15

Run ID :Run Order: ICPMS204-B_141209B: 110			SampType: Method Blank			Lab ID: MB-27296			Method: E200.8		
Analysis Date: 12/09/14 22:53		Units: mg/L		Prep Info:			Prep Date: 12/8/2014		Prep Method: E200.2		
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	6E-05									
Cadmium	ND	3E-05									
Calcium	ND	0.02									
Copper	ND	0.0003									
Lead	ND	3E-05									
Magnesium	ND	0.002									
Zinc	0.002	0.001									

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICPMS204-B_141209B: 111		SampType: Laboratory Control Sample				Lab ID: LCS-27296				Method: E200.8		
Analysis Date: 12/09/14 22:57		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method: E200.2				
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.497	0.0010	0.5	0	99	85	115					
Cadmium	0.265	0.0010	0.25	0	106	85	115					
Calcium	27.4	1.0	25	0	110	85	115					
Copper	0.514	0.0050	0.5	0	103	85	115					
Lead	0.515	0.0010	0.5	0	103	85	115					
Magnesium	25.8	1.0	25	0	103	85	115					
Zinc	0.494	0.010	0.5	0.001659	98	85	115					

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICPMS204-B_141209B: 115		SampType: Sample Matrix Spike				Lab ID: H14120106-001CMS3				Method: E200.8		
Analysis Date: 12/09/14 23:15		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method: E200.2				
Analytes Z	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.493	0.0010	0.5	0.006903	97	70	130					
Cadmium	0.259	0.0010	0.25	0.0000602	103	70	130					
Calcium	73.6	1.0	25	49.09	98	70	130					
Copper	0.503	0.0050	0.5	0.008783	99	70	130					
Lead	0.512	0.0010	0.5	0.001035	102	70	130					
Magnesium	37.0	1.0	25	12.3	99	70	130					
Zinc	0.482	0.010	0.5	0.01469	93	70	130					

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 27296**

**Date:** 08-Jan-15

Run ID :Run Order: ICPMS204-B_141209B: 115	SampType: Sample Matrix Spike	Lab ID: H14120106-001CMS3	Method: E200.8
Analysis Date: 12/09/14 23:15	Units: mg/L	Prep Info: Prep Date: 12/8/2014	Prep Method: E200.2
Analytes <b>Z</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: **H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C**

Run ID :Run Order: ICPMS204-B_141209B: 116	SampType: Sample Matrix Spike Duplicate	Lab ID: H14120106-001CMSD3	Method: E200.8
Analysis Date: 12/09/14 23:19	Units: mg/L	Prep Info: Prep Date: 12/8/2014	Prep Method: E200.2
Analytes <b>Z</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.494 0.0010 0.5 0.006903	<b>97</b> 70 130 0.4927	<b>0.2</b> 20
Cadmium	0.260 0.0010 0.25 0.0000602	<b>104</b> 70 130 0.2588	<b>0.5</b> 20
Calcium	74.1 1.0 25 49.09	<b>100</b> 70 130 73.58	<b>0.7</b> 20
Copper	0.499 0.0050 0.5 0.008783	<b>98</b> 70 130 0.5031	<b>0.7</b> 20
Lead	0.505 0.0010 0.5 0.001035	<b>101</b> 70 130 0.512	<b>1.4</b> 20
Magnesium	37.1 1.0 25 12.3	<b>99</b> 70 130 37.02	<b>0.2</b> 20
Zinc	0.480 0.010 0.5 0.01469	<b>93</b> 70 130 0.4816	<b>0.2</b> 20

Associated samples: **H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C**

Run ID :Run Order: ICPMS204-B_141209B: 151	SampType: Sample Matrix Spike	Lab ID: H14120106-011CMS3	Method: E200.8
Analysis Date: 12/10/14 02:00	Units: mg/L	Prep Info: Prep Date: 12/8/2014	Prep Method: E200.2
Analytes <b>Z</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.499 0.0010 0.5 0.01127	<b>98</b> 70 130	
Cadmium	0.250 0.0010 0.25 0.0001286	<b>100</b> 70 130	
Calcium	98.3 1.0 25 72.67	<b>103</b> 70 130	
Copper	0.495 0.0050 0.5 0.00754	<b>97</b> 70 130	
Lead	0.500 0.0010 0.5 0.001159	<b>100</b> 70 130	
Magnesium	41.0 1.0 25 16.82	<b>97</b> 70 130	
Zinc	0.482 0.010 0.5 0.02703	<b>91</b> 70 130	

Associated samples: **H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C**

Run ID :Run Order: ICPMS204-B_141209B: 152	SampType: Sample Matrix Spike Duplicate	Lab ID: H14120106-011CMSD3	Method: E200.8
Analysis Date: 12/10/14 02:04	Units: mg/L	Prep Info: Prep Date: 12/8/2014	Prep Method: E200.2
Analytes <b>Z</b>	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Arsenic	0.498 0.0010 0.5 0.01127	<b>97</b> 70 130 0.499	<b>0.3</b> 20
Cadmium	0.251 0.0010 0.25 0.0001286	<b>100</b> 70 130 0.2497	<b>0.5</b> 20

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** 27296

Run ID :Run Order: ICPMS204-B_141209B: 152	SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-011CMSD3				Method: E200.8		
Analysis Date: 12/10/14 02:04	Units: mg/L				Prep Info: Prep Date: 12/8/2014				Prep Method: E200.2		
Analytes <b>Z</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	99.2	1.0	25	72.67	106	70	130	98.32	0.9	20	
Copper	0.507	0.0050	0.5	0.00754	100	70	130	0.4948	2.4	20	
Lead	0.508	0.0010	0.5	0.001159	101	70	130	0.5002	1.4	20	
Magnesium	42.3	1.0	25	16.82	102	70	130	41.01	3.0	20	
Zinc	0.489	0.010	0.5	0.02703	92	70	130	0.4823	1.4	20	

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 27310**

**Date:** 08-Jan-15

Run ID :Run Order: <b>FIA202-HE_141208A: 11</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-27310</b>				Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:02</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>12/8/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.398	0.010	0.4	0	<b>100</b>	90	110					

Associated samples: **H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D**

Run ID :Run Order: <b>FIA202-HE_141208A: 12</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-27310</b>				Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:03</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>12/8/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	ND	0.001										

Associated samples: **H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D**

Run ID :Run Order: <b>FIA202-HE_141208A: 35</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14120106-002DMS</b>				Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:27</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>12/8/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.187	0.010	0.2	0.00121	<b>93</b>	90	110					

Associated samples: **H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D**

Run ID :Run Order: <b>FIA202-HE_141208A: 36</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14120106-002DMSD</b>				Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:28</b>	Units: <b>mg/L</b>				Prep Info: Prep Date: <b>12/8/2014</b>				Prep Method: <b>E365.1</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.191	0.010	0.2	0.00121	<b>95</b>	90	110	0.1873	<b>2.2</b>	20		

Associated samples: **H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 27311**

**Date:** 08-Jan-15

Run ID :Run Order: <b>FIA202-HE_141208A: 41</b>		SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-27311</b>				Method: <b>E365.1</b>		
Analysis Date: <b>12/08/14 14:33</b>		Units: <b>mg/L</b>				Prep Info:		Prep Date: <b>12/8/2014</b>		Prep Method: <b>E365.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.389	0.010	0.4	0	97	90	110					
Associated samples: <b>H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>												

Run ID :Run Order: <b>FIA202-HE_141208A: 42</b>		SampType: <b>Method Blank</b>				Lab ID: <b>MB-27311</b>				Method: <b>E365.1</b>		
Analysis Date: <b>12/08/14 14:34</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>12/8/2014</b>				Prep Method: <b>E365.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	ND	0.001										
Associated samples: <b>H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>												

Run ID :Run Order: FIA202-HE_141208A: 58		SampType: Sample Matrix Spike				Lab ID: H14120106-015DMS				Method: E365.1	
Analysis Date: 12/08/14 14:51		Units: mg/L		Prep Info: Prep Date: 12/8/2014				Prep Method: E365.1			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.271	0.010	0.2	0.05775	107	90	110				
Associated samples: H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D											

Run ID :Run Order: <b>FIA202-HE_141208A: 59</b>		SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14120106-015DMSD</b>				Method: <b>E365.1</b>		
Analysis Date: <b>12/08/14 14:52</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>12/8/2014</b>				Prep Method: <b>E365.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.272	0.010	0.2	0.05775	<b>107</b>	90	110	0.2708	<b>0.3</b>	20		
Associated samples: <b>H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>												

Run ID :Run Order: <b>FIA202-HE_141208A: 118</b>		SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14120106-013DMS</b>				Method: <b>E365.1</b>		
Analysis Date: <b>12/08/14 15:53</b>		Units: <b>mg/L</b>				Prep Info: Prep Date: <b>12/8/2014</b>		Prep Method: <b>E365.1</b>				
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.193	0.010	0.2	0.00539	94	90	110					
Associated samples: <b>H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>												

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





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 08-Jan-15

**BatchID:** 27311

Run ID :Run Order: <b>FIA202-HE_141208A: 119</b>				SampType: <b>Sample Matrix Spike Duplicate</b>			Lab ID: <b>H14120106-013DMSD</b>			Method: <b>E365.1</b>		
Analysis Date: <b>12/08/14 15:54</b>		Units: <b>mg/L</b>		Prep Info: Prep Date: <b>12/8/2014</b>			Prep Method: <b>E365.1</b>					
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Phosphorus, Total as P	0.194	0.010	0.2	0.00539	94	90	110	0.193	0.6	20		

Associated samples: **H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 27321**

**Date:** 08-Jan-15

Run ID :Run Order: FIA203-HE_141210C: 11				SampType: Laboratory Control Sample				Lab ID: LCS-27321				Method: A4500 N-C			
Analysis Date: 12/10/14 15:57				Units: mg/L				Prep Info: Prep Date: 12/9/2014				Prep Method: A4500 N-C			
Analytes 1				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total				16.0	0.30	15.2	0	106	90	110					
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A															

Run ID :Run Order: FIA203-HE_141210C: 12				SampType: Method Blank				Lab ID: MB-27321				Method: A4500 N-C															
Analysis Date: 12/10/14 15:58				Units: mg/L				Prep Info: Prep Date: 12/9/2014				Prep Method: A4500 N-C															
Analytes 1				Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual			
Nitrogen, Total				ND		0.02																					
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A																											

Run ID :Run Order: FIA203-HE_141210C: 14			SampType: Sample Duplicate			Lab ID: H14110415-001EDUP				Method: A4500 N-C		
Analysis Date: 12/10/14 16:01			Units: mg/L		Prep Info: Prep Date: 12/9/2014				Prep Method: A4500 N-C			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	0.660	0.10		0				0.6941	5.1	20		
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A												

Run ID :Run Order: <b>FIA203-HE_141210C: 17</b>			SampType: <b>Sample Matrix Spike</b>			Lab ID: <b>H14120106-002AMS</b>			Method: <b>A4500 N-C</b>		
Analysis Date: <b>12/10/14 16:04</b>			Units: <b>mg/L</b>			Prep Info: Prep Date: <b>12/9/2014</b>			Prep Method: <b>A4500 N-C</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	1.17	0.10	1	0.04318	<b>113</b>	90	110				S
Associated samples: <b>H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A</b>											

Run ID :Run Order: FIA203-HE_141210C: 18			SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-002AMSD			Method: A4500 N-C			
Analysis Date: 12/10/14 16:06			Units: mg/L		Prep Info: Prep Date: 12/9/2014			Prep Method: A4500 N-C					
Analytes 1			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total			1.24	0.10	1	0.04318	119	90	110	1.173	5.2	20	S
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A													

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



www.energylab.com  
Analytical Excellence Since 1952

Helena, MT 877-472-0711 • Billings, MT 800-735-4489 • Casper, WY 888-235-0515  
Gilllette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: 27321**

**Date:** 08-Jan-15

Run ID :Run Order: <b>FIA203-HE_141211A: 11</b>		SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-27321</b>				Method: <b>A4500 N-C</b>		
Analysis Date: <b>12/11/14 08:38</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date: <b>12/9/2014</b>		Prep Method: <b>A4500 N-C</b>			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	15.1	0.30	15.2	0	99	90	110					
Associated samples: <b>H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A</b>												

Run ID :Run Order: <b>FIA203-HE_141211A: 12</b>			SampType: <b>Method Blank</b>			Lab ID: <b>MB-27321</b>			Method: <b>A4500 N-C</b>				
Analysis Date: <b>12/11/14 08:39</b>			Units: <b>mg/L</b>			Prep Info: Prep Date: <b>12/9/2014</b>			Prep Method: <b>A4500 N-C</b>				
Analytes <b>1</b>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total			ND	0.02									
Associated samples: <b>H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A</b>													

Run ID :Run Order: FIA203-HE_141211A: 17		SampType: Sample Matrix Spike				Lab ID: H14120106-013AMS				Method: A4500 N-C		
Analysis Date: 12/11/14 08:45		Units: mg/L		Prep Info: Prep Date: 12/9/2014				Prep Method: A4500 N-C				
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.20	0.10	1	0.1147	108	90	110					
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A												

Run ID :Run Order: FIA203-HE_141211A: 18		SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-013AMSD				Method: A4500 N-C		
Analysis Date: 12/11/14 08:46		Units: mg/L		Prep Info:			Prep Date: 12/9/2014		Prep Method: A4500 N-C			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrogen, Total	1.27	0.10	1	0.1147	115	90	110	1.197	5.8	20	S	
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A												

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 08-Jan-15

**BatchID:** 27324

Run ID :Run Order: <b>HGCV202-H_141211A: 52</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB-27324</b>				Method: <b>E245.1</b>		
Analysis Date: <b>12/11/14 14:46</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>12/9/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	7E-07									

Associated samples:

Run ID :Run Order: <b>HGCV202-H_141211A: 53</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-27324</b>				Method: <b>E245.1</b>		
Analysis Date: <b>12/11/14 14:51</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>12/9/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00016	0.00010	0.00015	0	<b>104</b>	90	110				

Associated samples:

Run ID :Run Order: <b>HGCV202-H_141211A: 71</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14120093-001BMS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>12/11/14 16:18</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>12/9/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00016	0.00010	0.00015	0.00000263	<b>106</b>	70	130				

Associated samples: **H14120106-002C, H14120106-003C**

Run ID :Run Order: <b>HGCV202-H_141211A: 72</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14120093-001BMDS</b>				Method: <b>E245.1</b>		
Analysis Date: <b>12/11/14 16:22</b>	Units: <b>mg/L</b>				<b>Prep Info:</b> Prep Date: <b>12/9/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00016	0.00010	0.00015	0.00000263	<b>104</b>	70	130	0.000161	<b>1.7</b>	20	

Associated samples: **H14120106-002C, H14120106-003C**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: 27352**

**Date:** 08-Jan-15

Run ID :Run Order: <b>HGCV202-H_141212A: 11</b>				SampType: <b>Method Blank</b>				Lab ID: <b>MB-27352</b>				Method: <b>E245.1</b>	
Analysis Date: <b>12/12/14 13:10</b>				Units: <b>mg/L</b>		<b>Prep Info:</b> Prep Date: <b>12/10/2014</b>				Prep Method: <b>E245.1</b>			
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	7E-07										

Associated samples: **H14120106-004C, H14120106-016A**

Run ID :Run Order: <b>HGCV202-H_141212A: 12</b>				SampType: <b>Laboratory Control Sample</b>		Lab ID: <b>LCS-27352</b>				Method: <b>E245.1</b>		
Analysis Date: <b>12/12/14 13:15</b>				Units: <b>mg/L</b>		Prep Info: Prep Date: <b>12/10/2014</b>				Prep Method: <b>E245.1</b>		
Analytes <b>1</b>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00014	0.00010	0.00015	0	95	90	110				

Associated samples: **H14120106-004C, H14120106-016A**

Run ID :Run Order: HGCV202-H_141212A: 14				SampType: Sample Matrix Spike				Lab ID: H14120106-004CMS				Method: E245.1	
Analysis Date: 12/12/14 13:23				Units: mg/L				Prep Info: Prep Date: 12/10/2014				Prep Method: E245.1	
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00027	0.00010	0.00015	0.0001185	101	70	130					

Associated samples: **H14120106-004C, H14120106-016A**

Run ID :Run Order: HGCV202-H_141212A: 15				SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-004CMSD				Method: E245.1	
Analysis Date: 12/12/14 13:27				Units: mg/L		Prep Info: Prep Date: 12/10/2014				Prep Method: E245.1			
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.00024	0.00010	0.00015	0.0001185	78	70	130	0.0002696	14	20		

Associated samples: **H14120106-004C, H14120106-016A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: C\_43453**

**Date:** 08-Jan-15

Run ID :Run Order: SUB-C194275: 3		SampType: Initial Calibration Verification Standard				Lab ID: ICV-43453			Method: A5310 C		
Analysis Date: 12/11/14 20:37		Units: mg/L		Prep Info:			Prep Date: 12/11/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	9.87	0.50	10	0	99	90	110	0			
Associated samples: H14120106-001E, H14120106-002E, H14120106-003E, H14120106-004E, H14120106-005E, H14120106-006E, H14120106-007E, H14120106-008E, H14120106-009E, H14120106-010E, H14120106-011E, H14120106-012E, H14120106-013E, H14120106-014E, H14120106-015E											

Run ID :Run Order: SUB-C194275: 4		SampType: Continuing Calibration Verification Standar				Lab ID: CCV-43453			Method: A5310 C		
Analysis Date: 12/11/14 20:52		Units: mg/L		Prep Info:			Prep Date: 12/11/2014		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	9.81	0.50	10	0	98	90	110	0			
Associated samples: H14120106-001E, H14120106-002E, H14120106-003E, H14120106-004E, H14120106-005E, H14120106-006E, H14120106-007E, H14120106-008E, H14120106-009E, H14120106-010E, H14120106-011E, H14120106-012E, H14120106-013E, H14120106-014E, H14120106-015E											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 08-Jan-15

**BatchID:** C\_7923

Run ID :Run Order: SUB-C194275: 15			SampType: Continuing Calibration Verification Standar			Lab ID: CCV-7923			Method: A5310 C		
Analysis Date: 12/12/14 00:46			Units: mg/L		Prep Info: Prep Date: 12/11/2014			Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved (DOC)	9.87	0.50	10	0	99	90	110	0			

Associated samples: H14120106-001E, H14120106-002E, H14120106-003E, H14120106-004E, H14120106-005E, H14120106-006E, H14120106-007E, H14120106-008E, H14120106-009E, H14120106-010E, H14120106-011E, H14120106-012E, H14120106-013E, H14120106-014E, H14120106-015E

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID:** C\_R194275

**Date:** 08-Jan-15

Run ID :Run Order: SUB-C194275: 1	SampType: Method Blank	Lab ID: MBLK	Method: A5310 C
Analysis Date: 12/11/14 11:27	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
Organic Carbon, Total (TOC)	0.05 0.03		
Associated samples: H14120106-001E, H14120106-002E, H14120106-003E, H14120106-004E, H14120106-005E, H14120106-006E, H14120106-007E, H14120106-008E, H14120106-009E, H14120106-010E, H14120106-011E, H14120106-012E, H14120106-013E, H14120106-014E, H14120106-015E			

Run ID :Run Order: SUB-C194275: 2	SampType: Laboratory Control Sample	Lab ID: LCS-8116	Method: A5310 C
Analysis Date: 12/11/14 19:30	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
Organic Carbon, Total (TOC)	9.92 0.50 10 0.04566	99 90 110 0	
Associated samples: H14120106-001E, H14120106-002E, H14120106-003E, H14120106-004E, H14120106-005E, H14120106-006E, H14120106-007E, H14120106-008E, H14120106-009E, H14120106-010E, H14120106-011E, H14120106-012E, H14120106-013E, H14120106-014E, H14120106-015E			

Run ID :Run Order: SUB-C194275: 5	SampType: Sample Matrix Spike	Lab ID: C14120316-015EMS	Method: A5310 C
Analysis Date: 12/11/14 21:23	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
Organic Carbon, Dissolved (DOC)	11.7 0.50 5 6.785	99 85 115 0	
Associated samples: H14120106-001E, H14120106-002E, H14120106-003E, H14120106-004E, H14120106-005E, H14120106-006E, H14120106-007E, H14120106-008E, H14120106-009E, H14120106-010E, H14120106-011E, H14120106-012E, H14120106-013E, H14120106-014E, H14120106-015E			

Run ID :Run Order: SUB-C194275: 6	SampType: Sample Matrix Spike Duplicate	Lab ID: C14120316-015EMSD	Method: A5310 C
Analysis Date: 12/11/14 21:38	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
Organic Carbon, Dissolved (DOC)	11.9 0.50 5 6.785	102 85 115 11.72	1.6 10
Associated samples: H14120106-001E, H14120106-002E, H14120106-003E, H14120106-004E, H14120106-005E, H14120106-006E, H14120106-007E, H14120106-008E, H14120106-009E, H14120106-010E, H14120106-011E, H14120106-012E, H14120106-013E, H14120106-014E, H14120106-015E			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

**ANALYTICAL QC SUMMARY REPORT**  
Prepared by Helena, MT Branch  
**BatchID: R102675**

**Date:** 08-Jan-15

Run ID :Run Order: <b>PHSC_101-H_141208A: 179</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MB</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>12/08/14 18:25</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	3	2										

Associated samples:

Run ID :Run Order: <b>PHSC_101-H_141208A: 181</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>12/08/14 18:30</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	630	4.0	600	3.24	<b>104</b>	90	110					

Associated samples:

Run ID :Run Order: <b>PHSC_101-H_141208A: 188</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14120107-001HDUP</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>12/08/14 19:15</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	800	4.0		0				807.1	<b>1.3</b>	10		
Bicarbonate as HCO <sub>3</sub>	970	4.0		0				984	<b>1.3</b>	10		

Associated samples:

Run ID :Run Order: <b>PHSC_101-H_141208A: 216</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14120107-014HMS</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>12/08/14 21:38</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	600	4.0	600	2.8	<b>100</b>	80	120					

Associated samples:

Run ID :Run Order: <b>PHSC_101-H_141208A: 225</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14120107-016HDUP</b>				Method: <b>A2320 B</b>			
Analysis Date: <b>12/08/14 22:37</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>2</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO <sub>3</sub>	310	4.0		0				298.9	<b>2.5</b>	10		
Bicarbonate as HCO <sub>3</sub>	370	4.0		0				363.9	<b>2.5</b>	10		

Associated samples:

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102687

Run ID :Run Order: <b>FIA203-HE_141208A: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E353.2</b>			
Analysis Date: <b>12/08/14 10:53</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	1.02	0.010	1	0	<b>102</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											
Run ID :Run Order: <b>FIA203-HE_141208A: 9</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E353.2</b>			
Analysis Date: <b>12/08/14 10:54</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.975	0.011	1	0	<b>97</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											
Run ID :Run Order: <b>FIA203-HE_141208A: 11</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E353.2</b>			
Analysis Date: <b>12/08/14 10:56</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.00363	0.010		0		0	0				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											
Run ID :Run Order: <b>FIA203-HE_141208A: 13</b>	SampType: <b>Method Blank</b>				Lab ID: <b>MBLK</b>			Method: <b>E353.2</b>			
Analysis Date: <b>12/08/14 10:59</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.007	0.001									
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											
Run ID :Run Order: <b>FIA203-HE_141208A: 27</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E353.2</b>			
Analysis Date: <b>12/08/14 11:16</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.509	0.010	0.5	0	<b>102</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102687

Run ID :Run Order: FIA203-HE_141208A: 29		SampType: Sample Matrix Spike				Lab ID: H14120106-001DMS			Method: E353.2		
Analysis Date: 12/08/14 11:18		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
Nitrogen, Nitrate+Nitrite as N		1.15	0.011	1	0.1719	98	90	110			
Associated samples: H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D											
Run ID :Run Order: FIA203-HE_141208A: 30		SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-001DMSD			Method: E353.2		
Analysis Date: 12/08/14 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
Nitrogen, Nitrate+Nitrite as N		1.15	0.011	1	0.1719	98	90	110	1.148	0.2	20
Associated samples: H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D											
Run ID :Run Order: FIA203-HE_141208A: 41		SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E353.2		
Analysis Date: 12/08/14 11:32		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
Nitrogen, Nitrate+Nitrite as N		0.512	0.010	0.5	0	102	90	110			
Associated samples: H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D											
Run ID :Run Order: FIA203-HE_141208A: 43		SampType: Sample Matrix Spike				Lab ID: H14120106-011DMS			Method: E353.2		
Analysis Date: 12/08/14 11:35		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
Nitrogen, Nitrate+Nitrite as N		1.26	0.011	1	0.262	100	90	110			
Associated samples: H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D											
Run ID :Run Order: FIA203-HE_141208A: 44		SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-011DMSD			Method: E353.2		
Analysis Date: 12/08/14 11:36		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
Nitrogen, Nitrate+Nitrite as N		1.24	0.011	1	0.262	98	90	110	1.257	1.5	20
Associated samples: H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R102699**

**Date:** 08-Jan-15

Run ID :Run Order: <b>FIA202-HE_141208A: 8</b>	SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 13:59</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.248	0.010	0.25	0	<b>99</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA202-HE_141208A: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:01</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	-4.92E-05	0.010		0		0	0				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA202-HE_141208A: 26</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:18</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0938	0.010	0.1	0	<b>94</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA202-HE_141208A: 40</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:32</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0958	0.010	0.1	0	<b>96</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA202-HE_141208A: 56</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E365.1</b>			
Analysis Date: <b>12/08/14 14:49</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0964	0.010	0.1	0	<b>96</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102699

Run ID :Run Order: <b>FIA202-HE_141208A: 108</b>			SampType: <b>Continuing Calibration Verification Standar</b>			Lab ID: <b>CCV</b>			Method: <b>E365.1</b>				
Analysis Date: <b>12/08/14 15:43</b>			Units: <b>mg/L</b>		Prep Info:		Prep Date:		Prep Method:				
Analytes <b>1</b>			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P			0.0972	0.010	0.1	0	97	90	110				

Associated samples: **H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102706

Run ID :Run Order: IC102-H_141208A: 13			SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E300.0			
Analysis Date: 12/08/14 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	0	102	90	110				
Sulfate			400	1.0	400	0	101	90	110				

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 14				SampType: Method Blank				Lab ID: ICB				Method: E300.0			
Analysis Date: 12/08/14 11:06				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		0.09	0.008												
Sulfate		0.2	0.08												

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 15				SampType: Laboratory Fortified Blank				Lab ID: LFB				Method: E300.0			
Analysis Date: 12/08/14 11:17				Units: mg/L				Prep Info:		Prep Date:		Prep Method:			
Analytes 2		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Chloride		47	1.0	50	0.093	94	90	110							
Sulfate		200	1.0	200	0.246	98	90	110							

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 16			SampType: Continuing Calibration Verification Standar				Lab ID: CCV120814-1			Method: E300.0			
Analysis Date: 12/08/14 11:28			Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 2			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride			100	1.0	100	0	101	90	110				
Sulfate			410	1.0	400	0	102	90	110				

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 31				SampType: Continuing Calibration Verification Standar				Lab ID: CCV120814-2			Method: E300.0		
Analysis Date: 12/08/14 14:15				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		100	1.0	100	0	101	90	110					
Sulfate		400	1.0	400	0	101	90	110					

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R102706**

**Date:** 08-Jan-15

Run ID :Run Order: IC102-H_141208A: 31	SampType: Continuing Calibration Verification Standar	Lab ID: CCV120814-2	Method: E300.0
Analysis Date: 12/08/14 14:15	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 34	SampType: Sample Matrix Spike	Lab ID: H14120106-004AMS	Method: E300.0
Analysis Date: 12/08/14 14:48	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chloride	54 1.0 50 4.219	100 90 110	
Sulfate	220 1.0 200 15.66	103 90 110	

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 35	SampType: Sample Matrix Spike Duplicate	Lab ID: H14120106-004AMSD	Method: E300.0
Analysis Date: 12/08/14 14:59	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	54 1.0 50 4.219	100 90 110 54.37	0.3 20
Sulfate	220 1.0 200 15.66	102 90 110 221.7	0.9 20

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 45	SampType: Continuing Calibration Verification Standar	Lab ID: CCV120814-3	Method: E300.0
Analysis Date: 12/08/14 16:51	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chloride	100 1.0 100 0	101 90 110	
Sulfate	410 1.0 400 0	102 90 110	

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

Run ID :Run Order: IC102-H_141208A: 48	SampType: Sample Matrix Spike	Lab ID: H14120106-014AMS	Method: E300.0
Analysis Date: 12/08/14 17:24	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	51 1.0 50 1.762	98 90 110	
Sulfate	230 1.0 200 23.93	103 90 110	

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102706

Run ID :Run Order: IC102-H_141208A: 49	SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-014AMSD				Method: E300.0		
Analysis Date: 12/08/14 17:35	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <u>2</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50	1.762	100	90	110	50.57	2.3	20	
Sulfate	230	1.0	200	23.93	104	90	110	230.4	1.0	20	

Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount





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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R102707**

**Date:** 08-Jan-15

Run ID :Run Order: <b>FIA203-HE_141208C: 7</b>		SampType: <b>Initial Calibration Verification Standard</b>				Lab ID: <b>ICV</b>			Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:08</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	14.6	0.50	15.2	0	96	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA203-HE_141208C: 8</b>		SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>			Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:09</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.910	0.055	1	0	91	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA203-HE_141208C: 10</b>		SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:11</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	-0.0768	0.050		0		0	0				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA203-HE_141208C: 23</b>		SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:27</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.472	0.050	0.5	0	94	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA203-HE_141208C: 26</b>		SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14120106-001DMS</b>				Method: <b>E350.1</b>	
Analysis Date: <b>12/08/14 15:30</b>		Units: <b>mg/L</b>		Prep Info:			Prep Date:		Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.784	0.055	1	0	<b>78</b>	80	120				S
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R102707**

**Date:** 08-Jan-15

Run ID :Run Order: <b>FIA203-HE_141208C: 27</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14120106-001DMSD</b>				Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:31</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.789	0.055	1	0	<b>79</b>	80	120	0.7841	<b>0.7</b>	10	S
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA203-HE_141208C: 37</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>				Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:43</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.472	0.050	0.5	0	<b>94</b>	90	110				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA203-HE_141208C: 40</b>	SampType: <b>Sample Matrix Spike</b>				Lab ID: <b>H14120106-011DMS</b>				Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:47</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.925	0.055	1	0.05222	<b>87</b>	80	120				
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

Run ID :Run Order: <b>FIA203-HE_141208C: 41</b>	SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14120106-011DMSD</b>				Method: <b>E350.1</b>		
Analysis Date: <b>12/08/14 15:48</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:		
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.911	0.055	1	0.05222	<b>86</b>	80	120	0.9253	<b>1.5</b>	10	
Associated samples: <b>H14120106-001D, H14120106-002D, H14120106-003D, H14120106-004D, H14120106-005D, H14120106-006D, H14120106-007D, H14120106-008D, H14120106-009D, H14120106-010D, H14120106-011D, H14120106-012D, H14120106-013D, H14120106-014D, H14120106-015D</b>											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102712

Run ID :Run Order: PHSC_101-H_141209A: 18				SampType: Method Blank				Lab ID: MB				Method: A2320 B			
Analysis Date: 12/09/14 12:24				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				ND	2										
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A															

Run ID :Run Order: PHSC_101-H_141209A: 20				SampType: Laboratory Control Sample		Lab ID: LCS			Method: A2320 B		
Analysis Date: 12/09/14 12:29		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	620	4.0	600	0	103	90	110				
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A											

Run ID :Run Order: PHSC_101-H_141209A: 23				SampType: Sample Matrix Spike		Lab ID: H14120102-001AMS				Method: A2320 B		
Analysis Date: 12/09/14 12:48		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Alkalinity, Total as CaCO3	690	4.0	600	94.1	99	80	120					
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A												

Run ID :Run Order: PHSC_101-H_141209A: 26		SampType: Sample Duplicate			Lab ID: H14120106-001ADUP				Method: A2320 B		
Analysis Date: 12/09/14 13:09		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
Alkalinity, Total as CaCO3	130	4.0		0				131.6	1.8	10	
Bicarbonate as HCO3	160	4.0		0				159.9	1.8	10	
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A											

Run ID :Run Order: PHSC_101-H_141209A: 46		SampType: Sample Duplicate			Lab ID: H14120106-010ADUP				Method: A2320 B		
Analysis Date: 12/09/14 14:03		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	140	4.0		0				139	0.8	10	
Bicarbonate as HCO3	170	4.0		0				169	0.8	10	
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A											

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: R102737**

**Date:** 08-Jan-15

Run ID :Run Order: ICP2-HE_141209B: 6	SampType: Initial Calibration Verification Standard				Lab ID: ICV			Method: E200.7			
Analysis Date: 12/09/14 10:04	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.4	1.0	40	0	98	95	105				
Magnesium	39.6	1.0	40	0	99	95	105				

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 7	SampType: Continuing Calibration Verification Standar				Lab ID: CCV-1			Method: E200.7			
Analysis Date: 12/09/14 10:08	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
Calcium	24.9	1.0	25	0	100	95	105				
Magnesium	24.8	1.0	25	0	99	95	105				

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 10	SampType: Interference Check Sample A				Lab ID: ICSA			Method: E200.7			
Analysis Date: 12/09/14 10:19	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
Calcium	469	1.0	500	0	94	80	120				
Magnesium	512	1.0	500	0	102	80	120				

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 11	SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.7			
Analysis Date: 12/09/14 10:23	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
Calcium	473	1.0	500	0	95	80	120				
Magnesium	513	1.0	500	0	103	80	120				

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 32	SampType: Continuing Calibration Verification Standar				Lab ID: CCV			Method: E200.7			
Analysis Date: 12/09/14 13:04	Units: mg/L				Prep Info: Prep Date:			Prep Method:			
Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.6	1.0	25	0	99	90	110				
Magnesium	24.5	1.0	25	0	98	90	110				

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch  
**BatchID: R102737**

**Date:** 08-Jan-15

Run ID :Run Order: ICP2-HE_141209B: 32	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7
Analysis Date: 12/09/14 13:04	Units: mg/L	Prep Info: Prep Date:	Prep Method:
Analytes 2	Result PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 44	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7
Analysis Date: 12/09/14 13:50	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
Calcium	24.3 1.0 25 0	97 90 110	
Magnesium	24.1 1.0 25 0	97 90 110	

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

Run ID :Run Order: ICP2-HE_141209B: 56	SampType: Continuing Calibration Verification Standar	Lab ID: CCV	Method: E200.7
Analysis Date: 12/09/14 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
Calcium	24.4 1.0 25 0	98 90 110	
Magnesium	24.3 1.0 25 0	97 90 110	

Associated samples: H14120106-001C, H14120106-002C, H14120106-003C, H14120106-004C, H14120106-005C, H14120106-006C, H14120106-007C, H14120106-008C, H14120106-009C, H14120106-010C, H14120106-011C, H14120106-012C, H14120106-013C, H14120106-014C, H14120106-015C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: R102739**

**Date:** 08-Jan-15

Run ID :Run Order: ICPMS204-B_141209B: 10			SampType: Initial Calibration Verification Standard			Lab ID: ICV STD			Method: E200.8		
Analysis Date: 12/09/14 10:16		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <span>5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0584	0.0050	0.06	0	97	90	110				
Cadmium	0.0308	0.0010	0.03	0	103	90	110				
Copper	0.0605	0.010	0.06	0	101	90	110				
Lead	0.0573	0.010	0.06	0	96	90	110				
Zinc	0.0611	0.010	0.06	0	102	90	110				

Associated samples: H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C

Run ID :Run Order: ICPMS204-B_141209B: 11			SampType: Interference Check Sample A			Lab ID: ICSA			Method: E200.8		
Analysis Date: 12/09/14 10:20		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000102	0.0050		0							
Cadmium	0.000437	0.0010		0							
Copper	0.000345	0.010		0							
Lead	0.000203	0.010		0							
Zinc	0.000905	0.010		0							

Associated samples: H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C

Run ID :Run Order: ICPMS204-B_141209B: 12			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 12/09/14 10:25		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <span style="color: red;">5</span>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0106	0.0050	0.01	0	106	70	130				
Cadmium	0.00968	0.0010	0.01	0	97	70	130				
Copper	0.0210	0.010	0.02	0	105	70	130				
Lead	0.000217	0.010		0		0	0				
Zinc	0.0112	0.010	0.01	0	112	70	130				

Associated samples: H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: R102739**

**Date:** 08-Jan-15

Run ID :Run Order: <b>ICPMS204-B_141209B: 23</b>	SampType: <b>Method Blank</b>				Lab ID: <b>ICB</b>				Method: <b>E200.8</b>			
Analysis Date: <b>12/09/14 16:14</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	ND	3E-05										
Cadmium	ND	6E-06										
Copper	6E-05	3E-05										
Lead	ND	8E-06										
Zinc	0.0003	0.0003										

Associated samples: **H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B**

Run ID :Run Order: <b>ICPMS204-B_141209B: 24</b>	SampType: <b>Laboratory Fortified Blank</b>				Lab ID: <b>LFB</b>				Method: <b>E200.8</b>			
Analysis Date: <b>12/09/14 16:18</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.0498	0.0050	0.05	0	100	85	115					
Cadmium	0.0502	0.0010	0.05	0	100	85	115					
Copper	0.0512	0.010	0.05	0.0000607	102	85	115					
Lead	0.0474	0.010	0.05	0	95	85	115					
Zinc	0.0532	0.010	0.05	0.0003189	106	85	115					

Associated samples: **H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B**

Run ID :Run Order: <b>ICPMS204-B_141209B: 117</b>	SampType: <b>Interference Check Sample A</b>				Lab ID: <b>ICSA</b>				Method: <b>E200.8</b>			
Analysis Date: <b>12/09/14 23:24</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.000155	0.0050		0								
Cadmium	0.000451	0.0010		0								
Copper	0.000365	0.010		0								
Lead	0.000239	0.010		0								
Zinc	0.000999	0.010		0								

Associated samples: **H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C**

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



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: R102739**

**Date:** 08-Jan-15

Run ID :Run Order: ICPMS204-B_141209B: 118		SampType: Interference Check Sample AB				Lab ID: ICSAB			Method: E200.8		
Analysis Date: 12/09/14 23:28		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0102	0.0050	0.01	0	102	70	130				
Cadmium	0.00928	0.0010	0.01	0	93	70	130				
Copper	0.0206	0.010	0.02	0	103	70	130				
Lead	0.000224	0.010		0		0	0				
Zinc	0.0107	0.010	0.01	0	107	70	130				

Associated samples: **H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C**

Run ID :Run Order: ICPMS204-B_141209B: 130		SampType: Sample Matrix Spike			Lab ID: H14120106-005BMS				Method: E200.8		
Analysis Date: 12/10/14 00:24		Units: mg/L			Prep Info:		Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0535	0.0010	0.05	0.004189	99	70	130				
Cadmium	0.0468	0.0010	0.05	0	94	70	130				
Copper	0.0491	0.0050	0.05	0.00053	97	70	130				
Lead	0.0464	0.0010	0.05	0.0000118	93	70	130				
Zinc	0.0538	0.010	0.05	0.004161	99	70	130				

Associated samples: **H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B**

Run ID :Run Order: ICPMS204-B_141209B: 131				SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-005BMSD				Method: E200.8	
Analysis Date: 12/10/14 00:28				Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes <u>5</u>		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic		0.0544	0.0010	0.05	0.004189	100	70	130	0.05353	1.6	20		
Cadmium		0.0485	0.0010	0.05	0	97	70	130	0.04681	3.5	20		
Copper		0.0491	0.0050	0.05	0.00053	97	70	130	0.0491	0.0	20		
Lead		0.0474	0.0010	0.05	0.0000118	95	70	130	0.04636	2.2	20		
Zinc		0.0538	0.010	0.05	0.004161	99	70	130	0.0538	0.1	20		

Associated samples: **H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B**

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





**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: R102739**

**Date:** 08-Jan-15

Run ID :Run Order: ICPMS204-B_141209B: 165				SampType: Sample Matrix Spike		Lab ID: H14120106-015BMS				Method: E200.8		
Analysis Date: 12/10/14 03:04		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	
Arsenic	0.0614	0.0010	0.05	0.01168	99	70	130					
Cadmium	0.0483	0.0010	0.05	0	97	70	130					
Copper	0.0515	0.0050	0.05	0.001369	100	70	130					
Lead	0.0476	0.0010	0.05	0.0002138	95	70	130					
Zinc	0.0602	0.010	0.05	0.007548	105	70	130					

Associated samples: **H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B**

Run ID :Run Order: ICPMS204-B_141209B: 166				SampType: Sample Matrix Spike Duplicate				Lab ID: H14120106-015BMSD				Method: E200.8	
Analysis Date: 12/10/14 03:09				Units: mg/L		Prep Info:		Prep Date:		Prep Method:			
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Arsenic	0.0620	0.0010	0.05	0.01168	101	70	130	0.06138	0.9	20			
Cadmium	0.0477	0.0010	0.05	0	95	70	130	0.0483	1.2	20			
Copper	0.0516	0.0050	0.05	0.001369	101	70	130	0.05151	0.2	20			
Lead	0.0468	0.0010	0.05	0.0002138	93	70	130	0.04763	1.7	20			
Zinc	0.0586	0.010	0.05	0.007548	102	70	130	0.06024	2.7	20			

Associated samples: **H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B**

Run ID :Run Order: ICPMS204-B_141209B: 255				SampType: Sample Matrix Spike		Lab ID: H14120105-001BMS				Method: E200.8		
Analysis Date: 12/10/14 10:03		Units: mg/L				Prep Info:		Prep Date:		Prep Method:		
Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	0.252	0.0010	0.25	0	101	70	130					
Cadmium	0.210	0.0010	0.25	0.000051	84	70	130					
Copper	0.229	0.0050	0.25	0.001014	91	70	130					
Lead	0.236	0.0010	0.25	0.000153	94	70	130					
Zinc	0.233	0.010	0.25	0.004408	91	70	130					

Associated samples: **H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B**

Run ID :Run Order: <b>ICPMS204-B_141209B: 256</b>				SampType: <b>Sample Matrix Spike Duplicate</b>				Lab ID: <b>H14120105-001BMSD</b>				Method: <b>E200.8</b>	
Analysis Date: <b>12/10/14 10:08</b>				Units: <b>mg/L</b>		<b>Prep Info:</b>		Prep Date:		Prep Method:			
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Arsenic	0.256	0.0010	0.25	0	102	70	130	0.2516	1.7	20			

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 08-Jan-15

**BatchID:** R102739

Run ID :Run Order: ICPMS204-B_141209B: 256	SampType: Sample Matrix Spike Duplicate				Lab ID: H14120105-001BMSD				Method: E200.8		
Analysis Date: 12/10/14 10:08	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.214	0.0010	0.25	0.000051	85	70	130	0.2095	2.0	20	
Copper	0.232	0.0050	0.25	0.001014	92	70	130	0.229	1.1	20	
Lead	0.235	0.0010	0.25	0.000153	94	70	130	0.2363	0.4	20	
Zinc	0.237	0.010	0.25	0.004408	93	70	130	0.2326	2.0	20	

Associated samples: H14120106-001B, H14120106-002B, H14120106-003B, H14120106-004B, H14120106-005B, H14120106-006B, H14120106-007B, H14120106-008B, H14120106-009B, H14120106-010B, H14120106-011B, H14120106-012B, H14120106-013B, H14120106-014B, H14120106-015B

Run ID :Run Order: ICPMS204-B_141209B: 277	SampType: Initial Calibration Verification Standard				Lab ID: ICV STD				Method: E200.8		
Analysis Date: 12/10/14 11:53	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0593	0.0050	0.06	0	99	90	110				
Cadmium	0.0316	0.0010	0.03	0	105	90	110				
Copper	0.0614	0.010	0.06	0	102	90	110				
Lead	0.0597	0.010	0.06	0	100	90	110				
Zinc	0.0607	0.010	0.06	0	101	90	110				

Associated samples: H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C

Run ID :Run Order: ICPMS204-B_141209B: 278	SampType: Interference Check Sample A				Lab ID: ICSA				Method: E200.8		
Analysis Date: 12/10/14 11:58	Units: mg/L				Prep Info: Prep Date:				Prep Method:		
Analytes <b>5</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000117	0.0050		0							
Cadmium	0.000495	0.0010		0							
Copper	0.000342	0.010		0							
Lead	0.000224	0.010		0							
Zinc	0.000889	0.010		0							

Associated samples: H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102739

Run ID :Run Order: ICPMS204-B_141209B: 279			SampType: Interference Check Sample AB			Lab ID: ICSAB			Method: E200.8		
Analysis Date: 12/10/14 12:02		Units: mg/L		Prep Info:			Prep Date:		Prep Method:		
Analytes <u>5</u>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01	0	104	70	130				
Cadmium	0.00966	0.0010	0.01	0	97	70	130				
Copper	0.0208	0.010	0.02	0	104	70	130				
Lead	0.000226	0.010		0		0	0				
Zinc	0.0112	0.010	0.01	0	112	70	130				

Associated samples: H14120106-001B, H14120106-001C, H14120106-002B, H14120106-002C, H14120106-003B, H14120106-003C, H14120106-004B, H14120106-004C, H14120106-005B, H14120106-005C, H14120106-006B, H14120106-006C, H14120106-007B, H14120106-007C, H14120106-008B, H14120106-008C, H14120106-009B, H14120106-009C, H14120106-010B, H14120106-010C, H14120106-011B, H14120106-011C, H14120106-012B, H14120106-012C, H14120106-013B, H14120106-013C, H14120106-014B, H14120106-014C, H14120106-015B, H14120106-015C

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** R102782

Run ID :Run Order: <b>FIA203-HE_141210C: 9</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>12/10/14 15:55</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.494	0.10	0.5	0	<b>99</b>	90	110				
Associated samples: <b>H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A</b>											
Run ID :Run Order: <b>FIA203-HE_141210C: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>12/10/14 15:56</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	-0.124	0.10		0		0	0				
Associated samples: <b>H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A</b>											
Run ID :Run Order: <b>FIA203-HE_141210C: 27</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>12/10/14 16:16</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.498	0.10	0.5	0	<b>100</b>	90	110				
Associated samples: <b>H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A</b>											

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



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

**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**Date:** 08-Jan-15

**BatchID:** R102791

Run ID :Run Order: <b>FIA203-HE_141211A: 9</b>	SampType: <b>Continuing Calibration Verification Standar</b>				Lab ID: <b>CCV</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>12/11/14 08:35</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.486	0.10	0.5	0	<b>97</b>	90	110				

Associated samples: **H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A**

Run ID :Run Order: <b>FIA203-HE_141211A: 10</b>	SampType: <b>Initial Calibration Blank, Instrument Blank</b>				Lab ID: <b>ICB</b>			Method: <b>A4500 N-C</b>			
Analysis Date: <b>12/11/14 08:36</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:			Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.151	0.10		0		0	0				

Associated samples: **H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

**BatchID: TSS141205A**

**Date:** 08-Jan-15

Run ID :Run Order: <b>ACCU-124 (14410200)_141205A: 1</b>					SampType: <b>Method Blank</b>				Lab ID: <b>MB-1_141205A</b>				Method: <b>A2540 D</b>		
Analysis Date: <b>12/05/14 14:13</b>			Units: <b>mg/L</b>		<b>Prep Info:</b>				Prep Date:		Prep Method:				
Analytes <b>1</b>			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: <b>H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A</b>															

Run ID :Run Order: ACCU-124 (14410200)_141205A: 2					SampType: Laboratory Control Sample		Lab ID: LCS-2_141205A			Method: A2540 D		
Analysis Date: 12/05/14 14:13		Units: mg/L		Prep Info:			Prep Date:		Prep Method:			
Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C		92.0	10	100	0	92	80	120				
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A												

Run ID :Run Order: ACCU-124 (14410200)_141205A: 4					SampType: Sample Duplicate				Lab ID: H14120097-001B DUP				Method: A2540 D	
Analysis Date: 12/05/14 14:13		Units: mg/L			Prep Info:		Prep Date:		Prep Method:					
Analytes 1		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Solids, Total Suspended TSS @ 105 C		31.0	10		0				30	3.3	5			
Associated samples:														

Run ID :Run Order: ACCU-124 (14410200)_141205A: 1					SampType: Sample Duplicate				Lab ID: H14120106-004A DUP				Method: A2540 D	
Analysis Date: 12/05/14 14:17			Units: mg/L		Prep Info:			Prep Date:		Prep Method:				
Analytes 1			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C			8.30	2.1		0				8		5		
Associated samples: H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A														

Run ID :Run Order: <b>ACCU-124 (14410200)_141205A: 2</b>					SampType: <b>Method Blank</b>				Lab ID: <b>MB-25_141205A</b>				Method: <b>A2540 D</b>	
Analysis Date: <b>12/05/14 14:20</b>			Units: <b>mg/L</b>			Prep Info:		Prep Date:		Prep Method:				
Analytes <b>1</b>			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:														

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



**Client:** MT DEQ-Federal Superfund  
**Work Order:** H14120106  
**Project:** CFR Monitoring-474374

## ANALYTICAL QC SUMMARY REPORT

**Date:** 08-Jan-15

Prepared by Helena, MT Branch

**BatchID:** TSS141205A

Run ID :Run Order: <b>ACCU-124 (14410200)_141205A: 2</b>	SampType: <b>Laboratory Control Sample</b>				Lab ID: <b>LCS-26_141205A</b>				Method: <b>A2540 D</b>			
Analysis Date: <b>12/05/14 14:20</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C	94.0	10	100	0	<b>94</b>	80	120					

Associated samples:

Run ID :Run Order: <b>ACCU-124 (14410200)_141205A: 2</b>	SampType: <b>Sample Duplicate</b>				Lab ID: <b>H14120106-014A DUP</b>				Method: <b>A2540 D</b>			
Analysis Date: <b>12/05/14 14:21</b>	Units: <b>mg/L</b>				Prep Info: Prep Date:				Prep Method:			
Analytes <b>1</b>	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Solids, Total Suspended TSS @ 105 C	37.4	2.1		0				36.99	<b>1.2</b>	5		

Associated samples: **H14120106-001A, H14120106-002A, H14120106-003A, H14120106-004A, H14120106-005A, H14120106-006A, H14120106-007A, H14120106-008A, H14120106-009A, H14120106-010A, H14120106-011A, H14120106-012A, H14120106-013A, H14120106-014A, H14120106-015A**

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limit  
R - RPD outside accepted recovery limits

N - Analyte concentration was not sufficiently high to calculate RPD  
A - Analyte concentration greater than four times the spike amount



January 06, 2015

Energy Laboratories, Inc.  
ATTN: Jonathan Dee Hager  
PO Box 5688  
Helena MT 59604  
jhager@energylab.com

RE: Project ENL-HL1201

Client Project: Silver Bow / Clark Fork

Dear Jonathan Dee Hager,

This report contains results for the 5 samples received by Brooks Rand Labs (BRL) on December 08, 2014. The samples were logged-in for the contracted analyses according to the chain-of-custody form(s). The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were method blank corrected as described in the calculations section of the relevant BRL SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details. All data is reported without qualification (with the exception of concentration qualifiers), and all associated quality control sample results meet the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Annie Carter  
VP of Operations  
annie@brooksrands.com

Misun Chun  
Data Management Specialist  
misun@brooksrands.com





## Report Information

### Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksrand.com/about/accreditations-certifications/>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BLK</b>	method blank	<b>MS</b>	matrix spike
<b>BRL</b>	Brooks Rand Labs	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCB</b>	continuing calibration blank	<b>N/C</b>	not calculated
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>D</b>	dissolved fraction	<b>RPD</b>	relative percent difference
<b>DUP</b>	duplicate	<b>RSD</b>	relative standard deviation
<b>IBL</b>	instrument blank	<b>SCV</b>	secondary calibration verification
<b>ICV</b>	initial calibration verification	<b>SOP</b>	standard operating procedure
<b>MDL</b>	method detection limit	<b>SRM</b>	standard reference material
<b>MRL</b>	method reporting limit	<b>T</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.



## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H14120106-002F	1450003-01	DIW	Field Blank	12/01/2014	12/08/2014
H14120106-003F	1450003-02	Water	Sample	12/01/2014	12/08/2014
H14120106-004F	1450003-03	Water	Field Duplicate	12/01/2014	12/08/2014
H14120106-016B	1450003-04	Water	Sample	12/01/2014	12/08/2014
Trip Blank	1450003-05	DIW	Trip Blank	12/07/2014	12/08/2014

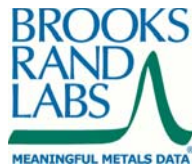
## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	12/09/2014	12/10/2014	B142235	1401058
MeHg	Water	EPA 1630	12/30/2014	12/31/2014	B142323	1401105



## Sample Results

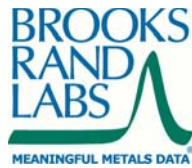
Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>H14120106-002F</b>										
1450003-01	MeHg	DIW	T	0.020	U	0.020	0.049	ng/L	B142235	1401058
<b>H14120106-003F</b>										
1450003-02	MeHg	Water	T	0.547		0.020	0.050	ng/L	B142235	1401058
<b>H14120106-004F</b>										
1450003-03	MeHg	Water	T	0.539		0.020	0.050	ng/L	B142235	1401058
<b>H14120106-016B</b>										
1450003-04	MeHg	Water	T	0.151		0.020	0.049	ng/L	B142323	1401105
<b>Trip Blank</b>										
1450003-05	MeHg	DIW	T	0.020	U	0.020	0.050	ng/L	B142323	1401105



## Accuracy & Precision Summary

Batch: B142235  
Lab Matrix: Water  
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B142235-BS1	Laboratory Fortified Blank (1449018) MeHg		1.000	1.068	ng/L	107% 67-133	
B142235-MS1	Matrix Spike (1449016-02) MeHg	0.677	1.200	2.020	ng/L	112% 65-135	
B142235-MSD1	Matrix Spike Duplicate (1449016-02) MeHg	0.677	1.200	1.988	ng/L	109% 65-135	2% 35



## Accuracy & Precision Summary

Batch: B142323  
Lab Matrix: Water  
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B142323-BS1	Laboratory Fortified Blank (1449018) MeHg		1.000	0.997	ng/L	100% 67-133	
B142323-MS1	Matrix Spike (1450042-01) MeHg	0.055	1.000	0.940	ng/L	89% 65-135	
B142323-MSD1	Matrix Spike Duplicate (1450042-01) MeHg	0.055	1.000	0.995	ng/L	94% 65-135	6% 35

## Method Blanks & Reporting Limits

**Batch:** B142235  
**Matrix:** Water  
**Method:** EPA 1630  
**Analyte:** MeHg

Sample	Result	Units		
B142235-BLK1	0.004	ng/L		
B142235-BLK2	0.005	ng/L		
B142235-BLK3	0.006	ng/L		
B142235-BLK4	0.002	ng/L		
<b>Average:</b> 0.004		<b>Standard Deviation:</b> 0.002	<b>MDL:</b> 0.020	
<b>Limit:</b> 0.045		<b>Limit:</b> 0.015	<b>MRL:</b> 0.050	



## Method Blanks & Reporting Limits

Batch: B142323  
Matrix: Water  
Method: EPA 1630  
Analyte: MeHg

Sample	Result	Units		
B142323-BLK1	0.005	ng/L		
B142323-BLK2	0.004	ng/L		
B142323-BLK3	0.0007	ng/L		
B142323-BLK4	0.001	ng/L		
Average: 0.003		Standard Deviation: 0.002	MDL: 0.020	
Limit: 0.045		Limit: 0.015	MRL: 0.049	

**Project ID:** ENL-HL1201  
**PM:** Annie Carter



**Client PM:** Jonathan Dee Hager  
**Client PO:** H13002

## Sample Containers

<b>Lab ID:</b> 1450003-01		<b>Report Matrix:</b> DIW		<b>Collected:</b> 12/01/2014	
<b>Sample:</b> H14120106-002F		<b>Sample Type:</b> Field Blank		<b>Received:</b> 12/08/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>
A	Bottle FLPE Hg-SP	250mL	14-0144	2mL 6N HCl (PP)	1440002
					<b>pH</b>
					<2
					<b>Ship. Cont.</b>
					Cooler
<b>Lab ID:</b> 1450003-02		<b>Report Matrix:</b> Water		<b>Collected:</b> 12/01/2014	
<b>Sample:</b> H14120106-003F		<b>Sample Type:</b> Sample		<b>Received:</b> 12/08/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>
A	Bottle FLPE Hg-SP	250mL	14-0144	2mL 6N HCl (PP)	1440002
					<b>pH</b>
					<2
					<b>Ship. Cont.</b>
					Cooler
<b>Lab ID:</b> 1450003-03		<b>Report Matrix:</b> Water		<b>Collected:</b> 12/01/2014	
<b>Sample:</b> H14120106-004F		<b>Sample Type:</b> Field Duplicate		<b>Received:</b> 12/08/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>
A	Bottle FLPE Hg-SP	250mL	14-0144	2mL 6N HCl (PP)	1440002
					<b>pH</b>
					<2
					<b>Ship. Cont.</b>
					Cooler
<b>Lab ID:</b> 1450003-04		<b>Report Matrix:</b> Water		<b>Collected:</b> 12/01/2014	
<b>Sample:</b> H14120106-016B		<b>Sample Type:</b> Sample		<b>Received:</b> 12/08/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>
A	Bottle FLPE Hg-SP	250mL	14-0144	2mL 6N HCl (PP)	1440002
					<b>pH</b>
					<2
					<b>Ship. Cont.</b>
					Cooler
<b>Lab ID:</b> 1450003-05		<b>Report Matrix:</b> DIW		<b>Collected:</b> 12/07/2014	
<b>Sample:</b> Trip Blank		<b>Sample Type:</b> Trip Blank		<b>Received:</b> 12/08/2014	
<b>Des</b>	<b>Container</b>	<b>Size</b>	<b>Lot</b>	<b>Preservation</b>	<b>P-Lot</b>
A	Bottle FLPE Hg-SP	250mL	14-0144	2mL 6N HCl (BRL)	1446004
					<b>pH</b>
					<2
					<b>Ship. Cont.</b>
					Cooler

## Shipping Containers

### Cooler

**Received:** December 8, 2014 9:40  
**Tracking No:** 1Z37EW970151797774 via UPS  
**Coolant Type:** Ice  
**Temperature:** -0.1 °C

**Description:** Cooler  
**Damaged in transit?** No  
**Returned to client?** No

**Custody seals present?** Yes  
**Custody seals intact?** Yes  
**COC present?** Yes





# Workorder Receipt Checklist

MT DEQ-Federal Superfund

H14120106

Login completed by: Tracy L. Lorash

Date Received: 12/5/2014

Reviewed by: BL2000\sdull

Received by: AHN

Reviewed Date: 12/10/2014

Carrier Hand Del  
name:

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

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Sample ID on COC is LB-CFR-02 -ID on bottles is LB-CFR. Logged in with ID from COC per Erich.  
Collection time on COC for MWB-SBC is 1430 - nutrient bottle has 1445. Logged in with time from COC.  
Received filtered metals bottle for sample CFR-84F, however no analysis is requested for that bottle. Per Erich, we are to discard this sample.  
Cooler 1 was received at 5.4°C, Cooler 2 at 4.4°C, Cooler 3 at 3.8°C. Samples were not received on ice. TI 12/5/14



# Chain of Custody and Analytical Request Record

Page 1 of 3

<b>Company Name:</b> <b>MT DEQ (via Respec)</b>		<b>Project Name, PWS, Permit, Etc.</b> <b>CFRok Monitoring</b>		<b>Sample Origin</b> <b>State: MT</b>		<b>EPA/State Compliance:</b> Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>Report Mail Address (Required):</b> erich.weber@respec.com joe.naughton@respec.com gary.naughton@respec.com bequinones@mt.gov <input type="checkbox"/> No Hard Copy Email:		<b>Contact Name:</b> Ben Quinones 406.841.5709 Erich Weber 506.1546		<b>Cell:</b> 841-5709 439-0563		<b>Sampler: (Please Print)</b> J. Naughton G. Naughton E. Weber	
<b>Invoice Address (Required):</b> MT DEQ P.O. Box 200901 Helena, MT 59620-0901 <input type="checkbox"/> No Hard Copy Email:		<b>Invoice Contact &amp; Phone:</b> Ben Quinones 841.5709		<b>Purchase Order:</b> H958/16207		<b>Quote/Bottle Order:</b>	
<b>Special Report/Formats:</b> <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> Format: <input type="checkbox"/> State: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> Other: <input type="checkbox"/> NELAC		<b>ANALYSIS REQUESTED</b> SEE ATTACHED Standard Turnaround (TAT)					
<b>SAMPLE IDENTIFICATION</b> (Name, Location, Interval, etc.)		<b>Collection Date</b>		<b>Collection Time</b>		<b>Matrix</b>	
1 CFR-116A		12-1-2014		0930		GW	
2 Field Blank #1		12-1-2014		1200		GW	
3 FC-CFR		12-1-2014		1300		GW	
4 FC-CFR Duplicate		12-1-2014		1300		GW	
5 LBR-CFR-02		12-1-2014		1400		GW	
6 CFR-27H		12-1-2014		1600		GW	
7 CFR-11F		12-2-2014		0900		GW	
8 CFR-07D		12-2-2014		1100		GW	
9 CFR-03A		12-2-2014		1215		GW	
10 WSC-SBC		12-2-2014		1245		GW	
<b>Custody Record MUST be Signed</b>		<b>Relinquished by (print):</b> Erich Weber		<b>Date/Time:</b> 12-5-2014 11:50		<b>Signature:</b> [Signature]	
<b>Relinquished by (print):</b>		<b>Date/Time:</b>		<b>Received by (print):</b>		<b>Date/Time:</b>	
<b>Relinquished by (print):</b>		<b>Date/Time:</b>		<b>Received by (print):</b>		<b>Date/Time:</b>	
<b>Sample Disposal:</b>		<b>Return to Client:</b>		<b>Lab Disposal:</b>		<b>Received by Laboratory:</b> Erich Weber 12/5/14 11:50	

LABORATORY USE ONLY

Shipped by: Hand  
Cooler ID(s):  
Receipt Temp: 15°C  
On Ice: Y N  
Custody Seal: Y N  
On Bottle: Y N  
On Cooler: Y N  
Intact: Y N  
Signature Match: Y N  
H14126106

Comments:  
all dissolved samples field filtered  
C1=5.4 TB  
C2=4.4 TB  
C3=3.8 TB

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

Standard Turnaround (TAT)

ANALYSIS REQUESTED

SEE ATTACHED

Matrix

Sample Type: A W S V B O DW

Air Water Bypass Other

Vegetation Bioassay Other

DW - Drinking Water

TR As, Cd, Cu, Pb, Zn

Diss As, Cd, Cu, Pb, Zn

TPH

NH3, NO3-N, TP

TSS

Tot Alk, DO, Cl-

Hardness (TR Ca+Mg)

DOC

Standard Turnaround (TAT)

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

Cooler ID(s):

Shipped by:

Receipt Temp:

On Ice:

Custody Seal:

On Bottle:

On Cooler:

Intact:

Signature Match:

H14126106

Comments:

all dissolved samples field filtered

C1=5.4 TB

C2=4.4 TB

C3=3.8 TB

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

Page 2 of 3

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>MT DEQ (via Respec)</b>		Project Name, PWS, Permit, Etc. <b>CFRou Monitoring</b>		Sample Origin State: <b>MT</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>See page 1</b>		Contact Name: <b>See page 1</b>		Phone/Fax: <b>See page 1</b>		Cell: <b>See page 1</b>	
Invoice Address (Required): <b>See page 1</b>		Invoice Contact & Phone: <b>See page 1</b>		Purchase Order: <b>4958/46207</b>		Sampler: (Please Print) <b>J. Naughton</b> <b>G. Ingman</b> <b>E. Weber</b>	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:		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		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page Comments: <b>(1=5.4) TB</b> <b>(2=4.4)</b> <b>(3=3.8)</b>	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	Standard Turnaround (TAT) <b>R U S H</b>		Shipped by: <b>hand</b> Cooler ID(s): <b>4</b>	
1 <b>SS-25</b>		12-2-2014	13:45	DOC		Receipt Temp <b>Comments: 5°C</b>	
2 <b>MWB-SBC</b>		12-2-2014	14:30	Hardness (TR Ca & Mg)		On Ice: <b>Y</b>	
3 <b>Field Blank #2</b>		12-2-2014	15:30	TSS		Custody Seal On Bottle <b>Y</b> On Cooler <b>N</b>	
4 <b>MCWC-MWB</b>		12-2-2014	16:00	NH <sub>3</sub> , NO <sub>3</sub> -N, TP		Intact <b>Y</b> Signature <b>Y</b> Match <b>N</b>	
5 <b>MCWC-MWB Duplicate</b>		12-2-2014	16:00	Diss As, Cd, Cu, Pb, Zn		LABORATORY USE ONLY	
6				TR As, Cd, Cu, Pb, Zn		44120106	
7				TAs, Cd, Cu, Pb, Zn			
8				TSS			
9				Hardness (TR Ca & Mg)			
10				DOC			
Custody Record MUST be Signed		Relinquished by (print): <b>Eric Weber</b>		Received by (print): <b>EDS</b>		Signature: <b>Signature</b>	
Date/Time: <b>12-5-2014 11:50</b>		Date/Time: <b>12-5-2014 11:50</b>		Date/Time: <b>12-5-2014 11:50</b>		Signature: <b>Signature</b>	
Sample Disposal: <b>Return to Client</b>		Lab Disposal: <b>Return to Client</b>		Received by Laboratory: <b>Austin Neff</b>		Signature: <b>Signature</b>	

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

Page 3 of 3

Company Name: <b>MT DEQ (via Respec)</b>		Project Name, PWS, Permit, Etc. <b>CFR on Monitoring</b>		EPA/State Compliance: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required): <b>See page 1</b>		Contact Name: <b>See page 1</b>		Sampler: (Please Print) <b>J. Noughton</b>	
<input type="checkbox"/> No Hard Copy Email:		Phone/Fax: <b>See page 1</b>		Quote/Bottle Order: <b>H958/16207</b>	
Invoice Address (Required): <b>See page 1</b>		Invoice Contact & Phone: <b>See page 1</b>		Purchase Order:	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:		ANALYSIS REQUESTED Number of Containers Sample Type: AWSVBODW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water		Contact ELI prior to <b>RUSH</b> sample submittal for charges and scheduling - See Instruction Page	
Matrix		Total Hg (low level) Methyl Hg (Contract)		Comments: <b>C1=5.4 C2=4.4 C3=3.6</b>	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	Standard Turnaround (TAT)	
1 CFR-04F		12-1-2014	1045	SEE ATTACHED	
2 Field Blank #1		12-1-2014	1200	R U S H	
3 FC-CFR		12-1-2014	1300	Comments: <b>Separate 250 mL Sample for Total Hg</b>	
4 FC-CFR Duplicate		12-1-2014	1300	<b>Total Hg from TR method</b>	
5				<b>Total Hg from TR method</b>	
6					
7					
8					
9					
10					
Relinquished by (print): <b>Eric Weber</b>		Date/Time: <b>12-5-2014 11:50</b>	Signature: <b>[Signature]</b>	Received by (print): <b>[Signature]</b>	
Relinquished by (print):		Date/Time:	Signature:	Received by (print):	
Sample Disposal:		Return to Client:	Lab Disposal:	Received by Laboratory: <b>Annequist</b>	
Custody Record MUST be Signed		Date/Time: <b>12/5/14 11:50</b>		Signature: <b>[Signature]</b>	

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.

## **APPENDIX C**

### **SURFACE WATER DATA**

---

## APPENDIX C

### SURFACE WATER DATA

**Table C1. Surface water monitoring data from Clark Fork River Operable Unit, 2014.**

Site	Type	Lab ID	Collected Date	Parameter	Results	RL	Units	Qualifier	Method
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Alkalinity, Total as CaCO <sub>3</sub>	120	4	mg/L		A2320 B
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Alkalinity, Total as CaCO <sub>3</sub>	99	4	mg/L		A2320 B
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Alkalinity, Total as CaCO <sub>3</sub>	68	4	mg/L		A2320 B
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Alkalinity, Total as CaCO <sub>3</sub>	76	4	mg/L		A2320 B
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Alkalinity, Total as CaCO <sub>3</sub>	110	4	mg/L		A2320 B
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Alkalinity, Total as CaCO <sub>3</sub>	140	4	mg/L		A2320 B
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Alkalinity, Total as CaCO <sub>3</sub>	140	4	mg/L		A2320 B
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Alkalinity, Total as CaCO <sub>3</sub>	110	4	mg/L		A2320 B
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Alkalinity, Total as CaCO <sub>3</sub>	74	4	mg/L		A2320 B
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Alkalinity, Total as CaCO <sub>3</sub>	83	4	mg/L		A2320 B
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Alkalinity, Total as CaCO <sub>3</sub>	120	4	mg/L		A2320 B
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Alkalinity, Total as CaCO <sub>3</sub>	160	4	mg/L		A2320 B
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Alkalinity, Total as CaCO <sub>3</sub>	120	4	mg/L		A2320 B
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Alkalinity, Total as CaCO <sub>3</sub>	77	4	mg/L		A2320 B
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Alkalinity, Total as CaCO <sub>3</sub>	69	4	mg/L		A2320 B
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Alkalinity, Total as CaCO <sub>3</sub>	89	4	mg/L		A2320 B
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Alkalinity, Total as CaCO <sub>3</sub>	130	4	mg/L		A2320 B
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Alkalinity, Total as CaCO <sub>3</sub>	130	4	mg/L		A2320 B
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Alkalinity, Total as CaCO <sub>3</sub>	150	4	mg/L		A2320 B
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Alkalinity, Total as CaCO <sub>3</sub>	110	4	mg/L		A2320 B
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Alkalinity, Total as CaCO <sub>3</sub>	78	4	mg/L		A2320 B
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Alkalinity, Total as CaCO <sub>3</sub>	88	4	mg/L		A2320 B
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Alkalinity, Total as CaCO <sub>3</sub>	120	4	mg/L		A2320 B
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Alkalinity, Total as CaCO <sub>3</sub>	170	4	mg/L		A2320 B
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Alkalinity, Total as CaCO <sub>3</sub>	150	4	mg/L		A2320 B

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Alkalinity, Total as CaCO3	120	4	mg/L	A2320 B
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Alkalinity, Total as CaCO3	88	4	mg/L	A2320 B
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Alkalinity, Total as CaCO3	88	4	mg/L	A2320 B
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Alkalinity, Total as CaCO3	130	4	mg/L	A2320 B
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Alkalinity, Total as CaCO3	170	4	mg/L	A2320 B
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Alkalinity, Total as CaCO3	120	4	mg/L	A2320 B
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Alkalinity, Total as CaCO3	110	4	mg/L	A2320 B
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Alkalinity, Total as CaCO3	110	4	mg/L	A2320 B
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Alkalinity, Total as CaCO3	110	4	mg/L	A2320 B
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Alkalinity, Total as CaCO3	120	4	mg/L	A2320 B
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Alkalinity, Total as CaCO3	130	4	mg/L	A2320 B
CSC	Natural Sample	H14050278-002	5/13/2014	Alkalinity, Total as CaCO3	140	4	mg/L	A2320 B
CSC	Natural Sample	H14060255-002	6/10/2014	Alkalinity, Total as CaCO3	140	4	mg/L	A2320 B
CSC	Natural Sample	H14060541-002	6/24/2014	Alkalinity, Total as CaCO3	140	4	mg/L	A2320 B
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Alkalinity, Total as CaCO3	140	4	mg/L	A2320 B
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Alkalinity, Total as CaCO3	140	4	mg/L	A2320 B
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Alkalinity, Total as CaCO3	100	4	mg/L	A2320 B
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Alkalinity, Total as CaCO3	100	4	mg/L	A2320 B
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Alkalinity, Total as CaCO3	110	4	mg/L	A2320 B
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Alkalinity, Total as CaCO3	110	4	mg/L	A2320 B
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Alkalinity, Total as CaCO3	140	4	mg/L	A2320 B
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Alkalinity, Total as CaCO3	140	4	mg/L	A2320 B
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Alkalinity, Total as CaCO3	190	4	mg/L	A2320 B
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Alkalinity, Total as CaCO3	190	4	mg/L	A2320 B
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Alkalinity, Total as CaCO3	180	4	mg/L	A2320 B
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Alkalinity, Total as CaCO3	180	4	mg/L	A2320 B
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Alkalinity, Total as CaCO3	110	4	mg/L	A2320 B
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Alkalinity, Total as CaCO3	76	4	mg/L	A2320 B
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Alkalinity, Total as CaCO3	97	4	mg/L	A2320 B
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Alkalinity, Total as CaCO3	110	4	mg/L	A2320 B
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Alkalinity, Total as CaCO3	130	4	mg/L	A2320 B
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Alkalinity, Total as CaCO3	130	4	mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Alkalinity, Total as CaCO3	96	4	mg/L	A2320 B
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Alkalinity, Total as CaCO3	96	4	mg/L	A2320 B



MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Alkalinity, Total as CaCO3	55	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Alkalinity, Total as CaCO3	56	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Alkalinity, Total as CaCO3	48	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Alkalinity, Total as CaCO3	48	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Alkalinity, Total as CaCO3	60	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Alkalinity, Total as CaCO3	51	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Alkalinity, Total as CaCO3	84	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Alkalinity, Total as CaCO3	83	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Alkalinity, Total as CaCO3	99	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Alkalinity, Total as CaCO3	98	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Alkalinity, Total as CaCO3	110	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Alkalinity, Total as CaCO3	65	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Alkalinity, Total as CaCO3	54	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Alkalinity, Total as CaCO3	51	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Alkalinity, Total as CaCO3	99	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Alkalinity, Total as CaCO3	130	4 mg/L	A2320 B
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Alkalinity, Total as CaCO3	100	4 mg/L	A2320 B
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Alkalinity, Total as CaCO3	90	4 mg/L	A2320 B
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Alkalinity, Total as CaCO3	80	4 mg/L	A2320 B
SS-25	Natural Sample	H14030285-011	3/19/2014	Alkalinity, Total as CaCO3	110	4 mg/L	A2320 B
SS-25	Natural Sample	H14050278-010	5/14/2014	Alkalinity, Total as CaCO3	91	4 mg/L	A2320 B
SS-25	Natural Sample	H14060255-010	6/11/2014	Alkalinity, Total as CaCO3	61	4 mg/L	A2320 B
SS-25	Natural Sample	H14060541-010	6/25/2014	Alkalinity, Total as CaCO3	69	4 mg/L	A2320 B
SS-25	Natural Sample	H14090349-011	9/17/2014	Alkalinity, Total as CaCO3	89	4 mg/L	A2320 B
SS-25	Natural Sample	H14120106-011	12/2/2014	Alkalinity, Total as CaCO3	130	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Alkalinity, Total as CaCO3	150	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Alkalinity, Total as CaCO3	130	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Alkalinity, Total as CaCO3	67	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Alkalinity, Total as CaCO3	70	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Alkalinity, Total as CaCO3	130	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Alkalinity, Total as CaCO3	140	4 mg/L	A2320 B
	Field Blank 1	H14030285-002	3/18/2014	Alkalinity, Total as CaCO3	ND	4 mg/L	A2320 B
	Field Blank 2	H14030285-013	3/19/2014	Alkalinity, Total as CaCO3	ND	4 mg/L	A2320 B
	Field Blank 1	H14050278-017	5/13/2014	Alkalinity, Total as CaCO3	ND	4 mg/L	A2320 B

	Field Blank 2	H14050278-013	5/14/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 1	H14060255-017	6/10/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 2	H14060255-013	6/11/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 1	H14060541-017	6/24/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 2	H14060541-013	6/25/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 1	H14090349-002	9/16/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 2	H14090349-013	9/17/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 1	H14120106-002	12/1/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
	Field Blank 2	H14120106-013	12/2/2014	Alkalinity, Total as CaCO3	ND	4	mg/L		A2320 B
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Arsenic, Dissolved	0.013	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Arsenic, Dissolved	0.015	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Arsenic, Dissolved	0.014	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Arsenic, Dissolved	0.018	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Arsenic, Dissolved	0.021	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Arsenic, Dissolved	0.01	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Arsenic, Dissolved	0.015	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Arsenic, Dissolved	0.014	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Arsenic, Dissolved	0.015	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Arsenic, Dissolved	0.017	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Arsenic, Dissolved	0.020	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Arsenic, Dissolved	0.011	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Arsenic, Dissolved	0.007	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Arsenic, Dissolved	0.005	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Arsenic, Dissolved	0.005	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Arsenic, Dissolved	0.006	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Arsenic, Dissolved	0.007	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Arsenic, Dissolved	0.006	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Arsenic, Dissolved	0.015	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Arsenic, Dissolved	0.015	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Arsenic, Dissolved	0.016	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Arsenic, Dissolved	0.018	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Arsenic, Dissolved	0.021	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Arsenic, Dissolved	0.011	0.001	mg/L		E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Arsenic, Dissolved	0.014	0.001	mg/L		E200.8

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Arsenic, Dissolved	0.015	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Arsenic, Dissolved	0.018	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Arsenic, Dissolved	0.016	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Arsenic, Dissolved	0.018	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Arsenic, Dissolved	0.012	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Arsenic, Dissolved	0.016	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Arsenic, Dissolved	0.019	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Arsenic, Dissolved	0.017	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Arsenic, Dissolved	0.009	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Arsenic, Dissolved	0.012	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Arsenic, Dissolved	0.012	0.001	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Arsenic, Dissolved	0.002	0.001	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Arsenic, Dissolved	0.002	0.001	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Arsenic, Dissolved	0.002	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Arsenic, Dissolved	0.008	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Arsenic, Dissolved	0.008	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Arsenic, Dissolved	0.008	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Arsenic, Dissolved	0.008	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Arsenic, Dissolved	0.009	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Arsenic, Dissolved	0.009	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Arsenic, Dissolved	0.008	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Arsenic, Dissolved	0.008	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Arsenic, Dissolved	0.004	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Arsenic, Dissolved	0.004	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Arsenic, Dissolved	0.005	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Arsenic, Dissolved	0.004	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Arsenic, Dissolved	0.019	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Arsenic, Dissolved	0.019	0.001	mg/L	E200.8

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Arsenic, Dissolved	0.025	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Arsenic, Dissolved	0.025	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Arsenic, Dissolved	0.019	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Arsenic, Dissolved	0.019	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Arsenic, Dissolved	0.024	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Arsenic, Dissolved	0.025	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Arsenic, Dissolved	0.018	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Arsenic, Dissolved	0.019	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Arsenic, Dissolved	0.012	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Arsenic, Dissolved	0.011	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Arsenic, Dissolved	0.018	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Arsenic, Dissolved	0.025	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Arsenic, Dissolved	0.02	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Arsenic, Dissolved	0.025	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Arsenic, Dissolved	0.019	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Arsenic, Dissolved	0.014	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Arsenic, Dissolved	0.014	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Arsenic, Dissolved	0.029	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Arsenic, Dissolved	0.029	0.001	mg/L	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Arsenic, Dissolved	0.014	0.001	mg/L	E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Arsenic, Dissolved	0.017	0.001	mg/L	E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Arsenic, Dissolved	0.022	0.001	mg/L	E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Arsenic, Dissolved	0.026	0.001	mg/L	E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Arsenic, Dissolved	0.028	0.001	mg/L	E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Arsenic, Dissolved	0.009	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Arsenic, Dissolved	0.008	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Arsenic, Dissolved	0.005	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Arsenic, Dissolved	0.006	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Arsenic, Dissolved	0.007	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Arsenic, Dissolved	0.005	0.001	mg/L	E200.8
	Field Blank 1	H14030285-002	3/18/2014	Arsenic, Dissolved	ND	0.001	mg/L	E200.8
	Field Blank 2	H14030285-013	3/19/2014	Arsenic, Dissolved	ND	0.001	mg/L	E200.8
	Field Blank 1	H14050278-017	5/13/2014	Arsenic, Dissolved	ND	0.001	mg/L	E200.8

	Field Blank 2	H14050278-013	5/14/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14060255-017	6/10/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14060255-013	6/11/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14060541-017	6/24/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14060541-013	6/25/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14090349-002	9/16/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14090349-013	9/17/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14120106-002	12/1/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14120106-013	12/2/2014	Arsenic, Dissolved	ND	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Arsenic, Total Recoverable	0.016	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Arsenic, Total Recoverable	0.016	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Arsenic, Total Recoverable	0.015	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Arsenic, Total Recoverable	0.018	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Arsenic, Total Recoverable	0.017	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Arsenic, Total Recoverable	0.017	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Arsenic, Total Recoverable	0.006	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Arsenic, Total Recoverable	0.006	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Arsenic, Total Recoverable	0.007	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Arsenic, Total Recoverable	0.008	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Arsenic, Total Recoverable	0.007	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Arsenic, Total Recoverable	0.017	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Arsenic, Total Recoverable	0.018	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L		E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Arsenic, Total Recoverable	0.023	0.001	mg/L		E200.8

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Arsenic, Total Recoverable	0.018	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Arsenic, Total Recoverable	0.023	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Arsenic, Total Recoverable	0.020	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Arsenic, Total Recoverable	0.014	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Arsenic, Total Recoverable	0.024	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Arsenic, Total Recoverable	0.015	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Arsenic, Total Recoverable	0.014	0.001	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Arsenic, Total Recoverable	0.002	0.001	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Arsenic, Total Recoverable	0.002	0.001	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Arsenic, Total Recoverable	0.002	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Arsenic, Total Recoverable	0.013	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Arsenic, Total Recoverable	0.013	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Arsenic, Total Recoverable	0.009	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Arsenic, Total Recoverable	0.009	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Arsenic, Total Recoverable	0.011	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Arsenic, Total Recoverable	0.012	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Arsenic, Total Recoverable	0.008	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Arsenic, Total Recoverable	0.008	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Arsenic, Total Recoverable	0.007	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Arsenic, Total Recoverable	0.007	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Arsenic, Total Recoverable	0.005	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Arsenic, Total Recoverable	0.005	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Arsenic, Total Recoverable	0.006	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Arsenic, Total Recoverable	0.006	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Arsenic, Total Recoverable	0.005	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Arsenic, Total Recoverable	0.004	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Arsenic, Total Recoverable	0.022	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Arsenic, Total Recoverable	0.022	0.001	mg/L	E200.8

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Arsenic, Total Recoverable	0.027	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Arsenic, Total Recoverable	0.027	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Arsenic, Total Recoverable	0.026	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Arsenic, Total Recoverable	0.028	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Arsenic, Total Recoverable	0.020	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Arsenic, Total Recoverable	0.019	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Arsenic, Total Recoverable	0.02	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Arsenic, Total Recoverable	0.027	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Arsenic, Total Recoverable	0.028	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Arsenic, Total Recoverable	0.021	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Arsenic, Total Recoverable	0.016	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Arsenic, Total Recoverable	0.014	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Arsenic, Total Recoverable	0.028	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Arsenic, Total Recoverable	0.029	0.001	mg/L	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Arsenic, Total Recoverable	0.016	0.001	mg/L	E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Arsenic, Total Recoverable	0.018	0.001	mg/L	E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Arsenic, Total Recoverable	0.023	0.001	mg/L	E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Arsenic, Total Recoverable	0.027	0.001	mg/L	E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Arsenic, Total Recoverable	0.029	0.001	mg/L	E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Arsenic, Total Recoverable	0.011	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Arsenic, Total Recoverable	0.008	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Arsenic, Total Recoverable	0.007	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Arsenic, Total Recoverable	0.006	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Arsenic, Total Recoverable	0.007	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Arsenic, Total Recoverable	0.008	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Arsenic, Total Recoverable	0.006	0.001	mg/L	E200.8
	Field Blank 1	H14030285-002	3/18/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 2	H14030285-013	3/19/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 1	H14050278-017	5/13/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8

	Field Blank 2	H14050278-013	5/14/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 1	H14060255-017	6/10/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 2	H14060255-013	6/11/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 1	H14060541-017	6/24/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 2	H14060541-013	6/25/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 1	H14090349-002	9/16/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 2	H14090349-013	9/17/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 1	H14120106-002	12/1/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
	Field Blank 2	H14120106-013	12/2/2014	Arsenic, Total Recoverable	ND	0.001	mg/L	E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	150	4	mg/L	A2320 B
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	120	4	mg/L	A2320 B
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	83	4	mg/L	A2320 B
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	92	4	mg/L	A2320 B
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	110	4	mg/L	A2320 B
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	170	4	mg/L	A2320 B
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	170	4	mg/L	A2320 B
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4	mg/L	A2320 B
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	90	4	mg/L	A2320 B
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	100	4	mg/L	A2320 B
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4	mg/L	A2320 B
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	190	4	mg/L	A2320 B
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4	mg/L	A2320 B
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	94	4	mg/L	A2320 B
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	83	4	mg/L	A2320 B
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	110	4	mg/L	A2320 B
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	160	4	mg/L	A2320 B
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	160	4	mg/L	A2320 B
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	180	4	mg/L	A2320 B
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4	mg/L	A2320 B
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	95	4	mg/L	A2320 B
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	110	4	mg/L	A2320 B
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	120	4	mg/L	A2320 B
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	210	4	mg/L	A2320 B
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	180	4	mg/L	A2320 B



CFR-27H	Natural Sample	H14050278-005	5/14/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	150	4 mg/L	A2320 B
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	110	4 mg/L	A2320 B
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	110	4 mg/L	A2320 B
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4 mg/L	A2320 B
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	210	4 mg/L	A2320 B
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4 mg/L	A2320 B
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4 mg/L	A2320 B
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	140	4 mg/L	A2320 B
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	130	4 mg/L	A2320 B
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	150	4 mg/L	A2320 B
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	160	4 mg/L	A2320 B
CSC	Natural Sample	H14050278-002	5/13/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	170	4 mg/L	A2320 B
CSC	Natural Sample	H14060255-002	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	170	4 mg/L	A2320 B
CSC	Natural Sample	H14060541-002	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	160	4 mg/L	A2320 B
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	170	4 mg/L	A2320 B
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	170	4 mg/L	A2320 B
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	120	4 mg/L	A2320 B
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	120	4 mg/L	A2320 B
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	130	4 mg/L	A2320 B
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	130	4 mg/L	A2320 B
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	170	4 mg/L	A2320 B
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	160	4 mg/L	A2320 B
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	220	4 mg/L	A2320 B
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	220	4 mg/L	A2320 B
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	210	4 mg/L	A2320 B
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	220	4 mg/L	A2320 B
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	130	4 mg/L	A2320 B
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	93	4 mg/L	A2320 B
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	120	4 mg/L	A2320 B
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	130	4 mg/L	A2320 B
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	150	4 mg/L	A2320 B
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	160	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	120	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	120	4 mg/L	A2320 B

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Bicarbonate Alkalinity as HCO3	67	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Bicarbonate Alkalinity as HCO3	67	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Bicarbonate Alkalinity as HCO3	57	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Bicarbonate Alkalinity as HCO3	58	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Bicarbonate Alkalinity as HCO3	72	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Bicarbonate Alkalinity as HCO3	61	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Bicarbonate Alkalinity as HCO3	100	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Bicarbonate Alkalinity as HCO3	100	4 mg/L	A2320 B
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Bicarbonate Alkalinity as HCO3	120	4 mg/L	A2320 B
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Bicarbonate Alkalinity as HCO3	120	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Bicarbonate Alkalinity as HCO3	140	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Bicarbonate Alkalinity as HCO3	79	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Bicarbonate Alkalinity as HCO3	65	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Bicarbonate Alkalinity as HCO3	62	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Bicarbonate Alkalinity as HCO3	110	4 mg/L	A2320 B
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Bicarbonate Alkalinity as HCO3	160	4 mg/L	A2320 B
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Bicarbonate Alkalinity as HCO3	120	4 mg/L	A2320 B
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Bicarbonate Alkalinity as HCO3	85	4 mg/L	A2320 B
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Bicarbonate Alkalinity as HCO3	65	4 mg/L	A2320 B
SS-25	Natural Sample	H14030285-011	3/19/2014	Bicarbonate Alkalinity as HCO3	130	4 mg/L	A2320 B
SS-25	Natural Sample	H14050278-010	5/14/2014	Bicarbonate Alkalinity as HCO3	110	4 mg/L	A2320 B
SS-25	Natural Sample	H14060255-010	6/11/2014	Bicarbonate Alkalinity as HCO3	74	4 mg/L	A2320 B
SS-25	Natural Sample	H14060541-010	6/25/2014	Bicarbonate Alkalinity as HCO3	74	4 mg/L	A2320 B
SS-25	Natural Sample	H14090349-011	9/17/2014	Bicarbonate Alkalinity as HCO3	68	4 mg/L	A2320 B
SS-25	Natural Sample	H14120106-011	12/2/2014	Bicarbonate Alkalinity as HCO3	150	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Bicarbonate Alkalinity as HCO3	190	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Bicarbonate Alkalinity as HCO3	160	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Bicarbonate Alkalinity as HCO3	81	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Bicarbonate Alkalinity as HCO3	85	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Bicarbonate Alkalinity as HCO3	160	4 mg/L	A2320 B
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Bicarbonate Alkalinity as HCO3	170	4 mg/L	A2320 B
	Field Blank 1	H14030285-002	3/18/2014	Bicarbonate Alkalinity as HCO3	ND	4 mg/L	A2320 B
	Field Blank 2	H14030285-013	3/19/2014	Bicarbonate Alkalinity as HCO3	ND	4 mg/L	A2320 B
	Field Blank 1	H14050278-017	5/13/2014	Bicarbonate Alkalinity as HCO3	ND	4 mg/L	A2320 B

	Field Blank 2	H14050278-013	5/14/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 1	H14060255-017	6/10/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 2	H14060255-013	6/11/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 1	H14060541-017	6/24/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 2	H14060541-013	6/25/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 1	H14090349-002	9/16/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 2	H14090349-013	9/17/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 1	H14120106-002	12/1/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
	Field Blank 2	H14120106-013	12/2/2014	Bicarbonate Alkalinity as HCO <sub>3</sub>	ND	4 mg/L		A2320 B
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Cadmium, Dissolved	0.00007	0.00003 mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Cadmium, Dissolved	0.00003	0.00003 mg/L		E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Cadmium, Dissolved	0.00005	0.00003 mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Cadmium, Dissolved	0.00005	0.00003 mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Cadmium, Dissolved	0.00004	0.00003 mg/L		E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Cadmium, Dissolved	0.00003	0.00003 mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Cadmium, Dissolved	0.00003	0.00003 mg/L		E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Cadmium, Dissolved	0.00003	0.00003 mg/L		E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Cadmium, Dissolved	0.00004	0.00003 mg/L		E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Cadmium, Dissolved	0.00006	0.00003 mg/L		E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Cadmium, Dissolved	0.00003	0.00003 mg/L		E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Cadmium, Dissolved	0.00003	0.00003 mg/L		E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Cadmium, Dissolved	ND	0.00003 mg/L		E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Cadmium, Dissolved	0.00003	0.00003 mg/L		E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Cadmium, Dissolved	0.00005	0.00003 mg/L		E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Cadmium, Dissolved	0.00007	0.00003 mg/L		E200.8

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Cadmium, Dissolved	0.00004	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Cadmium, Dissolved	0.00005	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Cadmium, Dissolved	0.00004	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Cadmium, Dissolved	0.00003	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Cadmium, Dissolved	0.00005	0.00003	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Cadmium, Dissolved	0.00003	0.00003	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Cadmium, Dissolved	0.00005	0.00003	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Cadmium, Dissolved	0.00015	0.00003	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Cadmium, Dissolved	0.00005	0.00003	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Cadmium, Dissolved	0.00004	0.00003	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Cadmium, Dissolved	0.00004	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Cadmium, Dissolved	0.00005	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Cadmium, Dissolved	0.00005	0.00003	mg/L	E200.8

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Cadmium, Dissolved	0.00003	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Cadmium, Dissolved	0.00004	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Cadmium, Dissolved	0.00004	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Cadmium, Dissolved	0.00005	0.00003	mg/L	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Cadmium, Dissolved	0.00006	0.00003	mg/L	E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Cadmium, Dissolved	0.00003	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Cadmium, Dissolved	0.00008	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Cadmium, Dissolved	0.00003	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Cadmium, Dissolved	0.00003	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Cadmium, Dissolved	0.00008	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Cadmium, Dissolved	0.00004	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Cadmium, Dissolved	0.00003	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14030285-002	3/18/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
	Field Blank 2	H14030285-013	3/19/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14050278-017	5/13/2014	Cadmium, Dissolved	ND	0.00003	mg/L	E200.8

	Field Blank 2	H14050278-013	5/14/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 1	H14060255-017	6/10/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 2	H14060255-013	6/11/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 1	H14060541-017	6/24/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 2	H14060541-013	6/25/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 1	H14090349-002	9/16/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 2	H14090349-013	9/17/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 1	H14120106-002	12/1/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
	Field Blank 2	H14120106-013	12/2/2014	Cadmium, Dissolved	ND	0.00003	mg/L		E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Cadmium, Total Recoverable	0.00018	0.00003	mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Cadmium, Total Recoverable	0.00011	0.00003	mg/L		E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L		E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Cadmium, Total Recoverable	0.00004	0.00003	mg/L		E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Cadmium, Total Recoverable	0.00019	0.00003	mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Cadmium, Total Recoverable	0.00012	0.00003	mg/L		E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Cadmium, Total Recoverable	0.00011	0.00003	mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Cadmium, Total Recoverable	0.00012	0.00003	mg/L		E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Cadmium, Total Recoverable	0.00005	0.00003	mg/L		E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Cadmium, Total Recoverable	0.00007	0.00003	mg/L		E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Cadmium, Total Recoverable	0.00024	0.00003	mg/L		E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Cadmium, Total Recoverable	0.00012	0.00003	mg/L		E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L		E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L		E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L		E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L		E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Cadmium, Total Recoverable	0.0002	0.00003	mg/L		E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Cadmium, Total Recoverable	0.00015	0.00003	mg/L		E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Cadmium, Total Recoverable	0.00013	0.00003	mg/L		E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Cadmium, Total Recoverable	0.00012	0.00003	mg/L		E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Cadmium, Total Recoverable	0.00005	0.00003	mg/L		E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Cadmium, Total Recoverable	0.00007	0.00003	mg/L		E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Cadmium, Total Recoverable	0.00038	0.00003	mg/L		E200.8

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Cadmium, Total Recoverable	0.00018	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Cadmium, Total Recoverable	0.00021	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Cadmium, Total Recoverable	0.00019	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Cadmium, Total Recoverable	0.00013	0.00003	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Cadmium, Total Recoverable	0.00018	0.00003	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Cadmium, Total Recoverable	0.00025	0.00003	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Cadmium, Total Recoverable	0.0002	0.00003	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Cadmium, Total Recoverable	0.00017	0.00003	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Cadmium, Total Recoverable	0.00014	0.00003	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Cadmium, Total Recoverable	0.00013	0.00003	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Cadmium, Total Recoverable	0.00005	0.00003	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Cadmium, Total Recoverable	0.00005	0.00003	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Cadmium, Total Recoverable	0.00003	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Cadmium, Total Recoverable	0.00005	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Cadmium, Total Recoverable	0.00006	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Cadmium, Total Recoverable	0.00004	0.00003	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Cadmium, Total Recoverable	0.00013	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Cadmium, Total Recoverable	0.00013	0.00003	mg/L	E200.8

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Cadmium, Total Recoverable	0.0001	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Cadmium, Total Recoverable	0.0001	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Cadmium, Total Recoverable	0.00011	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Cadmium, Total Recoverable	0.00016	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Cadmium, Total Recoverable	0.00005	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Cadmium, Total Recoverable	0.00004	0.00003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Cadmium, Total Recoverable	0.00035	0.00003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Cadmium, Total Recoverable	0.00034	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Cadmium, Total Recoverable	0.00007	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Cadmium, Total Recoverable	0.00016	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Cadmium, Total Recoverable	0.00004	0.00003	mg/L	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Cadmium, Total Recoverable	0.00005	0.00003	mg/L	E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L	E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Cadmium, Total Recoverable	0.00007	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Cadmium, Total Recoverable	0.00019	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Cadmium, Total Recoverable	0.00009	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Cadmium, Total Recoverable	0.0001	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Cadmium, Total Recoverable	0.00013	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Cadmium, Total Recoverable	0.00008	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Cadmium, Total Recoverable	0.00007	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Cadmium, Total Recoverable	0.00007	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Cadmium, Total Recoverable	0.0001	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Cadmium, Total Recoverable	0.00004	0.00003	mg/L	E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14030285-002	3/18/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 2	H14030285-013	3/19/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14050278-017	5/13/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8



	Field Blank 2	H14050278-013	5/14/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14060255-017	6/10/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 2	H14060255-013	6/11/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14060541-017	6/24/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 2	H14060541-013	6/25/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14090349-002	9/16/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 2	H14090349-013	9/17/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 1	H14120106-002	12/1/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
	Field Blank 2	H14120106-013	12/2/2014	Cadmium, Total Recoverable	ND	0.00003	mg/L	E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Calcium, Total Recoverable	60	1	mg/L	E200.7
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Calcium, Total Recoverable	46	1	mg/L	E200.7
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Calcium, Total Recoverable	27	1	mg/L	E200.7
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Calcium, Total Recoverable	29	1	mg/L	E200.7
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Calcium, Total Recoverable	49	1	mg/L	E200.7
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Calcium, Total Recoverable	68	1	mg/L	E200.7
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Calcium, Total Recoverable	68	1	mg/L	E200.7
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Calcium, Total Recoverable	53	1	mg/L	E200.7
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Calcium, Total Recoverable	29	1	mg/L	E200.7
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Calcium, Total Recoverable	33	1	mg/L	E200.7
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Calcium, Total Recoverable	55	1	mg/L	E200.7
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Calcium, Total Recoverable	75	1	mg/L	E200.7
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Calcium, Total Recoverable	42	1	mg/L	E200.7
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Calcium, Total Recoverable	26	1	mg/L	E200.7
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Calcium, Total Recoverable	21	1	mg/L	E200.7
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Calcium, Total Recoverable	25	1	mg/L	E200.7
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Calcium, Total Recoverable	48	1	mg/L	E200.7
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Calcium, Total Recoverable	46	1	mg/L	E200.7
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Calcium, Total Recoverable	71	1	mg/L	E200.7
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Calcium, Total Recoverable	51	1	mg/L	E200.7
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Calcium, Total Recoverable	31	1	mg/L	E200.7
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Calcium, Total Recoverable	36	1	mg/L	E200.7
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Calcium, Total Recoverable	58	1	mg/L	E200.7
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Calcium, Total Recoverable	79	1	mg/L	E200.7
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Calcium, Total Recoverable	65	1	mg/L	E200.7

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Calcium, Total Recoverable	50	1	mg/L	E200.7
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Calcium, Total Recoverable	34	1	mg/L	E200.7
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Calcium, Total Recoverable	34	1	mg/L	E200.7
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Calcium, Total Recoverable	54	1	mg/L	E200.7
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Calcium, Total Recoverable	74	1	mg/L	E200.7
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Calcium, Total Recoverable	51	1	mg/L	E200.7
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Calcium, Total Recoverable	39	1	mg/L	E200.7
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Calcium, Total Recoverable	38	1	mg/L	E200.7
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Calcium, Total Recoverable	42	1	mg/L	E200.7
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Calcium, Total Recoverable	42	1	mg/L	E200.7
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Calcium, Total Recoverable	43	1	mg/L	E200.7
CSC	Natural Sample	H14050278-002	5/13/2014	Calcium, Total Recoverable	45	1	mg/L	E200.7
CSC	Natural Sample	H14060255-002	6/10/2014	Calcium, Total Recoverable	44	1	mg/L	E200.7
CSC	Natural Sample	H14060541-002	6/24/2014	Calcium, Total Recoverable	42	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Calcium, Total Recoverable	34	1	mg/L	E200.7
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Calcium, Total Recoverable	35	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Calcium, Total Recoverable	31	1	mg/L	E200.7
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Calcium, Total Recoverable	28	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Calcium, Total Recoverable	31	1	mg/L	E200.7
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Calcium, Total Recoverable	29	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Calcium, Total Recoverable	34	1	mg/L	E200.7
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Calcium, Total Recoverable	36	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Calcium, Total Recoverable	51	1	mg/L	E200.7
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Calcium, Total Recoverable	52	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Calcium, Total Recoverable	45	1	mg/L	E200.7
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Calcium, Total Recoverable	46	1	mg/L	E200.7
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Calcium, Total Recoverable	30	1	mg/L	E200.7
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Calcium, Total Recoverable	22	1	mg/L	E200.7
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Calcium, Total Recoverable	26	1	mg/L	E200.7
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Calcium, Total Recoverable	31	1	mg/L	E200.7
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Calcium, Total Recoverable	37	1	mg/L	E200.7
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Calcium, Total Recoverable	38	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Calcium, Total Recoverable	30	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Calcium, Total Recoverable	30	1	mg/L	E200.7

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Calcium, Total Recoverable	17	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Calcium, Total Recoverable	17	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Calcium, Total Recoverable	13	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Calcium, Total Recoverable	13	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Calcium, Total Recoverable	22	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Calcium, Total Recoverable	14	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Calcium, Total Recoverable	26	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Calcium, Total Recoverable	26	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Calcium, Total Recoverable	31	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Calcium, Total Recoverable	30	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Calcium, Total Recoverable	69	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Calcium, Total Recoverable	33	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Calcium, Total Recoverable	20	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Calcium, Total Recoverable	14	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Calcium, Total Recoverable	58	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Calcium, Total Recoverable	85	1	mg/L	E200.7
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Calcium, Total Recoverable	51	1	mg/L	E200.7
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Calcium, Total Recoverable	35	1	mg/L	E200.7
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Calcium, Total Recoverable	32	1	mg/L	E200.7
SS-25	Natural Sample	H14030285-011	3/19/2014	Calcium, Total Recoverable	57	1	mg/L	E200.7
SS-25	Natural Sample	H14050278-010	5/14/2014	Calcium, Total Recoverable	45	1	mg/L	E200.7
SS-25	Natural Sample	H14060255-010	6/11/2014	Calcium, Total Recoverable	24	1	mg/L	E200.7
SS-25	Natural Sample	H14060541-010	6/25/2014	Calcium, Total Recoverable	26	1	mg/L	E200.7
SS-25	Natural Sample	H14090349-011	9/17/2014	Calcium, Total Recoverable	46	1	mg/L	E200.7
SS-25	Natural Sample	H14120106-011	12/2/2014	Calcium, Total Recoverable	71	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Calcium, Total Recoverable	65	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Calcium, Total Recoverable	52	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Calcium, Total Recoverable	24	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Calcium, Total Recoverable	24	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Calcium, Total Recoverable	53	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Calcium, Total Recoverable	52	1	mg/L	E200.7
	Field Blank 1	H14030285-002	3/18/2014	Calcium, Total Recoverable	ND	1	mg/L	E200.7
	Field Blank 2	H14030285-013	3/19/2014	Calcium, Total Recoverable	ND	1	mg/L	E200.7
	Field Blank 1	H14050278-017	5/13/2014	Calcium, Total Recoverable	ND	1	mg/L	E200.7

	Field Blank 2	H14050278-013	5/14/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14060255-017	6/10/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14060255-013	6/11/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14060541-017	6/24/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14060541-013	6/25/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14090349-002	9/16/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14090349-013	9/17/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14120106-002	12/1/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14120106-013	12/2/2014	Calcium, Total Recoverable	ND	1	mg/L		E200.7
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Chloride	25	1	mg/L	B	E300.0
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Chloride	12	1	mg/L		E300.0
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Chloride	2	1	mg/L		E300.0
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Chloride	3	1	mg/L		E300.0
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Chloride	10	1	mg/L		E300.0
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Chloride	13	1	mg/L		E300.0
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Chloride	20	1	mg/L	B	E300.0
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Chloride	11	1	mg/L		E300.0
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Chloride	2	1	mg/L		E300.0
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Chloride	3	1	mg/L		E300.0
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Chloride	9	1	mg/L		E300.0
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Chloride	10	1	mg/L		E300.0
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Chloride	7	1	mg/L		E300.0
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Chloride	2	1	mg/L		E300.0
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Chloride	1	1	mg/L		E300.0
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Chloride	2	1	mg/L		E300.0
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Chloride	4	1	mg/L		E300.0
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Chloride	4	1	mg/L		E300.0
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Chloride	19	1	mg/L		E300.0
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Chloride	10	1	mg/L		E300.0
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Chloride	2	1	mg/L		E300.0
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Chloride	4	1	mg/L		E300.0
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Chloride	9	1	mg/L		E300.0
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Chloride	10	1	mg/L		E300.0
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Chloride	17	1	mg/L		E300.0

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Chloride	10	1	mg/L		E300.0
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Chloride	3	1	mg/L		E300.0
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Chloride	3	1	mg/L		E300.0
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Chloride	8	1	mg/L		E300.0
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Chloride	10	1	mg/L		E300.0
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Chloride	10	1	mg/L		E300.0
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Chloride	4	1	mg/L		E300.0
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Chloride	4	1	mg/L		E300.0
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Chloride	4	1	mg/L		E300.0
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Chloride	3	1	mg/L		E300.0
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Chloride	3	1	mg/L		E300.0
CSC	Natural Sample	H14050278-002	5/13/2014	Chloride	3	1	mg/L		E300.0
CSC	Natural Sample	H14060255-002	6/10/2014	Chloride	3	1	mg/L		E300.0
CSC	Natural Sample	H14060541-002	6/24/2014	Chloride	3	1	mg/L		E300.0
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Chloride	6	1	mg/L		E300.0
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Chloride	6	1	mg/L		E300.0
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Chloride	3	1	mg/L		E300.0
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Chloride	3	1	mg/L		E300.0
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Chloride	2	1	mg/L		E300.0
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Chloride	2	1	mg/L		E300.0
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Chloride	3	1	mg/L		E300.0
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Chloride	3	1	mg/L		E300.0
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Chloride	4	1	mg/L		E300.0
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Chloride	4	1	mg/L		E300.0
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Chloride	4	1	mg/L		E300.0
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Chloride	4	1	mg/L		E300.0
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Chloride	4	1	mg/L		E300.0
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Chloride	1	1	mg/L		E300.0
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Chloride	2	1	mg/L		E300.0
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Chloride	2	1	mg/L		E300.0
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Chloride	2	1	mg/L		E300.0
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Chloride	2	1	mg/L		E300.0
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Chloride	2	1	mg/L	B	E300.0
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Chloride	2	1	mg/L	B	E300.0

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Chloride	ND	1	mg/L		E300.0
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Chloride	ND	1	mg/L		E300.0
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Chloride	ND	1	mg/L		E300.0
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Chloride	ND	1	mg/L		E300.0
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Chloride	1	1	mg/L		E300.0
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Chloride	ND	1	mg/L		E300.0
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Chloride	1	1	mg/L		E300.0
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Chloride	1	1	mg/L		E300.0
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Chloride	2	1	mg/L		E300.0
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Chloride	2	1	mg/L		E300.0
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Chloride	7	1	mg/L	B	E300.0
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Chloride	2	1	mg/L		E300.0
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Chloride	1	1	mg/L		E300.0
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Chloride	ND	1	mg/L		E300.0
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Chloride	4	1	mg/L		E300.0
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Chloride	6	1	mg/L		E300.0
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Chloride	21	1	mg/L		E300.0
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Chloride	13	1	mg/L		E300.0
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Chloride	13	1	mg/L		E300.0
SS-25	Natural Sample	H14030285-011	3/19/2014	Chloride	30	1	mg/L	B	E300.0
SS-25	Natural Sample	H14050278-010	5/14/2014	Chloride	15	1	mg/L		E300.0
SS-25	Natural Sample	H14060255-010	6/11/2014	Chloride	3	1	mg/L		E300.0
SS-25	Natural Sample	H14060541-010	6/25/2014	Chloride	6	1	mg/L		E300.0
SS-25	Natural Sample	H14090349-011	9/17/2014	Chloride	14	1	mg/L		E300.0
SS-25	Natural Sample	H14120106-011	12/2/2014	Chloride	21	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Chloride	3	1	mg/L	B	E300.0
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Chloride	2	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Chloride	ND	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Chloride	ND	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Chloride	1	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Chloride	1	1	mg/L		E300.0
	Field Blank 1	H14030285-002	3/18/2014	Chloride	ND	1	mg/L		E300.0
	Field Blank 2	H14030285-013	3/19/2014	Chloride	7	1	mg/L	B	E300.0
	Field Blank 1	H14050278-017	5/13/2014	Chloride	ND	1	mg/L		E300.0

	Field Blank 2	H14050278-013	5/14/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 1	H14060255-017	6/10/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 2	H14060255-013	6/11/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 1	H14060541-017	6/24/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 2	H14060541-013	6/25/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 1	H14090349-002	9/16/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 2	H14090349-013	9/17/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 1	H14120106-002	12/1/2014	Chloride	ND	1	mg/L	E300.0
	Field Blank 2	H14120106-013	12/2/2014	Chloride	ND	1	mg/L	E300.0
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Copper, Dissolved	0.01	0.001	mg/L	E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Copper, Dissolved	0.008	0.001	mg/L	E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Copper, Dissolved	0.006	0.001	mg/L	E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Copper, Dissolved	0.006	0.001	mg/L	E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Copper, Dissolved	0.007	0.001	mg/L	E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Copper, Dissolved	0.007	0.001	mg/L	E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Copper, Dissolved	0.008	0.001	mg/L	E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Copper, Dissolved	0.007	0.001	mg/L	E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Copper, Dissolved	0.007	0.001	mg/L	E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Copper, Dissolved	0.007	0.001	mg/L	E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Copper, Dissolved	0.01	0.001	mg/L	E200.8

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Copper, Dissolved	0.008	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Copper, Dissolved	0.011	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Copper, Dissolved	0.012	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Copper, Dissolved	0.007	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Copper, Dissolved	0.007	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Copper, Dissolved	0.009	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Copper, Dissolved	0.012	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Copper, Dissolved	0.014	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Copper, Dissolved	0.006	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Copper, Dissolved	0.009	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Copper, Dissolved	0.009	0.001	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8



MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Copper, Dissolved	0.001	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Copper, Dissolved	0.006	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Copper, Dissolved	0.01	0.001	mg/L	E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Copper, Dissolved	0.008	0.001	mg/L	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Copper, Dissolved	0.011	0.001	mg/L	E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Copper, Dissolved	0.006	0.001	mg/L	E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Copper, Dissolved	0.005	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Copper, Dissolved	0.004	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Copper, Dissolved	0.003	0.001	mg/L	E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Copper, Dissolved	0.002	0.001	mg/L	E200.8
	Field Blank 1	H14030285-002	3/18/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
	Field Blank 2	H14030285-013	3/19/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8
	Field Blank 1	H14050278-017	5/13/2014	Copper, Dissolved	ND	0.001	mg/L	E200.8

	Field Blank 2	H14050278-013	5/14/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14060255-017	6/10/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14060255-013	6/11/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14060541-017	6/24/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14060541-013	6/25/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14090349-002	9/16/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14090349-013	9/17/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 1	H14120106-002	12/1/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
	Field Blank 2	H14120106-013	12/2/2014	Copper, Dissolved	ND	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Copper, Total Recoverable	0.023	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Copper, Total Recoverable	0.012	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Copper, Total Recoverable	0.015	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Copper, Total Recoverable	0.016	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Copper, Total Recoverable	0.005	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Copper, Total Recoverable	0.009	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Copper, Total Recoverable	0.028	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Copper, Total Recoverable	0.02	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Copper, Total Recoverable	0.024	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Copper, Total Recoverable	0.027	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Copper, Total Recoverable	0.007	0.001	mg/L		E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Copper, Total Recoverable	0.038	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Copper, Total Recoverable	0.017	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Copper, Total Recoverable	0.013	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Copper, Total Recoverable	0.012	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Copper, Total Recoverable	0.007	0.001	mg/L		E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Copper, Total Recoverable	0.009	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Copper, Total Recoverable	0.036	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Copper, Total Recoverable	0.022	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Copper, Total Recoverable	0.027	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Copper, Total Recoverable	0.026	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Copper, Total Recoverable	0.009	0.001	mg/L		E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Copper, Total Recoverable	0.083	0.001	mg/L		E200.8

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Copper, Total Recoverable	0.033	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Copper, Total Recoverable	0.056	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Copper, Total Recoverable	0.048	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Copper, Total Recoverable	0.019	0.001	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Copper, Total Recoverable	0.024	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Copper, Total Recoverable	0.037	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Copper, Total Recoverable	0.063	0.001	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Copper, Total Recoverable	0.051	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Copper, Total Recoverable	0.028	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Copper, Total Recoverable	0.03	0.001	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Copper, Total Recoverable	0.028	0.001	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Copper, Total Recoverable	0.001	0.001	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Copper, Total Recoverable	0.001	0.001	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Copper, Total Recoverable	0.003	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Copper, Total Recoverable	0.004	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Copper, Total Recoverable	0.004	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Copper, Total Recoverable	0.006	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Copper, Total Recoverable	0.005	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Copper, Total Recoverable	0.003	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Copper, Total Recoverable	0.003	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Copper, Total Recoverable	0.003	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Copper, Total Recoverable	0.003	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Copper, Total Recoverable	0.002	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Copper, Total Recoverable	0.002	0.001	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Copper, Total Recoverable	0.007	0.001	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Copper, Total Recoverable	0.002	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Copper, Total Recoverable	0.001	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Copper, Total Recoverable	0.002	0.001	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Copper, Total Recoverable	0.002	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Copper, Total Recoverable	0.001	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Copper, Total Recoverable	ND	0.001	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Copper, Total Recoverable	ND	0.001	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Copper, Total Recoverable	0.009	0.001	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Copper, Total Recoverable	0.008	0.001	mg/L	E200.8

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Copper, Total Recoverable	0.007	0.001	mg/L		E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Copper, Total Recoverable	0.007	0.001	mg/L		E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Copper, Total Recoverable	0.011	0.001	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Copper, Total Recoverable	0.003	0.001	mg/L		E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Copper, Total Recoverable	0.004	0.001	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Copper, Total Recoverable	0.034	0.001	mg/L		E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Copper, Total Recoverable	0.034	0.001	mg/L		E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Copper, Total Recoverable	0.006	0.001	mg/L		E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Copper, Total Recoverable	0.007	0.001	mg/L		E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Copper, Total Recoverable	0.006	0.001	mg/L		E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Copper, Total Recoverable	0.011	0.001	mg/L		E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Copper, Total Recoverable	0.003	0.001	mg/L		E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Copper, Total Recoverable	0.003	0.001	mg/L		E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Copper, Total Recoverable	0.011	0.001	mg/L		E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Copper, Total Recoverable	0.022	0.001	mg/L		E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Copper, Total Recoverable	0.009	0.001	mg/L		E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Copper, Total Recoverable	0.007	0.001	mg/L		E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Copper, Total Recoverable	0.009	0.001	mg/L		E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Copper, Total Recoverable	0.004	0.001	mg/L		E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Copper, Total Recoverable	0.012	0.001	mg/L		E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Copper, Total Recoverable	0.017	0.001	mg/L		E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Copper, Total Recoverable	0.006	0.001	mg/L		E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Copper, Total Recoverable	0.008	0.001	mg/L		E200.8
	Field Blank 1	H14030285-002	3/18/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 2	H14030285-013	3/19/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 1	H14050278-017	5/13/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8

	Field Blank 2	H14050278-013	5/14/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 1	H14060255-017	6/10/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 2	H14060255-013	6/11/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 1	H14060541-017	6/24/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 2	H14060541-013	6/25/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 1	H14090349-002	9/16/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 2	H14090349-013	9/17/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 1	H14120106-002	12/1/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
	Field Blank 2	H14120106-013	12/2/2014	Copper, Total Recoverable	ND	0.001	mg/L		E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Hardness as CaCO3	203	1	mg/L		A2340 B
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Hardness as CaCO3	153	1	mg/L		A2340 B
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Hardness as CaCO3	92	1	mg/L		A2340 B
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Hardness as CaCO3	99	1	mg/L		A2340 B
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Hardness as CaCO3	172	1	mg/L		A2340 B
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Hardness as CaCO3	237	1	mg/L		A2340 B
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Hardness as CaCO3	233	1	mg/L		A2340 B
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Hardness as CaCO3	179	1	mg/L		A2340 B
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Hardness as CaCO3	99	1	mg/L		A2340 B
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Hardness as CaCO3	113	1	mg/L		A2340 B
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Hardness as CaCO3	194	1	mg/L		A2340 B
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Hardness as CaCO3	259	1	mg/L		A2340 B
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Hardness as CaCO3	148	1	mg/L		A2340 B
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Hardness as CaCO3	92	1	mg/L		A2340 B
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Hardness as CaCO3	75	1	mg/L		A2340 B
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Hardness as CaCO3	87	1	mg/L		A2340 B
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Hardness as CaCO3	171	1	mg/L		A2340 B
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Hardness as CaCO3	162	1	mg/L		A2340 B
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Hardness as CaCO3	244	1	mg/L		A2340 B
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Hardness as CaCO3	171	1	mg/L		A2340 B
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Hardness as CaCO3	107	1	mg/L		A2340 B
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Hardness as CaCO3	122	1	mg/L		A2340 B
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Hardness as CaCO3	204	1	mg/L		A2340 B
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Hardness as CaCO3	272	1	mg/L		A2340 B
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Hardness as CaCO3	221	1	mg/L		A2340 B

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Hardness as CaCO3	169	1	mg/L	A2340 B
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Hardness as CaCO3	116	1	mg/L	A2340 B
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Hardness as CaCO3	113	1	mg/L	A2340 B
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Hardness as CaCO3	188	1	mg/L	A2340 B
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Hardness as CaCO3	254	1	mg/L	A2340 B
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Hardness as CaCO3	171	1	mg/L	A2340 B
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Hardness as CaCO3	133	1	mg/L	A2340 B
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Hardness as CaCO3	132	1	mg/L	A2340 B
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Hardness as CaCO3	142	1	mg/L	A2340 B
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Hardness as CaCO3	144	1	mg/L	A2340 B
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Hardness as CaCO3	146	1	mg/L	A2340 B
CSC	Natural Sample	H14050278-002	5/13/2014	Hardness as CaCO3	153	1	mg/L	A2340 B
CSC	Natural Sample	H14060255-002	6/10/2014	Hardness as CaCO3	151	1	mg/L	A2340 B
CSC	Natural Sample	H14060541-002	6/24/2014	Hardness as CaCO3	143	1	mg/L	A2340 B
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Hardness as CaCO3	128	1	mg/L	A2340 B
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Hardness as CaCO3	133	1	mg/L	A2340 B
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Hardness as CaCO3	115	1	mg/L	A2340 B
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Hardness as CaCO3	103	1	mg/L	A2340 B
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Hardness as CaCO3	108	1	mg/L	A2340 B
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Hardness as CaCO3	104	1	mg/L	A2340 B
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Hardness as CaCO3	122	1	mg/L	A2340 B
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Hardness as CaCO3	129	1	mg/L	A2340 B
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Hardness as CaCO3	192	1	mg/L	A2340 B
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Hardness as CaCO3	195	1	mg/L	A2340 B
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Hardness as CaCO3	169	1	mg/L	A2340 B
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Hardness as CaCO3	170	1	mg/L	A2340 B
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Hardness as CaCO3	104	1	mg/L	A2340 B
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Hardness as CaCO3	75	1	mg/L	A2340 B
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Hardness as CaCO3	87	1	mg/L	A2340 B
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Hardness as CaCO3	104	1	mg/L	A2340 B
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Hardness as CaCO3	128	1	mg/L	A2340 B
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Hardness as CaCO3	131	1	mg/L	A2340 B
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Hardness as CaCO3	107	1	mg/L	A2340 B
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Hardness as CaCO3	107	1	mg/L	A2340 B

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Hardness as CaCO3	58	1	mg/L	A2340 B
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Hardness as CaCO3	59	1	mg/L	A2340 B
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Hardness as CaCO3	47	1	mg/L	A2340 B
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Hardness as CaCO3	46	1	mg/L	A2340 B
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Hardness as CaCO3	75	1	mg/L	A2340 B
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Hardness as CaCO3	47	1	mg/L	A2340 B
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Hardness as CaCO3	93	1	mg/L	A2340 B
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Hardness as CaCO3	94	1	mg/L	A2340 B
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Hardness as CaCO3	108	1	mg/L	A2340 B
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Hardness as CaCO3	108	1	mg/L	A2340 B
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Hardness as CaCO3	239	1	mg/L	A2340 B
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Hardness as CaCO3	111	1	mg/L	A2340 B
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Hardness as CaCO3	69	1	mg/L	A2340 B
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Hardness as CaCO3	49	1	mg/L	A2340 B
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Hardness as CaCO3	200	1	mg/L	A2340 B
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Hardness as CaCO3	287	1	mg/L	A2340 B
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Hardness as CaCO3	168	1	mg/L	A2340 B
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Hardness as CaCO3	124	1	mg/L	A2340 B
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Hardness as CaCO3	112	1	mg/L	A2340 B
SS-25	Natural Sample	H14030285-011	3/19/2014	Hardness as CaCO3	193	1	mg/L	A2340 B
SS-25	Natural Sample	H14050278-010	5/14/2014	Hardness as CaCO3	150	1	mg/L	A2340 B
SS-25	Natural Sample	H14060255-010	6/11/2014	Hardness as CaCO3	83	1	mg/L	A2340 B
SS-25	Natural Sample	H14060541-010	6/25/2014	Hardness as CaCO3	87	1	mg/L	A2340 B
SS-25	Natural Sample	H14090349-011	9/17/2014	Hardness as CaCO3	165	1	mg/L	A2340 B
SS-25	Natural Sample	H14120106-011	12/2/2014	Hardness as CaCO3	243	1	mg/L	A2340 B
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Hardness as CaCO3	217	1	mg/L	A2340 B
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Hardness as CaCO3	171	1	mg/L	A2340 B
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Hardness as CaCO3	79	1	mg/L	A2340 B
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Hardness as CaCO3	75	1	mg/L	A2340 B
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Hardness as CaCO3	178	1	mg/L	A2340 B
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Hardness as CaCO3	173	1	mg/L	A2340 B
	Field Blank 1	H14030285-002	3/18/2014	Hardness as CaCO3	ND	1	mg/L	A2340 B
	Field Blank 2	H14030285-013	3/19/2014	Hardness as CaCO3	ND	1	mg/L	A2340 B
	Field Blank 1	H14050278-017	5/13/2014	Hardness as CaCO3	ND	1	mg/L	A2340 B

	Field Blank 2	H14050278-013	5/14/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 1	H14060255-017	6/10/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 2	H14060255-013	6/11/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 1	H14060541-017	6/24/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 2	H14060541-013	6/25/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 1	H14090349-002	9/16/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 2	H14090349-013	9/17/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 1	H14120106-002	12/1/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
	Field Blank 2	H14120106-013	12/2/2014	Hardness as CaCO3	ND	1	mg/L		A2340 B
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Lead, Dissolved	0.0004	0.0003	mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Lead, Dissolved	0.0004	0.0003	mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Lead, Dissolved	0.0003	0.0003	mg/L		E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L		E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Lead, Dissolved	0.0003	0.0003	mg/L		E200.8



CFR-27H	Natural Sample	H14050278-005	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Lead, Dissolved	0.0005	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Lead, Dissolved	0.0005	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Lead, Dissolved	0.0003	0.0003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Lead, Dissolved	0.0003	0.0003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Lead, Dissolved	0.0004	0.0003	mg/L	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Lead, Dissolved	0.0005	0.0003	mg/L	E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14030285-002	3/18/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14030285-013	3/19/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14050278-017	5/13/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8

	Field Blank 2	H14050278-013	5/14/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14060255-017	6/10/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14060255-013	6/11/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14060541-017	6/24/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14060541-013	6/25/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14090349-002	9/16/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14090349-013	9/17/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14120106-002	12/1/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14120106-013	12/2/2014	Lead, Dissolved	ND	0.0003	mg/L	E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Lead, Total Recoverable	0.0051	0.0003	mg/L	E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Lead, Total Recoverable	0.0013	0.0003	mg/L	E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Lead, Total Recoverable	0.0015	0.0003	mg/L	E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Lead, Total Recoverable	0.0018	0.0003	mg/L	E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Lead, Total Recoverable	0.0003	0.0003	mg/L	E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Lead, Total Recoverable	0.0011	0.0003	mg/L	E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Lead, Total Recoverable	0.0054	0.0003	mg/L	E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Lead, Total Recoverable	0.0021	0.0003	mg/L	E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Lead, Total Recoverable	0.0024	0.0003	mg/L	E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Lead, Total Recoverable	0.0027	0.0003	mg/L	E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Lead, Total Recoverable	0.0005	0.0003	mg/L	E200.8
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Lead, Total Recoverable	0.0008	0.0003	mg/L	E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Lead, Total Recoverable	0.0079	0.0003	mg/L	E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Lead, Total Recoverable	0.0028	0.0003	mg/L	E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Lead, Total Recoverable	0.0018	0.0003	mg/L	E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Lead, Total Recoverable	0.0016	0.0003	mg/L	E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Lead, Total Recoverable	0.0008	0.0003	mg/L	E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Lead, Total Recoverable	0.001	0.0003	mg/L	E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Lead, Total Recoverable	0.006	0.0003	mg/L	E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Lead, Total Recoverable	0.0025	0.0003	mg/L	E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Lead, Total Recoverable	0.0027	0.0003	mg/L	E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Lead, Total Recoverable	0.0027	0.0003	mg/L	E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Lead, Total Recoverable	0.0005	0.0003	mg/L	E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Lead, Total Recoverable	0.0007	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Lead, Total Recoverable	0.0122	0.0003	mg/L	E200.8

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Lead, Total Recoverable	0.0035	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Lead, Total Recoverable	0.0061	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Lead, Total Recoverable	0.0046	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Lead, Total Recoverable	0.0018	0.0003	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Lead, Total Recoverable	0.0026	0.0003	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Lead, Total Recoverable	0.0042	0.0003	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Lead, Total Recoverable	0.0074	0.0003	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Lead, Total Recoverable	0.0054	0.0003	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Lead, Total Recoverable	0.0045	0.0003	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Lead, Total Recoverable	0.0038	0.0003	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Lead, Total Recoverable	0.0033	0.0003	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Lead, Total Recoverable	0.0088	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Lead, Total Recoverable	0.0087	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Lead, Total Recoverable	0.0042	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Lead, Total Recoverable	0.0042	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Lead, Total Recoverable	0.0052	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Lead, Total Recoverable	0.0051	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Lead, Total Recoverable	0.0039	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Lead, Total Recoverable	0.0048	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Lead, Total Recoverable	0.0009	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Lead, Total Recoverable	0.0009	0.0003	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Lead, Total Recoverable	0.0016	0.0003	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Lead, Total Recoverable	0.002	0.0003	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Lead, Total Recoverable	0.0003	0.0003	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Lead, Total Recoverable	0.0009	0.0003	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Lead, Total Recoverable	0.0004	0.0003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Lead, Total Recoverable	0.0003	0.0003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Lead, Total Recoverable	0.0022	0.0003	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Lead, Total Recoverable	0.002	0.0003	mg/L	E200.8

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Lead, Total Recoverable	0.0012	0.0003	mg/L		E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Lead, Total Recoverable	0.0012	0.0003	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Lead, Total Recoverable	0.0016	0.0003	mg/L		E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Lead, Total Recoverable	0.0014	0.0003	mg/L		E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Lead, Total Recoverable	0.0016	0.0003	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Lead, Total Recoverable	0.0026	0.0003	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Lead, Total Recoverable	0.0008	0.0003	mg/L		E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Lead, Total Recoverable	0.0008	0.0003	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Lead, Total Recoverable	0.0112	0.0003	mg/L		E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Lead, Total Recoverable	0.0112	0.0003	mg/L		E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Lead, Total Recoverable	0.0015	0.0003	mg/L		E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Lead, Total Recoverable	0.0011	0.0003	mg/L		E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Lead, Total Recoverable	0.0011	0.0003	mg/L		E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Lead, Total Recoverable	0.0027	0.0003	mg/L		E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Lead, Total Recoverable	0.0004	0.0003	mg/L		E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Lead, Total Recoverable	0.0007	0.0003	mg/L		E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Lead, Total Recoverable	0.0011	0.0003	mg/L		E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Lead, Total Recoverable	0.0006	0.0003	mg/L		E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Lead, Total Recoverable	ND	0.0003	mg/L		E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Lead, Total Recoverable	0.0056	0.0003	mg/L		E200.8
SS-25	Natural Sample	H14050278-010	5/14/2014	Lead, Total Recoverable	0.0012	0.0003	mg/L		E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Lead, Total Recoverable	0.001	0.0003	mg/L		E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Lead, Total Recoverable	0.0012	0.0003	mg/L		E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Lead, Total Recoverable	0.0004	0.0003	mg/L		E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Lead, Total Recoverable	0.0012	0.0003	mg/L		E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Lead, Total Recoverable	0.0005	0.0003	mg/L		E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Lead, Total Recoverable	0.0005	0.0003	mg/L		E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Lead, Total Recoverable	0.0011	0.0003	mg/L		E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Lead, Total Recoverable	0.0015	0.0003	mg/L		E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Lead, Total Recoverable	0.0003	0.0003	mg/L		E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Lead, Total Recoverable	0.0005	0.0003	mg/L		E200.8
	Field Blank 1	H14030285-002	3/18/2014	Lead, Total Recoverable	ND	0.0003	mg/L		E200.8
	Field Blank 2	H14030285-013	3/19/2014	Lead, Total Recoverable	ND	0.0003	mg/L		E200.8
	Field Blank 1	H14050278-017	5/13/2014	Lead, Total Recoverable	ND	0.0003	mg/L		E200.8

	Field Blank 2	H14050278-013	5/14/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14060255-017	6/10/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14060255-013	6/11/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14060541-017	6/24/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14060541-013	6/25/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14090349-002	9/16/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14090349-013	9/17/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 1	H14120106-002	12/1/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
	Field Blank 2	H14120106-013	12/2/2014	Lead, Total Recoverable	ND	0.0003	mg/L	E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Magnesium, Total Recoverable	13	1	mg/L	E200.7
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Magnesium, Total Recoverable	6	1	mg/L	E200.7
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Magnesium, Total Recoverable	6	1	mg/L	E200.7
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Magnesium, Total Recoverable	12	1	mg/L	E200.7
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Magnesium, Total Recoverable	16	1	mg/L	E200.7
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Magnesium, Total Recoverable	15	1	mg/L	E200.7
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Magnesium, Total Recoverable	14	1	mg/L	E200.7
CFR-07D	Natural Sample	H14120106-008	12/2/2014	Magnesium, Total Recoverable	17	1	mg/L	E200.7
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Magnesium, Total Recoverable	5	1	mg/L	E200.7
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Magnesium, Total Recoverable	6	1	mg/L	E200.7
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Magnesium, Total Recoverable	13	1	mg/L	E200.7
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Magnesium, Total Recoverable	12	1	mg/L	E200.7
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Magnesium, Total Recoverable	16	1	mg/L	E200.7
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Magnesium, Total Recoverable	15	1	mg/L	E200.7
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Magnesium, Total Recoverable	18	1	mg/L	E200.7
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Magnesium, Total Recoverable	14	1	mg/L	E200.7

CFR-27H	Natural Sample	H14050278-005	5/14/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Magnesium, Total Recoverable	13	1	mg/L	E200.7
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Magnesium, Total Recoverable	17	1	mg/L	E200.7
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
CSC	Natural Sample	H14050278-002	5/13/2014	Magnesium, Total Recoverable	10	1	mg/L	E200.7
CSC	Natural Sample	H14060255-002	6/10/2014	Magnesium, Total Recoverable	10	1	mg/L	E200.7
CSC	Natural Sample	H14060541-002	6/24/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Magnesium, Total Recoverable	16	1	mg/L	E200.7
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Magnesium, Total Recoverable	16	1	mg/L	E200.7
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Magnesium, Total Recoverable	14	1	mg/L	E200.7
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Magnesium, Total Recoverable	14	1	mg/L	E200.7
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Magnesium, Total Recoverable	5	1	mg/L	E200.7
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Magnesium, Total Recoverable	6	1	mg/L	E200.7
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7

MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Magnesium, Total Recoverable	4	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Magnesium, Total Recoverable	4	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Magnesium, Total Recoverable	3	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Magnesium, Total Recoverable	3	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Magnesium, Total Recoverable	5	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Magnesium, Total Recoverable	3	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Magnesium, Total Recoverable	16	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Magnesium, Total Recoverable	7	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Magnesium, Total Recoverable	5	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Magnesium, Total Recoverable	3	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Magnesium, Total Recoverable	14	1	mg/L	E200.7
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Magnesium, Total Recoverable	18	1	mg/L	E200.7
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Magnesium, Total Recoverable	10	1	mg/L	E200.7
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Magnesium, Total Recoverable	8	1	mg/L	E200.7
SS-25	Natural Sample	H14030285-011	3/19/2014	Magnesium, Total Recoverable	13	1	mg/L	E200.7
SS-25	Natural Sample	H14050278-010	5/14/2014	Magnesium, Total Recoverable	9	1	mg/L	E200.7
SS-25	Natural Sample	H14060255-010	6/11/2014	Magnesium, Total Recoverable	6	1	mg/L	E200.7
SS-25	Natural Sample	H14060541-010	6/25/2014	Magnesium, Total Recoverable	6	1	mg/L	E200.7
SS-25	Natural Sample	H14090349-011	9/17/2014	Magnesium, Total Recoverable	12	1	mg/L	E200.7
SS-25	Natural Sample	H14120106-011	12/2/2014	Magnesium, Total Recoverable	16	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Magnesium, Total Recoverable	13	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Magnesium, Total Recoverable	10	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Magnesium, Total Recoverable	4	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Magnesium, Total Recoverable	4	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Magnesium, Total Recoverable	11	1	mg/L	E200.7
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Magnesium, Total Recoverable	10	1	mg/L	E200.7
	Field Blank 1	H14030285-002	3/18/2014	Magnesium, Total Recoverable	ND	1	mg/L	E200.7
	Field Blank 2	H14030285-013	3/19/2014	Magnesium, Total Recoverable	ND	1	mg/L	E200.7
	Field Blank 1	H14050278-017	5/13/2014	Magnesium, Total Recoverable	ND	1	mg/L	E200.7



	Field Blank 2	H14050278-013	5/14/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14060255-017	6/10/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14060255-013	6/11/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14060541-017	6/24/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14060541-013	6/25/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14090349-002	9/16/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14090349-013	9/17/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 1	H14120106-002	12/1/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
	Field Blank 2	H14120106-013	12/2/2014	Magnesium, Total Recoverable	ND	1	mg/L		E200.7
CFR-84F	Natural Sample	H14030285-016	3/18/2014	Mercury, Methyl	0.615	0.050	ng/L		E1630
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Mercury, Methyl	0.343	0.050	ng/L		E1630
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Mercury, Methyl	0.323	0.050	ng/L		E1630
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Mercury, Methyl	0.319	0.050	ng/L		E1630
CFR-84F	Natural Sample	H14090349-016	9/16/2014	Mercury, Methyl	0.237	0.050	ng/L		E1630
CFR-84F	Natural Sample	H14120106-016	12/1/2014	Mercury, Methyl	0.151	0.050	ng/L		E1630
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Mercury, Methyl	1.34	0.050	ng/L		E1630
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Mercury, Methyl	1.14	0.050	ng/L		E1630
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Mercury, Methyl	0.839	0.050	ng/L		E1630
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Mercury, Methyl	0.807	0.050	ng/L		E1630
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Mercury, Methyl	0.716	0.050	ng/L		E1630
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Mercury, Methyl	1.190	0.050	ng/L		E1630
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Mercury, Methyl	1.030	0.050	ng/L		E1630
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Mercury, Methyl	0.990	0.050	ng/L		E1630
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Mercury, Methyl	0.618	0.050	ng/L		E1630
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Mercury, Methyl	0.455	0.050	ng/L		E1630
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Mercury, Methyl	0.539	0.050	ng/L		E1630
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Mercury, Methyl	0.547	0.050	ng/L		E1630
	Field Blank 1	H14030285-002	3/18/2014	Mercury, Methyl	0.020	0.050	ng/L		E1630
	Field Blank 1	H14050278-017	5/13/2014	Mercury, Methyl	0.020	0.050	ng/L		E1630
	Field Blank 1	H14060255-017	6/10/2014	Mercury, Methyl	ND	0.050	ng/L		E1630
	Field Blank 1	H14060541-017	6/24/2014	Mercury, Methyl	0.020	0.050	ng/L		E1630
	Field Blank 1	H14090349-002	9/16/2014	Mercury, Methyl	ND	0.050	ng/L		E1630
	Field Blank 1	H14120106-002	12/1/2014	Mercury, Methyl	ND	0.050	ng/L		E1630
CFR-84F	Natural Sample	H14030285-016	3/18/2014	Mercury, Total	0.00016	0.000005	mg/L		E245.1

CFR-84F	Natural Sample	H14050278-016	5/13/2014	Mercury, Total	0.00005	0.000005	mg/L	E245.1
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Mercury, Total	0.000041	0.000005	mg/L	E245.1
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Mercury, Total	0.000037	0.000005	mg/L	E245.1
CFR-84F	Natural Sample	H14090349-016	9/16/2014	Mercury, Total	0.00002	0.000005	mg/L	E245.1
CFR-84F	Natural Sample	H14120106-016	12/1/2014	Mercury, Total	0.000013	0.000005	mg/L	E245.1
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Mercury, Total	0.00035	0.000005	mg/L	E245.1
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Mercury, Total	0.0004	0.000005	mg/L	E245.1
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Mercury, Total	0.000400	0.000005	mg/L	E245.1
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Mercury, Total	0.000230	0.000005	mg/L	E245.1
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Mercury, Total	0.000300	0.000005	mg/L	E245.1
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Mercury, Total	0.000360	0.000005	mg/L	E245.1
FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Mercury, Total	0.000190	0.000005	mg/L	E245.1
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Mercury, Total	0.000220	0.000005	mg/L	E245.1
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Mercury, Total	0.000038	0.000005	mg/L	E245.1
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Mercury, Total	0.000058	0.000005	mg/L	E245.1
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Mercury, Total	0.00012	0.000005	mg/L	E245.1
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Mercury, Total	0.00019	0.000005	mg/L	E245.1
	Field Blank 1	H14030285-002	3/18/2014	Mercury, Total	ND	0.000005	mg/L	E245.1
	Field Blank 1	H14050278-017	5/13/2014	Mercury, Total	ND	0.000005	mg/L	E245.1
	Field Blank 1	H14060255-017	6/10/2014	Mercury, Total	ND	0.000005	mg/L	E245.1
	Field Blank 1	H14060541-017	6/24/2014	Mercury, Total	ND	0.000005	mg/L	E245.1
	Field Blank 1	H14090349-002	9/16/2014	Mercury, Total	ND	0.000005	mg/L	E245.1
	Field Blank 1	H14120106-002	12/1/2014	Mercury, Total	ND	0.000005	mg/L	E245.1
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Nitrogen, Ammonia as N, mg/L	0.11	0.05	mg/L	E350.1
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1

CFR-07D	Natural Sample	H14120106-008	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Nitrogen, Ammonia as N, mg/L	0.06	0.05	mg/L	E350.1
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Nitrogen, Ammonia as N, mg/L	0.06	0.05	mg/L	E350.1
CFR-27H	Natural Sample	H14050278-005	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CSC	Natural Sample	H14050278-002	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CSC	Natural Sample	H14060255-002	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CSC	Natural Sample	H14060541-002	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SS-25	Natural Sample	H14030285-011	3/19/2014	Nitrogen, Ammonia as N, mg/L	1.08	0.05	mg/L	E350.1

SS-25	Natural Sample	H14050278-010	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SS-25	Natural Sample	H14060255-010	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SS-25	Natural Sample	H14060541-010	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SS-25	Natural Sample	H14090349-011	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
SS-25	Natural Sample	H14120106-011	12/2/2014	Nitrogen, Ammonia as N, mg/L	0.05	0.05	mg/L	E350.1
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 1	H14030285-002	3/18/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 2	H14030285-013	3/19/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 1	H14050278-017	5/13/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 2	H14050278-013	5/14/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 1	H14060255-017	6/10/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 2	H14060255-013	6/11/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 1	H14060541-017	6/24/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 2	H14060541-013	6/25/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 1	H14090349-002	9/16/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 2	H14090349-013	9/17/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 1	H14120106-002	12/1/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
	Field Blank 2	H14120106-013	12/2/2014	Nitrogen, Ammonia as N, mg/L	ND	0.05	mg/L	E350.1
CFR-03A	Natural Sample	H14030285-009	3/19/2014	NO3+NO2 as N, mg/L	0.37	0.05	mg/L	E353.2
CFR-03A	Natural Sample	H14050278-008	5/14/2014	NO3+NO2 as N, mg/L	0.07	0.05	mg/L	E353.2
CFR-03A	Natural Sample	H14060255-008	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-03A	Natural Sample	H14060541-008	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-03A	Natural Sample	H14090349-009	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-03A	Natural Sample	H14120106-009	12/2/2014	NO3+NO2 as N, mg/L	0.2	0.05	mg/L	E353.2
CFR-07D	Natural Sample	H14030285-008	3/19/2014	NO3+NO2 as N, mg/L	0.38	0.05	mg/L	E353.2
CFR-07D	Natural Sample	H14050278-007	5/14/2014	NO3+NO2 as N, mg/L	0.08	0.05	mg/L	E353.2
CFR-07D	Natural Sample	H14060255-007	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-07D	Natural Sample	H14060541-007	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-07D	Natural Sample	H14090349-008	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2

CFR-07D	Natural Sample	H14120106-008	12/2/2014	NO3+NO2 as N, mg/L	0.31	0.05	mg/L	E353.2
CFR-116A	Natural Sample	H14030285-001	3/18/2014	NO3+NO2 as N, mg/L	0.18	0.05	mg/L	E353.2
CFR-116A	Natural Sample	H14050278-001	5/13/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-116A	Natural Sample	H14060255-001	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-116A	Natural Sample	H14060541-001	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-116A	Natural Sample	H14090349-001	9/16/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-116A	Natural Sample	H14120106-001	12/1/2014	NO3+NO2 as N, mg/L	0.17	0.05	mg/L	E353.2
CFR-11F	Natural Sample	H14030285-007	3/18/2014	NO3+NO2 as N, mg/L	0.38	0.05	mg/L	E353.2
CFR-11F	Natural Sample	H14050278-006	5/14/2014	NO3+NO2 as N, mg/L	0.08	0.05	mg/L	E353.2
CFR-11F	Natural Sample	H14060255-006	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-11F	Natural Sample	H14060541-006	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-11F	Natural Sample	H14090349-007	9/16/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-11F	Natural Sample	H14120106-007	12/2/2014	NO3+NO2 as N, mg/L	0.32	0.05	mg/L	E353.2
CFR-27H	Natural Sample	H14030285-006	3/18/2014	NO3+NO2 as N, mg/L	0.41	0.05	mg/L	E353.2
CFR-27H	Natural Sample	H14050278-005	5/14/2014	NO3+NO2 as N, mg/L	0.06	0.05	mg/L	E353.2
CFR-27H	Natural Sample	H14060255-005	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-27H	Natural Sample	H14060541-005	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-27H	Natural Sample	H14090349-006	9/16/2014	NO3+NO2 as N, mg/L	0.03	0.05	mg/L	E353.2
CFR-27H	Natural Sample	H14120106-006	12/1/2014	NO3+NO2 as N, mg/L	0.44	0.05	mg/L	E353.2
CFR-42G	Natural Sample	H14050278-004	5/13/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-42G	Natural Sample	H14060255-004	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-42G	Natural Sample	H14060541-004	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-84F	Natural Sample	H14050278-016	5/13/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-84F	Natural Sample	H14060255-016	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CFR-84F	Natural Sample	H14060541-016	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
CSC	Natural Sample	H14050278-002	5/13/2014	NO3+NO2 as N, mg/L	0.29	0.05	mg/L	E353.2
CSC	Natural Sample	H14060255-002	6/10/2014	NO3+NO2 as N, mg/L	0.24	0.05	mg/L	E353.2
CSC	Natural Sample	H14060541-002	6/24/2014	NO3+NO2 as N, mg/L	0.22	0.05	mg/L	E353.2
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	NO3+NO2 as N, mg/L	0.19	0.05	mg/L	E353.2
FC-CFR	Natural Sample	H14030285-003	3/18/2014	NO3+NO2 as N, mg/L	0.19	0.05	mg/L	E353.2
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
FC-CFR	Natural Sample	H14050278-018	5/13/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
FC-CFR	Natural Sample	H14060255-018	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
FC-CFR	Natural Sample	H14060541-018	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
FC-CFR	Natural Sample	H14090349-003	9/16/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	NO3+NO2 as N, mg/L	0.2	0.05	mg/L	E353.2
FC-CFR	Natural Sample	H14120106-003	12/1/2014	NO3+NO2 as N, mg/L	0.21	0.05	mg/L	E353.2
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	NO3+NO2 as N, mg/L	0.06	0.05	mg/L	E353.2
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	NO3+NO2 as N, mg/L	0.07	0.05	mg/L	E353.2
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	NO3+NO2 as N, mg/L	0.07	0.05	mg/L	E353.2
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	NO3+NO2 as N, mg/L	0.11	0.05	mg/L	E353.2
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	NO3+NO2 as N, mg/L	0.12	0.05	mg/L	E353.2
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	NO3+NO2 as N, mg/L	0.11	0.05	mg/L	E353.2
SBC-P2	Natural Sample	H14050278-012	5/14/2014	NO3+NO2 as N, mg/L	0.2	0.05	mg/L	E353.2
SBC-P2	Natural Sample	H14060255-012	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
SBC-P2	Natural Sample	H14060541-012	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L	E353.2
SS-25	Natural Sample	H14030285-011	3/19/2014	NO3+NO2 as N, mg/L	0.44	0.05	mg/L	E353.2

SS-25	Natural Sample	H14050278-010	5/14/2014	NO3+NO2 as N, mg/L	0.13	0.05	mg/L		E353.2
SS-25	Natural Sample	H14060255-010	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
SS-25	Natural Sample	H14060541-010	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
SS-25	Natural Sample	H14090349-011	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
SS-25	Natural Sample	H14120106-011	12/2/2014	NO3+NO2 as N, mg/L	0.26	0.05	mg/L		E353.2
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	NO3+NO2 as N, mg/L	0.13	0.05	mg/L		E353.2
	Field Blank 1	H14030285-002	3/18/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 2	H14030285-013	3/19/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 1	H14050278-017	5/13/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 2	H14050278-013	5/14/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 1	H14060255-017	6/10/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 2	H14060255-013	6/11/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 1	H14060541-017	6/24/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 2	H14060541-013	6/25/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 1	H14090349-002	9/16/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 2	H14090349-013	9/17/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 1	H14120106-002	12/1/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
	Field Blank 2	H14120106-013	12/2/2014	NO3+NO2 as N, mg/L	ND	0.05	mg/L		E353.2
CFR-03A	Natural Sample	H14030285-009	3/19/2014	N-Total, mg/L	0.92	0.05	mg/L		A4500 N-C
CFR-03A	Natural Sample	H14050278-008	5/14/2014	N-Total, mg/L	0.48	0.05	mg/L	B	A4500 N-C
CFR-03A	Natural Sample	H14060255-008	6/11/2014	N-Total, mg/L	0.2	0.05	mg/L		A4500 N-C
CFR-03A	Natural Sample	H14060541-008	6/25/2014	N-Total, mg/L	0.15	0.05	mg/L		A4500 N-C
CFR-03A	Natural Sample	H14090349-009	9/17/2014	N-Total, mg/L	0.22	0.05	mg/L		A4500 N-C
CFR-03A	Natural Sample	H14120106-009	12/2/2014	N-Total, mg/L	0.64	0.05	mg/L	B	A4500 N-C
CFR-07D	Natural Sample	H14030285-008	3/19/2014	N-Total, mg/L	0.86	0.05	mg/L		A4500 N-C
CFR-07D	Natural Sample	H14050278-007	5/14/2014	N-Total, mg/L	0.46	0.05	mg/L	B	A4500 N-C
CFR-07D	Natural Sample	H14060255-007	6/11/2014	N-Total, mg/L	0.19	0.05	mg/L		A4500 N-C
CFR-07D	Natural Sample	H14060541-007	6/25/2014	N-Total, mg/L	0.15	0.05	mg/L		A4500 N-C
CFR-07D	Natural Sample	H14090349-008	9/17/2014	N-Total, mg/L	0.17	0.05	mg/L		A4500 N-C



CFR-07D	Natural Sample	H14120106-008	12/2/2014	N-Total, mg/L	0.7	0.05	mg/L	B	A4500 N-C
CFR-116A	Natural Sample	H14030285-001	3/18/2014	N-Total, mg/L	0.7	0.05	mg/L		A4500 N-C
CFR-116A	Natural Sample	H14050278-001	5/13/2014	N-Total, mg/L	0.29	0.05	mg/L		A4500 N-C
CFR-116A	Natural Sample	H14060255-001	6/10/2014	N-Total, mg/L	0.2	0.05	mg/L		A4500 N-C
CFR-116A	Natural Sample	H14060541-001	6/24/2014	N-Total, mg/L	0.08	0.05	mg/L		A4500 N-C
CFR-116A	Natural Sample	H14090349-001	9/16/2014	N-Total, mg/L	0.1	0.05	mg/L		A4500 N-C
CFR-116A	Natural Sample	H14120106-001	12/1/2014	N-Total, mg/L	0.46	0.05	mg/L		A4500 N-C
CFR-11F	Natural Sample	H14030285-007	3/18/2014	N-Total, mg/L	0.88	0.05	mg/L		A4500 N-C
CFR-11F	Natural Sample	H14050278-006	5/14/2014	N-Total, mg/L	0.39	0.05	mg/L	B	A4500 N-C
CFR-11F	Natural Sample	H14060255-006	6/11/2014	N-Total, mg/L	0.23	0.05	mg/L		A4500 N-C
CFR-11F	Natural Sample	H14060541-006	6/25/2014	N-Total, mg/L	0.19	0.05	mg/L		A4500 N-C
CFR-11F	Natural Sample	H14090349-007	9/16/2014	N-Total, mg/L	0.25	0.05	mg/L		A4500 N-C
CFR-11F	Natural Sample	H14120106-007	12/2/2014	N-Total, mg/L	0.66	0.05	mg/L	B	A4500 N-C
CFR-27H	Natural Sample	H14030285-006	3/18/2014	N-Total, mg/L	0.94	0.05	mg/L		A4500 N-C
CFR-27H	Natural Sample	H14050278-005	5/14/2014	N-Total, mg/L	0.46	0.05	mg/L	B	A4500 N-C
CFR-27H	Natural Sample	H14060255-005	6/10/2014	N-Total, mg/L	0.32	0.05	mg/L		A4500 N-C
CFR-27H	Natural Sample	H14060541-005	6/24/2014	N-Total, mg/L	0.3	0.05	mg/L		A4500 N-C
CFR-27H	Natural Sample	H14090349-006	9/16/2014	N-Total, mg/L	0.32	0.05	mg/L		A4500 N-C
CFR-27H	Natural Sample	H14120106-006	12/1/2014	N-Total, mg/L	0.82	0.05	mg/L		A4500 N-C
CFR-42G	Natural Sample	H14050278-004	5/13/2014	N-Total, mg/L	0.41	0.05	mg/L		A4500 N-C
CFR-42G	Natural Sample	H14060255-004	6/10/2014	N-Total, mg/L	0.37	0.05	mg/L		A4500 N-C
CFR-42G	Natural Sample	H14060541-004	6/24/2014	N-Total, mg/L	0.22	0.05	mg/L		A4500 N-C
CFR-84F	Natural Sample	H14050278-016	5/13/2014	N-Total, mg/L	0.31	0.05	mg/L		A4500 N-C
CFR-84F	Natural Sample	H14060255-016	6/10/2014	N-Total, mg/L	0.31	0.05	mg/L		A4500 N-C
CFR-84F	Natural Sample	H14060541-016	6/24/2014	N-Total, mg/L	0.29	0.05	mg/L		A4500 N-C
CSC	Natural Sample	H14050278-002	5/13/2014	N-Total, mg/L	0.45	0.05	mg/L		A4500 N-C
CSC	Natural Sample	H14060255-002	6/10/2014	N-Total, mg/L	0.29	0.05	mg/L		A4500 N-C
CSC	Natural Sample	H14060541-002	6/24/2014	N-Total, mg/L	0.27	0.05	mg/L		A4500 N-C
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	N-Total, mg/L	0.84	0.05	mg/L		A4500 N-C
FC-CFR	Natural Sample	H14030285-003	3/18/2014	N-Total, mg/L	0.84	0.05	mg/L		A4500 N-C
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	N-Total, mg/L	0.46	0.05	mg/L		A4500 N-C
FC-CFR	Natural Sample	H14050278-018	5/13/2014	N-Total, mg/L	0.39	0.05	mg/L		A4500 N-C
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	N-Total, mg/L	0.48	0.05	mg/L		A4500 N-C
FC-CFR	Natural Sample	H14060255-018	6/10/2014	N-Total, mg/L	0.35	0.05	mg/L		A4500 N-C

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	N-Total, mg/L	0.21	0.05	mg/L		A4500 N-C
FC-CFR	Natural Sample	H14060541-018	6/24/2014	N-Total, mg/L	0.34	0.05	mg/L		A4500 N-C
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	N-Total, mg/L	0.08	0.05	mg/L		A4500 N-C
FC-CFR	Natural Sample	H14090349-003	9/16/2014	N-Total, mg/L	0.28	0.05	mg/L		A4500 N-C
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	N-Total, mg/L	0.4	0.05	mg/L		A4500 N-C
FC-CFR	Natural Sample	H14120106-003	12/1/2014	N-Total, mg/L	0.5	0.05	mg/L		A4500 N-C
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	N-Total, mg/L	0.32	0.05	mg/L		A4500 N-C
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	N-Total, mg/L	0.3	0.05	mg/L		A4500 N-C
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	N-Total, mg/L	0.21	0.05	mg/L		A4500 N-C
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	N-Total, mg/L	0.19	0.05	mg/L		A4500 N-C
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	N-Total, mg/L	0.08	0.05	mg/L		A4500 N-C
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	N-Total, mg/L	0.2	0.05	mg/L		A4500 N-C
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	N-Total, mg/L	0.18	0.05	mg/L		A4500 N-C
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	N-Total, mg/L	0.16	0.05	mg/L		A4500 N-C
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	N-Total, mg/L	0.26	0.05	mg/L	B	A4500 N-C
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	N-Total, mg/L	0.24	0.05	mg/L	B	A4500 N-C
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	N-Total, mg/L	0.21	0.05	mg/L		A4500 N-C
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	N-Total, mg/L	0.15	0.05	mg/L		A4500 N-C
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	N-Total, mg/L	0.21	0.05	mg/L		A4500 N-C
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	N-Total, mg/L	0.19	0.05	mg/L		A4500 N-C
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	N-Total, mg/L	0.45	0.05	mg/L	B	A4500 N-C
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	N-Total, mg/L	0.42	0.05	mg/L	B	A4500 N-C
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	N-Total, mg/L	0.19	0.05	mg/L		A4500 N-C
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	N-Total, mg/L	0.31	0.05	mg/L	B	A4500 N-C
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	N-Total, mg/L	0.13	0.05	mg/L		A4500 N-C
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	N-Total, mg/L	0.16	0.05	mg/L		A4500 N-C
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	N-Total, mg/L	0.31	0.05	mg/L	B	A4500 N-C
SBC-P2	Natural Sample	H14050278-012	5/14/2014	N-Total, mg/L	0.85	0.05	mg/L		A4500 N-C
SBC-P2	Natural Sample	H14060255-012	6/11/2014	N-Total, mg/L	0.41	0.05	mg/L		A4500 N-C
SBC-P2	Natural Sample	H14060541-012	6/25/2014	N-Total, mg/L	0.46	0.05	mg/L		A4500 N-C
SS-25	Natural Sample	H14030285-011	3/19/2014	N-Total, mg/L	1.08	0.05	mg/L		A4500 N-C

SS-25	Natural Sample	H14050278-010	5/14/2014	N-Total, mg/L	0.67	0.05	mg/L	B	A4500 N-C
SS-25	Natural Sample	H14060255-010	6/11/2014	N-Total, mg/L	0.18	0.05	mg/L		A4500 N-C
SS-25	Natural Sample	H14060541-010	6/25/2014	N-Total, mg/L	0.32	0.05	mg/L		A4500 N-C
SS-25	Natural Sample	H14090349-011	9/17/2014	N-Total, mg/L	0.27	0.05	mg/L		A4500 N-C
SS-25	Natural Sample	H14120106-011	12/2/2014	N-Total, mg/L	0.67	0.05	mg/L	B	A4500 N-C
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	N-Total, mg/L	0.06	0.05	mg/L		A4500 N-C
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	N-Total, mg/L	0.22	0.05	mg/L	B	A4500 N-C
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	N-Total, mg/L	0.14	0.05	mg/L		A4500 N-C
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	N-Total, mg/L	0.05	0.05	mg/L		A4500 N-C
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	N-Total, mg/L	0.16	0.05	mg/L	B	A4500 N-C
	Field Blank 1	H14030285-002	3/18/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 2	H14030285-013	3/19/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 1	H14050278-017	5/13/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 2	H14050278-013	5/14/2014	N-Total, mg/L	0.08	0.05	mg/L	B	A4500 N-C
	Field Blank 1	H14060255-017	6/10/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 2	H14060255-013	6/11/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 1	H14060541-017	6/24/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 2	H14060541-013	6/25/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 1	H14090349-002	9/16/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 2	H14090349-013	9/17/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 1	H14120106-002	12/1/2014	N-Total, mg/L	ND	0.05	mg/L		A4500 N-C
	Field Blank 2	H14120106-013	12/2/2014	N-Total, mg/L	0.11	0.05	mg/L		A4500 N-C
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Organic Carbon, Dissolved	4.4	0.5	mg/L		A53310 C
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Organic Carbon, Dissolved	4.2	0.1	mg/L	B	A53310 C
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Organic Carbon, Dissolved	3.1	0.1	mg/L		A53310 C
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Organic Carbon, Dissolved	3.8	0.5	mg/L		A53310 C
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Organic Carbon, Dissolved	3.9	0.5	mg/L		A53310 C
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Organic Carbon, Dissolved	3	0.5	mg/L		A53310 C
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Organic Carbon, Dissolved	3.8	0.5	mg/L		A53310 C
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Organic Carbon, Dissolved	3.8	0.1	mg/L	B	A53310 C
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Organic Carbon, Dissolved	3.2	0.1	mg/L		A53310 C
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Organic Carbon, Dissolved	3.9	0.5	mg/L		A53310 C
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Organic Carbon, Dissolved	3.8	0.5	mg/L		A53310 C

CFR-07D	Natural Sample	H14120106-008	12/2/2014	Organic Carbon, Dissolved	2.7	0.5	mg/L		A53310 C
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Organic Carbon, Dissolved	4.2	0.5	mg/L		A53310 C
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Organic Carbon, Dissolved	4.3	0.1	mg/L	B	A53310 C
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Organic Carbon, Dissolved	3.6	0.1	mg/L	B	A53310 C
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Organic Carbon, Dissolved	3.5	0.5	mg/L	B	A53310 C
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Organic Carbon, Dissolved	2.1	0.5	mg/L		A53310 C
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Organic Carbon, Dissolved	2.7	0.5	mg/L	B	A53310 C
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Organic Carbon, Dissolved	3.5	0.5	mg/L		A53310 C
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Organic Carbon, Dissolved	4.1	0.1	mg/L	B	A53310 C
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Organic Carbon, Dissolved	3.3	0.1	mg/L		A53310 C
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Organic Carbon, Dissolved	4	0.5	mg/L		A53310 C
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Organic Carbon, Dissolved	3.7	0.5	mg/L		A53310 C
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Organic Carbon, Dissolved	2.8	0.5	mg/L		A53310 C
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Organic Carbon, Dissolved	3.1	0.5	mg/L		A53310 C
CFR-27H	Natural Sample	H14050278-005	5/14/2014	Organic Carbon, Dissolved	3.8	0.1	mg/L	B	A53310 C
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Organic Carbon, Dissolved	3.7	0.1	mg/L	B	A53310 C
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Organic Carbon, Dissolved	3.8	0.5	mg/L	B	A53310 C
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Organic Carbon, Dissolved	3.3	0.5	mg/L		A53310 C
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Organic Carbon, Dissolved	3	0.5	mg/L	B	A53310 C
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Organic Carbon, Dissolved	3.8	0.1	mg/L	B	A53310 C
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Organic Carbon, Dissolved	4	0.1	mg/L		A53310 C
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Organic Carbon, Dissolved	4.5	0.5	mg/L	B	A53310 C
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Organic Carbon, Dissolved	4.2	0.1	mg/L	B	A53310 C
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Organic Carbon, Dissolved	3.6	0.1	mg/L	B	A53310 C
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Organic Carbon, Dissolved	3.9	0.5	mg/L	B	A53310 C
CSC	Natural Sample	H14050278-002	5/13/2014	Organic Carbon, Dissolved	0.9	0.1	mg/L	B	A53310 C
CSC	Natural Sample	H14060255-002	6/10/2014	Organic Carbon, Dissolved	0.9	0.1	mg/L	B	A53310 C
CSC	Natural Sample	H14060541-002	6/24/2014	Organic Carbon, Dissolved	1.1	0.5	mg/L	B	A53310 C
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Organic Carbon, Dissolved	5.2	0.5	mg/L		A53310 C
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Organic Carbon, Dissolved	5.3	0.5	mg/L		A53310 C
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Organic Carbon, Dissolved	4.9	0.1	mg/L	B	A53310 C
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Organic Carbon, Dissolved	4.8	0.1	mg/L	B	A53310 C
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Organic Carbon, Dissolved	3.9	0.1	mg/L	B	A53310 C
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Organic Carbon, Dissolved	3.9	0.1	mg/L	B	A53310 C

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Organic Carbon, Dissolved	4.9	0.5	mg/L	B	A53310 C
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Organic Carbon, Dissolved	4.7	0.5	mg/L	B	A53310 C
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Organic Carbon, Dissolved	2.9	0.5	mg/L		A53310 C
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Organic Carbon, Dissolved	2.9	0.5	mg/L		A53310 C
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Organic Carbon, Dissolved	2.3	0.5	mg/L	B	A53310 C
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Organic Carbon, Dissolved	2.3	0.5	mg/L	B	A53310 C
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Organic Carbon, Dissolved	3.8	0.5	mg/L		A53310 C
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Organic Carbon, Dissolved	4.4	0.1	mg/L		A53310 C
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Organic Carbon, Dissolved	4.3	0.1	mg/L		A53310 C
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Organic Carbon, Dissolved	4.4	0.5	mg/L	B	A53310 C
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Organic Carbon, Dissolved	2	0.5	mg/L		A53310 C
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Organic Carbon, Dissolved	2.1	0.5	mg/L	B	A53310 C
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Organic Carbon, Dissolved	2	0.5	mg/L		A53310 C
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Organic Carbon, Dissolved	2	0.5	mg/L		A53310 C
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Organic Carbon, Dissolved	4	0.1	mg/L	B	A53310 C
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Organic Carbon, Dissolved	3.9	0.1	mg/L	B	A53310 C
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Organic Carbon, Dissolved	2.9	0.1	mg/L	B	A53310 C
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Organic Carbon, Dissolved	2.8	0.1	mg/L	B	A53310 C
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Organic Carbon, Dissolved	3.4	0.5	mg/L		A53310 C
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Organic Carbon, Dissolved	3.7	0.5	mg/L		A53310 C
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Organic Carbon, Dissolved	1.8	0.5	mg/L		A53310 C
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Organic Carbon, Dissolved	1.9	0.5	mg/L		A53310 C
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Organic Carbon, Dissolved	1.7	0.5	mg/L		A53310 C
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Organic Carbon, Dissolved	1.7	0.5	mg/L		A53310 C
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Organic Carbon, Dissolved	2.4	0.5	mg/L		A53310 C
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Organic Carbon, Dissolved	4	0.1	mg/L	B	A53310 C
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Organic Carbon, Dissolved	3	0.1	mg/L		A53310 C
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Organic Carbon, Dissolved	3.7	0.5	mg/L		A53310 C
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Organic Carbon, Dissolved	2.2	0.5	mg/L		A53310 C
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Organic Carbon, Dissolved	2.5	0.5	mg/L		A53310 C
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Organic Carbon, Dissolved	5.3	0.1	mg/L		A53310 C
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Organic Carbon, Dissolved	7	0.1	mg/L		A53310 C
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Organic Carbon, Dissolved	7.2	0.5	mg/L		A53310 C
SS-25	Natural Sample	H14030285-011	3/19/2014	Organic Carbon, Dissolved	5	0.5	mg/L		A53310 C

SS-25	Natural Sample	H14050278-010	5/14/2014	Organic Carbon, Dissolved	4.9	0.1	mg/L	B	A53310 C
SS-25	Natural Sample	H14060255-010	6/11/2014	Organic Carbon, Dissolved	3.7	0.1	mg/L		A53310 C
SS-25	Natural Sample	H14060541-010	6/25/2014	Organic Carbon, Dissolved	5.1	0.5	mg/L		A53310 C
SS-25	Natural Sample	H14090349-011	9/17/2014	Organic Carbon, Dissolved	4.9	0.5	mg/L		A53310 C
SS-25	Natural Sample	H14120106-011	12/2/2014	Organic Carbon, Dissolved	3.7	0.5	mg/L		A53310 C
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Organic Carbon, Dissolved	1.4	0.5	mg/L		A53310 C
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Organic Carbon, Dissolved	1.7	0.1	mg/L	B	A53310 C
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Organic Carbon, Dissolved	2.2	0.1	mg/L	B	A53310 C
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Organic Carbon, Dissolved	2.1	0.5	mg/L		A53310 C
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Organic Carbon, Dissolved	1.5	0.5	mg/L		A53310 C
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Organic Carbon, Dissolved	1.1	0.5	mg/L		A53310 C
	Field Blank 1	H14030285-002	3/18/2014	Organic Carbon, Dissolved	ND	0.5	mg/L		A53310 C
	Field Blank 2	H14030285-013	3/19/2014	Organic Carbon, Dissolved	ND	0.5	mg/L		A53310 C
	Field Blank 1	H14050278-017	5/13/2014	Organic Carbon, Dissolved	0.4	0.1	mg/L	B	A53310 C
	Field Blank 2	H14050278-013	5/14/2014	Organic Carbon, Dissolved	0.5	0.1	mg/L	B	A53310 C
	Field Blank 1	H14060255-017	6/10/2014	Organic Carbon, Dissolved	0.4	0.1	mg/L	B	A53310 C
	Field Blank 2	H14060255-013	6/11/2014	Organic Carbon, Dissolved	0.3	0.1	mg/L	B	A53310 C
	Field Blank 1	H14060541-017	6/24/2014	Organic Carbon, Dissolved	0.5	0.5	mg/L	B	A53310 C
	Field Blank 2	H14060541-013	6/25/2014	Organic Carbon, Dissolved	ND	0.5	mg/L		A53310 C
	Field Blank 1	H14090349-002	9/16/2014	Organic Carbon, Dissolved	ND	0.5	mg/L		A53310 C
	Field Blank 2	H14090349-013	9/17/2014	Organic Carbon, Dissolved	ND	0.5	mg/L		A53310 C
	Field Blank 1	H14120106-002	12/1/2014	Organic Carbon, Dissolved	0.5	0.5	mg/L	B	A53310 C
	Field Blank 2	H14120106-013	12/2/2014	Organic Carbon, Dissolved	ND	0.5	mg/L	B	A53310 C
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Phosphorus, Total as P, mg/L	0.08	0.005	mg/L		E365.1
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Phosphorus, Total as P, mg/L	0.029	0.005	mg/L		E365.1
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Phosphorus, Total as P, mg/L	0.027	0.005	mg/L		E365.1
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Phosphorus, Total as P, mg/L	0.027	0.005	mg/L		E365.1
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Phosphorus, Total as P, mg/L	0.044	0.005	mg/L		E365.1
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Phosphorus, Total as P, mg/L	0.032	0.005	mg/L	B	E365.1
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Phosphorus, Total as P, mg/L	0.067	0.005	mg/L		E365.1
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Phosphorus, Total as P, mg/L	0.027	0.005	mg/L		E365.1
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Phosphorus, Total as P, mg/L	0.03	0.005	mg/L		E365.1
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Phosphorus, Total as P, mg/L	0.027	0.005	mg/L		E365.1
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Phosphorus, Total as P, mg/L	0.035	0.005	mg/L		E365.1

CFR-07D	Natural Sample	H14120106-008	12/2/2014	Phosphorus, Total as P, mg/L	0.023	0.005	mg/L	B	E365.1
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Phosphorus, Total as P, mg/L	0.128	0.005	mg/L		E365.1
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Phosphorus, Total as P, mg/L	0.036	0.005	mg/L		E365.1
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Phosphorus, Total as P, mg/L	0.037	0.005	mg/L		E365.1
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Phosphorus, Total as P, mg/L	0.026	0.005	mg/L		E365.1
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Phosphorus, Total as P, mg/L	0.017	0.005	mg/L		E365.1
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Phosphorus, Total as P, mg/L	0.037	0.005	mg/L		E365.1
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Phosphorus, Total as P, mg/L	0.064	0.005	mg/L		E365.1
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Phosphorus, Total as P, mg/L	0.025	0.005	mg/L		E365.1
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Phosphorus, Total as P, mg/L	0.028	0.005	mg/L		E365.1
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Phosphorus, Total as P, mg/L	0.025	0.005	mg/L		E365.1
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Phosphorus, Total as P, mg/L	0.037	0.005	mg/L		E365.1
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Phosphorus, Total as P, mg/L	0.024	0.005	mg/L	B	E365.1
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Phosphorus, Total as P, mg/L	0.091	0.005	mg/L		E365.1
CFR-27H	Natural Sample	H14050278-005	5/14/2014	Phosphorus, Total as P, mg/L	0.029	0.005	mg/L		E365.1
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Phosphorus, Total as P, mg/L	0.045	0.005	mg/L		E365.1
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Phosphorus, Total as P, mg/L	0.031	0.005	mg/L		E365.1
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Phosphorus, Total as P, mg/L	0.028	0.005	mg/L		E365.1
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Phosphorus, Total as P, mg/L	0.031	0.005	mg/L		E365.1
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Phosphorus, Total as P, mg/L	0.03	0.005	mg/L		E365.1
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Phosphorus, Total as P, mg/L	0.066	0.005	mg/L		E365.1
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Phosphorus, Total as P, mg/L	0.046	0.005	mg/L		E365.1
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Phosphorus, Total as P, mg/L	0.043	0.005	mg/L		E365.1
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Phosphorus, Total as P, mg/L	0.051	0.005	mg/L		E365.1
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Phosphorus, Total as P, mg/L	0.047	0.005	mg/L		E365.1
CSC	Natural Sample	H14050278-002	5/13/2014	Phosphorus, Total as P, mg/L	0.012	0.005	mg/L		E365.1
CSC	Natural Sample	H14060255-002	6/10/2014	Phosphorus, Total as P, mg/L	0.014	0.005	mg/L		E365.1
CSC	Natural Sample	H14060541-002	6/24/2014	Phosphorus, Total as P, mg/L	0.01	0.005	mg/L		E365.1
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Phosphorus, Total as P, mg/L	0.146	0.005	mg/L		E365.1
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Phosphorus, Total as P, mg/L	0.144	0.005	mg/L		E365.1
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Phosphorus, Total as P, mg/L	0.044	0.005	mg/L		E365.1
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Phosphorus, Total as P, mg/L	0.045	0.005	mg/L		E365.1
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Phosphorus, Total as P, mg/L	0.045	0.005	mg/L		E365.1
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Phosphorus, Total as P, mg/L	0.046	0.005	mg/L		E365.1

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Phosphorus, Total as P, mg/L	0.049	0.005	mg/L		E365.1
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Phosphorus, Total as P, mg/L	0.048	0.005	mg/L		E365.1
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Phosphorus, Total as P, mg/L	0.046	0.005	mg/L		E365.1
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Phosphorus, Total as P, mg/L	0.046	0.005	mg/L		E365.1
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Phosphorus, Total as P, mg/L	0.048	0.005	mg/L		E365.1
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Phosphorus, Total as P, mg/L	0.046	0.005	mg/L		E365.1
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Phosphorus, Total as P, mg/L	0.074	0.005	mg/L		E365.1
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Phosphorus, Total as P, mg/L	0.033	0.005	mg/L		E365.1
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Phosphorus, Total as P, mg/L	0.033	0.005	mg/L		E365.1
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Phosphorus, Total as P, mg/L	0.028	0.005	mg/L		E365.1
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Phosphorus, Total as P, mg/L	0.019	0.005	mg/L		E365.1
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Phosphorus, Total as P, mg/L	0.034	0.005	mg/L		E365.1
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Phosphorus, Total as P, mg/L	0.03	0.005	mg/L		E365.1
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Phosphorus, Total as P, mg/L	0.031	0.005	mg/L		E365.1
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Phosphorus, Total as P, mg/L	0.031	0.005	mg/L		E365.1
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Phosphorus, Total as P, mg/L	0.032	0.005	mg/L		E365.1
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Phosphorus, Total as P, mg/L	0.026	0.005	mg/L		E365.1
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Phosphorus, Total as P, mg/L	0.026	0.005	mg/L		E365.1
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Phosphorus, Total as P, mg/L	0.028	0.005	mg/L		E365.1
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Phosphorus, Total as P, mg/L	0.034	0.005	mg/L		E365.1
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Phosphorus, Total as P, mg/L	0.017	0.005	mg/L		E365.1
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Phosphorus, Total as P, mg/L	0.018	0.005	mg/L		E365.1
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Phosphorus, Total as P, mg/L	0.058	0.005	mg/L		E365.1
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Phosphorus, Total as P, mg/L	0.059	0.005	mg/L		E365.1
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Phosphorus, Total as P, mg/L	0.027	0.005	mg/L		E365.1
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Phosphorus, Total as P, mg/L	0.03	0.005	mg/L		E365.1
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Phosphorus, Total as P, mg/L	0.025	0.005	mg/L		E365.1
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Phosphorus, Total as P, mg/L	0.033	0.005	mg/L		E365.1
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Phosphorus, Total as P, mg/L	0.014	0.005	mg/L		E365.1
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Phosphorus, Total as P, mg/L	0.021	0.005	mg/L	B	E365.1
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Phosphorus, Total as P, mg/L	0.035	0.005	mg/L		E365.1
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Phosphorus, Total as P, mg/L	0.084	0.005	mg/L		E365.1
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Phosphorus, Total as P, mg/L	0.074	0.005	mg/L		E365.1
SS-25	Natural Sample	H14030285-011	3/19/2014	Phosphorus, Total as P, mg/L	0.113	0.005	mg/L		E365.1



SS-25	Natural Sample	H14050278-010	5/14/2014	Phosphorus, Total as P, mg/L	0.031	0.005	mg/L		E365.1
SS-25	Natural Sample	H14060255-010	6/11/2014	Phosphorus, Total as P, mg/L	0.037	0.005	mg/L		E365.1
SS-25	Natural Sample	H14060541-010	6/25/2014	Phosphorus, Total as P, mg/L	0.045	0.005	mg/L		E365.1
SS-25	Natural Sample	H14090349-011	9/17/2014	Phosphorus, Total as P, mg/L	0.067	0.005	mg/L		E365.1
SS-25	Natural Sample	H14120106-011	12/2/2014	Phosphorus, Total as P, mg/L	0.039	0.005	mg/L	B	E365.1
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Phosphorus, Total as P, mg/L	0.008	0.005	mg/L		E365.1
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Phosphorus, Total as P, mg/L	0.009	0.005	mg/L		E365.1
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Phosphorus, Total as P, mg/L	0.013	0.005	mg/L		E365.1
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Phosphorus, Total as P, mg/L	0.009	0.005	mg/L		E365.1
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Phosphorus, Total as P, mg/L	0.008	0.005	mg/L		E365.1
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Phosphorus, Total as P, mg/L	0.015	0.005	mg/L	B	E365.1
	Field Blank 1	H14030285-002	3/18/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 2	H14030285-013	3/19/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 1	H14050278-017	5/13/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 2	H14050278-013	5/14/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 1	H14060255-017	6/10/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 2	H14060255-013	6/11/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 1	H14060541-017	6/24/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 2	H14060541-013	6/25/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 1	H14090349-002	9/16/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 2	H14090349-013	9/17/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 1	H14120106-002	12/1/2014	Phosphorus, Total as P, mg/L	ND	0.005	mg/L		E365.1
	Field Blank 2	H14120106-013	12/2/2014	Phosphorus, Total as P, mg/L	0.005	0.005	mg/L		E365.1
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Solids, Total Suspended TSS @ 105 C	5	1	mg/L		A2540 D
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Solids, Total Suspended TSS @ 105 C	8	1	mg/L	B	A2540 D
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Solids, Total Suspended TSS @ 105 C	10	1	mg/L		A2540 D
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Solids, Total Suspended TSS @ 105 C	10	2	mg/L		A2540 D
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Solids, Total Suspended TSS @ 105 C	1	1	mg/L		A2540 D
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Solids, Total Suspended TSS @ 105 C	4	1	mg/L		A2540 D
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Solids, Total Suspended TSS @ 105 C	13	1	mg/L		A2540 D
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Solids, Total Suspended TSS @ 105 C	9	1	mg/L	B	A2540 D
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Solids, Total Suspended TSS @ 105 C	16	1	mg/L		A2540 D
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Solids, Total Suspended TSS @ 105 C	12	2	mg/L		A2540 D
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Solids, Total Suspended TSS @ 105 C	2	1	mg/L		A2540 D

CFR-07D	Natural Sample	H14120106-008	12/2/2014	Solids, Total Suspended TSS @ 105 C	3	1	mg/L		A2540 D
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Solids, Total Suspended TSS @ 105 C	39	1	mg/L		A2540 D
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Solids, Total Suspended TSS @ 105 C	18	1	mg/L		A2540 D
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Solids, Total Suspended TSS @ 105 C	22	1	mg/L	B	A2540 D
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Solids, Total Suspended TSS @ 105 C	12	2	mg/L		A2540 D
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Solids, Total Suspended TSS @ 105 C	8	1	mg/L		A2540 D
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Solids, Total Suspended TSS @ 105 C	7	1	mg/L		A2540 D
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Solids, Total Suspended TSS @ 105 C	19	1	mg/L		A2540 D
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Solids, Total Suspended TSS @ 105 C	8	1	mg/L	B	A2540 D
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Solids, Total Suspended TSS @ 105 C	13	1	mg/L		A2540 D
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Solids, Total Suspended TSS @ 105 C	11	2	mg/L		A2540 D
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Solids, Total Suspended TSS @ 105 C	2	1	mg/L		A2540 D
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Solids, Total Suspended TSS @ 105 C	5	1	mg/L		A2540 D
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Solids, Total Suspended TSS @ 105 C	45	1	mg/L		A2540 D
CFR-27H	Natural Sample	H14050278-005	5/14/2014	Solids, Total Suspended TSS @ 105 C	13	1	mg/L	B	A2540 D
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Solids, Total Suspended TSS @ 105 C	25	1	mg/L	B	A2540 D
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Solids, Total Suspended TSS @ 105 C	20	2	mg/L		A2540 D
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Solids, Total Suspended TSS @ 105 C	8	1	mg/L		A2540 D
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Solids, Total Suspended TSS @ 105 C	18	1	mg/L		A2540 D
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Solids, Total Suspended TSS @ 105 C	21	1	mg/L		A2540 D
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Solids, Total Suspended TSS @ 105 C	30	1	mg/L		A2540 D
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Solids, Total Suspended TSS @ 105 C	23	2	mg/L		A2540 D
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Solids, Total Suspended TSS @ 105 C	30	1	mg/L		A2540 D
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Solids, Total Suspended TSS @ 105 C	20	1	mg/L	B	A2540 D
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Solids, Total Suspended TSS @ 105 C	18	2	mg/L		A2540 D
CSC	Natural Sample	H14050278-002	5/13/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
CSC	Natural Sample	H14060255-002	6/10/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L	B	A2540 D
CSC	Natural Sample	H14060541-002	6/24/2014	Solids, Total Suspended TSS @ 105 C	ND	2	mg/L		A2540 D
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Solids, Total Suspended TSS @ 105 C	22	1	mg/L		A2540 D
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Solids, Total Suspended TSS @ 105 C	23	1	mg/L		A2540 D
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Solids, Total Suspended TSS @ 105 C	16	1	mg/L		A2540 D
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Solids, Total Suspended TSS @ 105 C	16	1	mg/L		A2540 D
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Solids, Total Suspended TSS @ 105 C	15	1	mg/L	B	A2540 D
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Solids, Total Suspended TSS @ 105 C	18	1	mg/L	B	A2540 D

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Solids, Total Suspended TSS @ 105 C	ND	2 mg/L		A2540 D
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Solids, Total Suspended TSS @ 105 C	13	2 mg/L		A2540 D
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Solids, Total Suspended TSS @ 105 C	5	1 mg/L		A2540 D
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Solids, Total Suspended TSS @ 105 C	4	1 mg/L		A2540 D
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Solids, Total Suspended TSS @ 105 C	8	1 mg/L		A2540 D
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Solids, Total Suspended TSS @ 105 C	8	1 mg/L		A2540 D
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Solids, Total Suspended TSS @ 105 C	2	1 mg/L		A2540 D
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Solids, Total Suspended TSS @ 105 C	10	1 mg/L		A2540 D
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Solids, Total Suspended TSS @ 105 C	4	1 mg/L	B	A2540 D
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Solids, Total Suspended TSS @ 105 C	4	2 mg/L		A2540 D
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Solids, Total Suspended TSS @ 105 C	1	1 mg/L		A2540 D
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Solids, Total Suspended TSS @ 105 C	3	1 mg/L		A2540 D
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Solids, Total Suspended TSS @ 105 C	8	1 mg/L		A2540 D
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Solids, Total Suspended TSS @ 105 C	6	1 mg/L		A2540 D
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Solids, Total Suspended TSS @ 105 C	3	1 mg/L	B	A2540 D
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Solids, Total Suspended TSS @ 105 C	5	1 mg/L	B	A2540 D
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Solids, Total Suspended TSS @ 105 C	8	1 mg/L		A2540 D
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Solids, Total Suspended TSS @ 105 C	8	1 mg/L		A2540 D
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Solids, Total Suspended TSS @ 105 C	10	2 mg/L		A2540 D
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Solids, Total Suspended TSS @ 105 C	18	2 mg/L		A2540 D
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Solids, Total Suspended TSS @ 105 C	2	1 mg/L		A2540 D
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Solids, Total Suspended TSS @ 105 C	2	1 mg/L		A2540 D
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Solids, Total Suspended TSS @ 105 C	35	1 mg/L		A2540 D
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Solids, Total Suspended TSS @ 105 C	37	1 mg/L		A2540 D
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Solids, Total Suspended TSS @ 105 C	4	1 mg/L		A2540 D
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Solids, Total Suspended TSS @ 105 C	ND	1 mg/L	B	A2540 D
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Solids, Total Suspended TSS @ 105 C	5	1 mg/L		A2540 D
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Solids, Total Suspended TSS @ 105 C	18	2 mg/L		A2540 D
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Solids, Total Suspended TSS @ 105 C	2	1 mg/L		A2540 D
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Solids, Total Suspended TSS @ 105 C	3	1 mg/L		A2540 D
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Solids, Total Suspended TSS @ 105 C	ND	1 mg/L	B	A2540 D
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Solids, Total Suspended TSS @ 105 C	ND	1 mg/L		A2540 D
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Solids, Total Suspended TSS @ 105 C	ND	2 mg/L		A2540 D
SS-25	Natural Sample	H14030285-011	3/19/2014	Solids, Total Suspended TSS @ 105 C	7	1 mg/L		A2540 D

SS-25	Natural Sample	H14050278-010	5/14/2014	Solids, Total Suspended TSS @ 105 C	3	1	mg/L	B	A2540 D
SS-25	Natural Sample	H14060255-010	6/11/2014	Solids, Total Suspended TSS @ 105 C	6	1	mg/L		A2540 D
SS-25	Natural Sample	H14060541-010	6/25/2014	Solids, Total Suspended TSS @ 105 C	7	2	mg/L		A2540 D
SS-25	Natural Sample	H14090349-011	9/17/2014	Solids, Total Suspended TSS @ 105 C	1	1	mg/L		A2540 D
SS-25	Natural Sample	H14120106-011	12/2/2014	Solids, Total Suspended TSS @ 105 C	2	1	mg/L		A2540 D
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L	B	A2540 D
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Solids, Total Suspended TSS @ 105 C	11	1	mg/L		A2540 D
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Solids, Total Suspended TSS @ 105 C	11	2	mg/L		A2540 D
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Solids, Total Suspended TSS @ 105 C	2	1	mg/L		A2540 D
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Solids, Total Suspended TSS @ 105 C	5	1	mg/L		A2540 D
	Field Blank 1	H14030285-002	3/18/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
	Field Blank 2	H14030285-013	3/19/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
	Field Blank 1	H14050278-017	5/13/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
	Field Blank 2	H14050278-013	5/14/2014	Solids, Total Suspended TSS @ 105 C	3	1	mg/L	B	A2540 D
	Field Blank 1	H14060255-017	6/10/2014	Solids, Total Suspended TSS @ 105 C	3	1	mg/L	B	A2540 D
	Field Blank 2	H14060255-013	6/11/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
	Field Blank 1	H14060541-017	6/24/2014	Solids, Total Suspended TSS @ 105 C	ND	2	mg/L		A2540 D
	Field Blank 2	H14060541-013	6/25/2014	Solids, Total Suspended TSS @ 105 C	ND	2	mg/L		A2540 D
	Field Blank 1	H14090349-002	9/16/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
	Field Blank 2	H14090349-013	9/17/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
	Field Blank 1	H14120106-002	12/1/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
	Field Blank 2	H14120106-013	12/2/2014	Solids, Total Suspended TSS @ 105 C	ND	1	mg/L		A2540 D
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Sulfate	120	1	mg/L		E300.0
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Sulfate	68	1	mg/L		E300.0
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Sulfate	24	1	mg/L		E300.0
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Sulfate	36	1	mg/L		E300.0
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Sulfate	69	1	mg/L		E300.0
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Sulfate	120	1	mg/L		E300.0
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Sulfate	130	1	mg/L		E300.0
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Sulfate	81	1	mg/L		E300.0
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Sulfate	30	1	mg/L		E300.0
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Sulfate	40	1	mg/L		E300.0
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Sulfate	78	1	mg/L		E300.0

CFR-07D	Natural Sample	H14120106-008	12/2/2014	Sulfate	120	1	mg/L	E300.0
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Sulfate	48	1	mg/L	E300.0
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Sulfate	20	1	mg/L	E300.0
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Sulfate	13	1	mg/L	E300.0
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Sulfate	19	1	mg/L	E300.0
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Sulfate	43	1	mg/L	E300.0
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Sulfate	45	1	mg/L	E300.0
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Sulfate	130	1	mg/L	E300.0
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Sulfate	79	1	mg/L	E300.0
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Sulfate	32	1	mg/L	E300.0
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Sulfate	43	1	mg/L	E300.0
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Sulfate	79	1	mg/L	E300.0
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Sulfate	130	1	mg/L	E300.0
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Sulfate	110	1	mg/L	E300.0
CFR-27H	Natural Sample	H14050278-005	5/14/2014	Sulfate	73	1	mg/L	E300.0
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Sulfate	33	1	mg/L	E300.0
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Sulfate	35	1	mg/L	E300.0
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Sulfate	63	1	mg/L	E300.0
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Sulfate	100	1	mg/L	E300.0
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Sulfate	71	1	mg/L	E300.0
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Sulfate	36	1	mg/L	E300.0
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Sulfate	37	1	mg/L	E300.0
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Sulfate	38	1	mg/L	E300.0
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Sulfate	37	1	mg/L	E300.0
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Sulfate	37	1	mg/L	E300.0
CSC	Natural Sample	H14050278-002	5/13/2014	Sulfate	31	1	mg/L	E300.0
CSC	Natural Sample	H14060255-002	6/10/2014	Sulfate	28	1	mg/L	E300.0
CSC	Natural Sample	H14060541-002	6/24/2014	Sulfate	28	1	mg/L	E300.0
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Sulfate	17	1	mg/L	E300.0
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Sulfate	17	1	mg/L	E300.0
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Sulfate	9	1	mg/L	E300.0
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Sulfate	9	1	mg/L	E300.0
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Sulfate	7	1	mg/L	E300.0
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Sulfate	7	1	mg/L	E300.0

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Sulfate	8	1	mg/L	E300.0
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Sulfate	8	1	mg/L	E300.0
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Sulfate	19	1	mg/L	E300.0
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Sulfate	19	1	mg/L	E300.0
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Sulfate	16	1	mg/L	E300.0
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Sulfate	16	1	mg/L	E300.0
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Sulfate	16	1	mg/L	E300.0
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Sulfate	8	1	mg/L	E300.0
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Sulfate	8	1	mg/L	E300.0
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Sulfate	8	1	mg/L	E300.0
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Sulfate	10	1	mg/L	E300.0
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Sulfate	13	1	mg/L	E300.0
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Sulfate	36	1	mg/L	E300.0
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Sulfate	38	1	mg/L	E300.0
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Sulfate	12	1	mg/L	E300.0
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Sulfate	12	1	mg/L	E300.0
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Sulfate	6	1	mg/L	E300.0
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Sulfate	5	1	mg/L	E300.0
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Sulfate	25	1	mg/L	E300.0
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Sulfate	6	1	mg/L	E300.0
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Sulfate	15	1	mg/L	E300.0
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Sulfate	15	1	mg/L	E300.0
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Sulfate	24	1	mg/L	E300.0
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Sulfate	24	1	mg/L	E300.0
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Sulfate	160	1	mg/L	E300.0
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Sulfate	51	1	mg/L	E300.0
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Sulfate	23	1	mg/L	E300.0
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Sulfate	6	1	mg/L	E300.0
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Sulfate	100	1	mg/L	E300.0
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Sulfate	190	1	mg/L	E300.0
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Sulfate	78	1	mg/L	E300.0
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Sulfate	50	1	mg/L	E300.0
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Sulfate	52	1	mg/L	E300.0
SS-25	Natural Sample	H14030285-011	3/19/2014	Sulfate	110	1	mg/L	E300.0

SS-25	Natural Sample	H14050278-010	5/14/2014	Sulfate	69	1	mg/L		E300.0
SS-25	Natural Sample	H14060255-010	6/11/2014	Sulfate	29	1	mg/L		E300.0
SS-25	Natural Sample	H14060541-010	6/25/2014	Sulfate	36	1	mg/L		E300.0
SS-25	Natural Sample	H14090349-011	9/17/2014	Sulfate	83	1	mg/L		E300.0
SS-25	Natural Sample	H14120106-011	12/2/2014	Sulfate	140	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Sulfate	84	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Sulfate	43	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Sulfate	13	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Sulfate	13	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Sulfate	38	1	mg/L		E300.0
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Sulfate	40	1	mg/L		E300.0
	Field Blank 1	H14030285-002	3/18/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 2	H14030285-013	3/19/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 1	H14050278-017	5/13/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 2	H14050278-013	5/14/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 1	H14060255-017	6/10/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 2	H14060255-013	6/11/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 1	H14060541-017	6/24/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 2	H14060541-013	6/25/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 1	H14090349-002	9/16/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 2	H14090349-013	9/17/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 1	H14120106-002	12/1/2014	Sulfate	ND	1	mg/L		E300.0
	Field Blank 2	H14120106-013	12/2/2014	Sulfate	ND	1	mg/L		E300.0
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Zinc, Dissolved	0.014	0.008	mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Zinc, Dissolved	0.013	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Zinc, Dissolved	0.014	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Zinc, Dissolved	0.016	0.008	mg/L	B	E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Zinc, Dissolved	0.009	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Zinc, Dissolved	0.017	0.008	mg/L	B	E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8

CFR-07D	Natural Sample	H14120106-008	12/2/2014	Zinc, Dissolved	0.012	0.008	mg/L		E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Zinc, Dissolved	0.015	0.008	mg/L	B	E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Zinc, Dissolved	0.011	0.008	mg/L	B	E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Zinc, Dissolved	0.008	0.008	mg/L	B	E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Zinc, Dissolved	0.011	0.008	mg/L	B	E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Zinc, Dissolved	0.014	0.008	mg/L	B	E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Zinc, Dissolved	0.013	0.008	mg/L		E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Zinc, Dissolved	0.012	0.008	mg/L	B	E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Zinc, Dissolved	0.012	0.008	mg/L		E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Zinc, Dissolved	0.017	0.008	mg/L	B	E200.8
CFR-27H	Natural Sample	H14050278-005	5/14/2014	Zinc, Dissolved	0.021	0.008	mg/L	B	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Zinc, Dissolved	0.013	0.008	mg/L	B	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Zinc, Dissolved	0.014	0.008	mg/L	B	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Zinc, Dissolved	0.012	0.008	mg/L	B	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Zinc, Dissolved	0.013	0.008	mg/L	B	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Zinc, Dissolved	0.012	0.008	mg/L	B	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Zinc, Dissolved	0.013	0.008	mg/L	B	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Zinc, Dissolved	0.017	0.008	mg/L	B	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Zinc, Dissolved	0.016	0.008	mg/L	B	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Zinc, Dissolved	0.018	0.008	mg/L	B	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Zinc, Dissolved	0.011	0.008	mg/L	B	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Zinc, Dissolved	0.013	0.008	mg/L	B	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Zinc, Dissolved	0.013	0.008	mg/L	B	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Zinc, Dissolved	0.019	0.008	mg/L	B	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Zinc, Dissolved	0.010	0.008	mg/L	B	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Zinc, Dissolved	0.011	0.008	mg/L	B	E200.8



FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Zinc, Dissolved	0.014	0.008	mg/L	B	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Zinc, Dissolved	0.014	0.008	mg/L	B	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Zinc, Dissolved	0.016	0.008	mg/L		E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Zinc, Dissolved	0.014	0.008	mg/L		E200.8
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Zinc, Dissolved	0.012	0.008	mg/L	B	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Zinc, Dissolved	0.022	0.008	mg/L		E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Zinc, Dissolved	0.01	0.008	mg/L		E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Zinc, Dissolved	0.011	0.008	mg/L	B	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Zinc, Dissolved	0.012	0.008	mg/L	B	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Zinc, Dissolved	0.011	0.008	mg/L		E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Zinc, Dissolved	0.01	0.008	mg/L		E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Zinc, Dissolved	0.011	0.008	mg/L	B	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Zinc, Dissolved	0.01	0.008	mg/L	B	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Zinc, Dissolved	0.012	0.008	mg/L		E200.8

SS-25	Natural Sample	H14050278-010	5/14/2014	Zinc, Dissolved	0.008	0.008	mg/L	B	E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Zinc, Dissolved	0.008	0.008	mg/L		E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Zinc, Dissolved	0.02	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Zinc, Dissolved	0.009	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
	Field Blank 1	H14030285-002	3/18/2014	Zinc, Dissolved	0.017	0.008	mg/L	B	E200.8
	Field Blank 2	H14030285-013	3/19/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
	Field Blank 1	H14050278-017	5/13/2014	Zinc, Dissolved	0.019	0.008	mg/L	B	E200.8
	Field Blank 2	H14050278-013	5/14/2014	Zinc, Dissolved	0.011	0.008	mg/L	B	E200.8
	Field Blank 1	H14060255-017	6/10/2014	Zinc, Dissolved	0.014	0.008	mg/L	B	E200.8
	Field Blank 2	H14060255-013	6/11/2014	Zinc, Dissolved	ND	0.008	mg/L		E200.8
	Field Blank 1	H14060541-017	6/24/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
	Field Blank 2	H14060541-013	6/25/2014	Zinc, Dissolved	0.012	0.008	mg/L	B	E200.8
	Field Blank 1	H14090349-002	9/16/2014	Zinc, Dissolved	0.014	0.008	mg/L	B	E200.8
	Field Blank 2	H14090349-013	9/17/2014	Zinc, Dissolved	0.012	0.008	mg/L	B	E200.8
	Field Blank 1	H14120106-002	12/1/2014	Zinc, Dissolved	0.009	0.008	mg/L	B	E200.8
	Field Blank 2	H14120106-013	12/2/2014	Zinc, Dissolved	ND	0.008	mg/L	B	E200.8
CFR-03A	Natural Sample	H14030285-009	3/19/2014	Zinc, Total Recoverable	0.037	0.008	mg/L		E200.8
CFR-03A	Natural Sample	H14050278-008	5/14/2014	Zinc, Total Recoverable	0.014	0.008	mg/L		E200.8
CFR-03A	Natural Sample	H14060255-008	6/11/2014	Zinc, Total Recoverable	0.011	0.008	mg/L		E200.8
CFR-03A	Natural Sample	H14060541-008	6/25/2014	Zinc, Total Recoverable	0.013	0.008	mg/L		E200.8
CFR-03A	Natural Sample	H14090349-009	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
CFR-03A	Natural Sample	H14120106-009	12/2/2014	Zinc, Total Recoverable	0.019	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14030285-008	3/19/2014	Zinc, Total Recoverable	0.036	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14050278-007	5/14/2014	Zinc, Total Recoverable	0.021	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14060255-007	6/11/2014	Zinc, Total Recoverable	0.018	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14060541-007	6/25/2014	Zinc, Total Recoverable	0.027	0.008	mg/L		E200.8
CFR-07D	Natural Sample	H14090349-008	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8

CFR-07D	Natural Sample	H14120106-008	12/2/2014	Zinc, Total Recoverable	0.015	0.008	mg/L	E200.8
CFR-116A	Natural Sample	H14030285-001	3/18/2014	Zinc, Total Recoverable	0.06	0.008	mg/L	E200.8
CFR-116A	Natural Sample	H14050278-001	5/13/2014	Zinc, Total Recoverable	0.027	0.008	mg/L	E200.8
CFR-116A	Natural Sample	H14060255-001	6/10/2014	Zinc, Total Recoverable	0.019	0.008	mg/L	E200.8
CFR-116A	Natural Sample	H14060541-001	6/24/2014	Zinc, Total Recoverable	0.016	0.008	mg/L	E200.8
CFR-116A	Natural Sample	H14090349-001	9/16/2014	Zinc, Total Recoverable	0.011	0.008	mg/L	E200.8
CFR-116A	Natural Sample	H14120106-001	12/1/2014	Zinc, Total Recoverable	0.015	0.008	mg/L	E200.8
CFR-11F	Natural Sample	H14030285-007	3/18/2014	Zinc, Total Recoverable	0.041	0.008	mg/L	E200.8
CFR-11F	Natural Sample	H14050278-006	5/14/2014	Zinc, Total Recoverable	0.023	0.008	mg/L	E200.8
CFR-11F	Natural Sample	H14060255-006	6/11/2014	Zinc, Total Recoverable	0.021	0.008	mg/L	E200.8
CFR-11F	Natural Sample	H14060541-006	6/25/2014	Zinc, Total Recoverable	0.02	0.008	mg/L	E200.8
CFR-11F	Natural Sample	H14090349-007	9/16/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
CFR-11F	Natural Sample	H14120106-007	12/2/2014	Zinc, Total Recoverable	0.015	0.008	mg/L	E200.8
CFR-27H	Natural Sample	H14030285-006	3/18/2014	Zinc, Total Recoverable	0.075	0.008	mg/L	E200.8
CFR-27H	Natural Sample	H14050278-005	5/14/2014	Zinc, Total Recoverable	0.033	0.008	mg/L	E200.8
CFR-27H	Natural Sample	H14060255-005	6/10/2014	Zinc, Total Recoverable	0.04	0.008	mg/L	E200.8
CFR-27H	Natural Sample	H14060541-005	6/24/2014	Zinc, Total Recoverable	0.035	0.008	mg/L	E200.8
CFR-27H	Natural Sample	H14090349-006	9/16/2014	Zinc, Total Recoverable	0.015	0.008	mg/L	E200.8
CFR-27H	Natural Sample	H14120106-006	12/1/2014	Zinc, Total Recoverable	0.027	0.008	mg/L	E200.8
CFR-42G	Natural Sample	H14050278-004	5/13/2014	Zinc, Total Recoverable	0.034	0.008	mg/L	E200.8
CFR-42G	Natural Sample	H14060255-004	6/10/2014	Zinc, Total Recoverable	0.049	0.008	mg/L	E200.8
CFR-42G	Natural Sample	H14060541-004	6/24/2014	Zinc, Total Recoverable	0.039	0.008	mg/L	E200.8
CFR-84F	Natural Sample	H14050278-016	5/13/2014	Zinc, Total Recoverable	0.038	0.008	mg/L	E200.8
CFR-84F	Natural Sample	H14060255-016	6/10/2014	Zinc, Total Recoverable	0.03	0.008	mg/L	E200.8
CFR-84F	Natural Sample	H14060541-016	6/24/2014	Zinc, Total Recoverable	0.027	0.008	mg/L	E200.8
CSC	Natural Sample	H14050278-002	5/13/2014	Zinc, Total Recoverable	0.01	0.008	mg/L	E200.8
CSC	Natural Sample	H14060255-002	6/10/2014	Zinc, Total Recoverable	0.011	0.008	mg/L	E200.8
CSC	Natural Sample	H14060541-002	6/24/2014	Zinc, Total Recoverable	0.011	0.008	mg/L	E200.8
FC-CFR	Duplicate Sample	H14030285-004	3/18/2014	Zinc, Total Recoverable	0.032	0.008	mg/L	E200.8
FC-CFR	Natural Sample	H14030285-003	3/18/2014	Zinc, Total Recoverable	0.029	0.008	mg/L	E200.8
FC-CFR	Duplicate Sample	H14050278-019	5/13/2014	Zinc, Total Recoverable	0.015	0.008	mg/L	E200.8
FC-CFR	Natural Sample	H14050278-018	5/13/2014	Zinc, Total Recoverable	0.016	0.008	mg/L	E200.8
FC-CFR	Duplicate Sample	H14060255-019	6/10/2014	Zinc, Total Recoverable	0.016	0.008	mg/L	E200.8
FC-CFR	Natural Sample	H14060255-018	6/10/2014	Zinc, Total Recoverable	0.017	0.008	mg/L	E200.8

FC-CFR	Duplicate Sample	H14060541-019	6/24/2014	Zinc, Total Recoverable	0.014	0.008	mg/L	E200.8
FC-CFR	Natural Sample	H14060541-018	6/24/2014	Zinc, Total Recoverable	0.015	0.008	mg/L	E200.8
FC-CFR	Duplicate Sample	H14090349-004	9/16/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
FC-CFR	Natural Sample	H14090349-003	9/16/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
FC-CFR	Duplicate Sample	H14120106-004	12/1/2014	Zinc, Total Recoverable	0.009	0.008	mg/L	E200.8
FC-CFR	Natural Sample	H14120106-003	12/1/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
LBR-CFR	Natural Sample	H14030285-005	3/18/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
LBR-CFR	Natural Sample	H14050278-003	5/13/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
LBR-CFR	Natural Sample	H14060255-003	6/10/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14060541-003	6/24/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14090349-005	9/16/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
LBR-CFR-02	Natural Sample	H14120106-005	12/1/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14030285-015	3/19/2014	Zinc, Total Recoverable	0.022	0.008	mg/L	E200.8
MCWC-MWB	Natural Sample	H14030285-014	3/19/2014	Zinc, Total Recoverable	0.021	0.008	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14050278-015	5/14/2014	Zinc, Total Recoverable	0.008	0.008	mg/L	E200.8
MCWC-MWB	Natural Sample	H14050278-014	5/14/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060255-015	6/11/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060255-014	6/11/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MCWC-MWB	Natural Sample	H14060541-011	6/25/2014	Zinc, Total Recoverable	0.01	0.008	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14060541-015	6/25/2014	Zinc, Total Recoverable	0.015	0.008	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14090349-015	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MCWC-MWB	Natural Sample	H14090349-014	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MCWC-MWB	Duplicate Sample	H14120106-015	12/2/2014	Zinc, Total Recoverable	0.055	0.008	mg/L	E200.8
MCWC-MWB	Natural Sample	H14120106-014	12/2/2014	Zinc, Total Recoverable	0.054	0.008	mg/L	E200.8
MWB-SBC	Natural Sample	H14030285-012	3/19/2014	Zinc, Total Recoverable	0.017	0.008	mg/L	E200.8
MWB-SBC	Natural Sample	H14050278-011	5/14/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MWB-SBC	Natural Sample	H14060255-011	6/11/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MWB-SBC	Natural Sample	H14060541-014	6/25/2014	Zinc, Total Recoverable	0.014	0.008	mg/L	E200.8
MWB-SBC	Natural Sample	H14090349-012	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
MWB-SBC	Natural Sample	H14120106-012	12/2/2014	Zinc, Total Recoverable	0.01	0.008	mg/L	E200.8
SBC-P2	Natural Sample	H14050278-012	5/14/2014	Zinc, Total Recoverable	0.017	0.008	mg/L	E200.8
SBC-P2	Natural Sample	H14060255-012	6/11/2014	Zinc, Total Recoverable	0.009	0.008	mg/L	E200.8
SBC-P2	Natural Sample	H14060541-012	6/25/2014	Zinc, Total Recoverable	ND	0.008	mg/L	E200.8
SS-25	Natural Sample	H14030285-011	3/19/2014	Zinc, Total Recoverable	0.041	0.008	mg/L	E200.8

SS-25	Natural Sample	H14050278-010	5/14/2014	Zinc, Total Recoverable	0.014	0.008	mg/L		E200.8
SS-25	Natural Sample	H14060255-010	6/11/2014	Zinc, Total Recoverable	0.008	0.008	mg/L		E200.8
SS-25	Natural Sample	H14060541-010	6/25/2014	Zinc, Total Recoverable	0.011	0.008	mg/L		E200.8
SS-25	Natural Sample	H14090349-011	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
SS-25	Natural Sample	H14120106-011	12/2/2014	Zinc, Total Recoverable	0.027	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14030285-010	3/19/2014	Zinc, Total Recoverable	0.009	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14050278-009	5/14/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14060255-009	6/11/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14060541-009	6/25/2014	Zinc, Total Recoverable	0.01	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14090349-010	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
WSC-SBC	Natural Sample	H14120106-010	12/2/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 1	H14030285-002	3/18/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 2	H14030285-013	3/19/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 1	H14050278-017	5/13/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 2	H14050278-013	5/14/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 1	H14060255-017	6/10/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 2	H14060255-013	6/11/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 1	H14060541-017	6/24/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 2	H14060541-013	6/25/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 1	H14090349-002	9/16/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 2	H14090349-013	9/17/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 1	H14120106-002	12/1/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8
	Field Blank 2	H14120106-013	12/2/2014	Zinc, Total Recoverable	ND	0.008	mg/L		E200.8

ND Concentration below analytical reporting limit.

B Associated field blank had detectable concentrations of this analyte.

J Associated field duplicate and field sample pair had relative percent difference (RPD) of at least 25%.

**Table C2. Surface water field parameters from Clark Fork River Operable Unit, 2014.**

Site	Date	Time	Air Temp (F; estimated)	pH	Water Temp (C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)	Conductivity ( $\mu$ S/cm)	Turbidity (NTU)	Streamflow (cfs)	Weather	Field Observations
MCWC- MWB	3/19/2014	15:00	45	8.05	4.0	12.24	93.6	233.5	4.52	23		Flow about average for the date, quite clear; open channel below RR bridge; some shelf ice visible above.
MWB-SBC	3/19/2014	13:30	45	8.26	2.7	13.02	96.1	480.2	3.75	23	Windy, mostly sunny.	Flow about average, very clear water; open channel, no ice present.
SS-25	3/19/2014	12:00	40	8.79	3.8	12.20	92.7	466.2	10.60	128*	Sunny with high clouds, windy.	Flow quite high, mod. Off-color, bars on RB submerged; open channel, no ice.
WSC-SBC	3/19/2014	11:00	32	8.11	0.9	12.70	89.1	397.4	1.43	28*	Windy, increasing clouds, chilly.	Flow seasonably low, very clear; small amount of shelf ice in incised channel below bridge, otherwise ice-free.
CFR-03A	3/19/2014	10:00	30	8.40	2.2	11.83	86.5	456.4	8.50	149*	Windy with high clouds, chilly.	Flow about average for date, slightly off-color; good flow from upstream ditch on left bank, maybe 2-3 cfs; open channel, no ice; FWP guys setting fish boxes today.
CFR-07D	3/19/2014	8:45	25	8.01	1.7	11.66	83.7	508.9	8.66	207	Breezy, high overcast, cold.	Flow about average for date, very slightly off-color; open channel, no ice.

LC-7.5	3/19/2014	16:00	45	8.08	6.0	10.92	88.4	580.2	8.92		Windy, sunny, cool.	Flow fairly high, clear; multiple channels converge just above RR trestle.
RTC-1.5	3/19/2014	16:45	40	7.93	3.8	11.81	89.6	151.1	0.73	18	High clouds, breezy, cool.	Good seasonable flow, very clear; heavy beaver activity upstream of road, sampled downstream of bridge.
CFR-11F	3/18/2014	17:45	35	8.22	5.0	11.60	90.9	510.7	11.50	233	Breezy, partly cloudy/sunny.	Flow moderately high, off-color; completely open channel, no ice.
CFR-27H	3/18/2014	16:30	35	8.03	4.5	11.65	89.9	478.7	19.20	315*		Flow high, off-color; wading difficult; completely open channel, no ice.
LBR-CFR	3/18/2014	15:00	35	7.90	3.9	11.80	89.7	220.2	3.64	173*	Windy, partly cloudy, cool.	Flow moderately high but fairly clear; evidence of higher flows recently; open channel, no ice.
FC-CFR	3/18/2014	13:30	30	8.07	2.9	12.66	93.7	266.2	13.70	92*	Cloudy, windy, snow squalls.	Flow moderately high, but evidence present of higher water recently; open channel, all ice gone.
CFR-84F	3/18/2014	11:00	30	7.87	3.3	11.80	88.6	393.0	16.70	944*	Partly cloudy, windy, cool.	Moderately high flow, but down considerably from high off 7-10 days ago; considerable fine TSS evident; Lat-Long in SAP okay.

CFR-116A	3/18/2014	9:00	28	7.65	3.1	12.20	91.1	300.3	21.40	1710*	Overcast, calm, cool.	Flow down from peak of 10 days ago, but high for the date; minimal flow in south side channel, no water collected there; syringe and filter pre-rinsed with E-pure DI H2O in glass.
MCWC-MWB	5/14/2014	16:30	65	8.37	13.5	12.96	124.5	134.5	4.01	58	Breezy, high clouds, warm.	Flow up slightly, well below bankfull/peak, more like pre-runoff.
MWB-SBC	5/14/2014	14:30	65	8.46	12.2	13.69	127.5	234.9	4.18	62	Windy, warm.	Flow up, well below bankfull, very clear.
SBC-P2	5/14/2014	15:30	65	8.77	11.2	12.59	114.9	401.8	1.64			High flow, very highly aerated in spillway, green color apparent.
SS-25	5/14/2014	13:45	60	8.68	11.2	13.62	124.1	345.8	2.61	211*	Wind picking up, mostly cloudy.	Flow up, moderately high but very clear; bar at sample staging area pretty much underwater; heavy Cladophora growth, particularly on (RB) east half of channel.
WSC-SBC	5/14/2014	12:45	65	8.34	10.2	13.41	119.5	320.0	1.85	54*	Partly cloudy, calm, warm.	Flow essentially pre-runoff level, very clear.
CFR-03A	5/14/2014	11:45	65	8.76	10.3	15.23	136.0	346.0	3.58	265*	Partly cloudy, calm, warm.	Flow up only slightly, very clear for date; well below (> 2') bankfull/peak flow, easily wadeable below bridge.



CFR-07D	5/14/2014	10:45	60	8.52	10.0	14.00	123.9	387.5	3.58	304	Partly cloudy, calm, warm.	Flow up slightly, well below bankfull/peak flow, very clear.
CFR-11F	5/14/2014	9:45	50	8.26	9.3	13.07	114.0	387.0	4.68	291	Partly cloudy, calm, warm.	Flow up slightly, quite clear for date; well below bankfull/flood stage.
CFR-27H	5/14/2014	8:45	40	8.29	9.2	12.55	109.2	385.6	6.85	408*	Clear, calm, cool.	Flow up, slightly off-color, well below bankfull; wadeable, moved X-section upstream to first bend.
CFR-42G	5/13/2014	17:30	70	8.85	13.8	16.13	156.0	382.6	6.86	371*	Partly cloudy, breezy, warm.	Flow up slightly, a little off-color; stage well below peak/flood stage; wadeable at usual section.
LBR-CFR	5/13/2014	15:30	70	7.82	10.1	13.15	117.0	161.1	6.68	573*	High clouds, calm, warm.	Flow up and slightly off-color, well below peak flow/flood stage (18" below bankfull on LB); waded section to collect sample; very swift, at upper limit of wadeability.
FC-CFR	5/13/2014	13:45	70	8.46	11.4	14.13	129.6	205.9	9.54	121*	High clouds, calm, warm.	Flow up, off-color; well below peak/flood stage; collected sample off downstream side of bridge with long-handled DH-81. Noticed white residue under cap on DOC bottle.
CFR-84F	5/13/2014	12:00	60	8.12	10.0	13.51	119.9	293.5	12.50	1360*	Partly cloudy, warm.	Flow up and off-color, well below peak/flood stage.

CSC	5/13/2014	10:45	55	7.56	9.3	9.48	82.9	317.6	0.45			Flow about average, very low velocity; gin clear with algae clumps on surface; grabbed samples just upstream of upper set of fish cages.
CFR-116A	5/13/2014	9:30	55	7.71	7.4	13.80	115.1	191.1	10.70	3160*	Clear, calm.	Flow up, moderately off-color, well below peak/flood stage; sampled every third mark on railing, one sample in center of south overflow channel (< 0.25 L).
MCWC-MWB	6/11/2014	15:30	65	7.84	11.7	9.90	91.2	103.6	3.79	97	Warm, sunny, light breeze.	Good flow, higher than Q2 event 1, but down from peak of last two weeks; clear and cool.
MWB-SBC	6/11/2014	13:45	70	7.99	11.3	10.56	96.5	164.6	3.83	107	Breezy, warm, mostly sunny.	Flow moderately high, up from Q2 first event; clear and cool.
SBC-P2	6/11/2014	14:30	70	9.28	18.0	8.08	85.4	315.3	3.56		Breezy, warm, partly cloudy.	Flow much lower than Q2 run #1, dropped very recently (fishermen report) by 4-5 tenths.
SS-25	6/11/2014	13:00	65	8.59	12.1	10.20	95.1	199.9	3.72	141*	Partly cloudy, calm, warm.	Flow up from summer base level but considerably less than first Q2 run, quite clear.
WSC-SBC	6/11/2014	11:30	60	7.82	7.8	10.26	86.3	158.0	4.00	187*	Partly cloudy, breezy, warm.	Flow up from first Q2 run, down from peak of last two weeks; good flow, quite clear.

CFR-03A	6/11/2014	11:00	60	8.18	9.7	10.18	89.6	184.2	4.48	338*	Partly cloudy, breezy, warm.	Flow up but below peak, dropping over last two weeks, quite clear.
CFR-07D	6/11/2014	10:00	55	8.06	10.5	9.50	85.9	219.9	5.67	382	Sunny, clear, calm.	Flow moderately high, up several tenths from last run, at limit of wadeability.
CFR-11F	6/11/2014	9:00	55	8.00	10.9	9.18	83.0	232.8	6.44	330	Clear, calm, cool.	Flow moderately high but well below 2014 peak of last week - 10 days.
CFR-27H	6/10/2014	18:00	70	8.30	16.9	9.04	93.4	252..3	10.70	419*	Windy, mostly cloudy.	Flow moderately high but well below peak of last two weeks, wadeable.
CFR-42G	6/10/2014	17:00	65	8.32	17.5	9.26	97.0	302.6	10.80	460*	Mostly cloudy, windy, light shower.	Flow down from peak of last two weeks, wadeable (but not easily so).
LBR-CFR	6/10/2014	15:30	75	8.04	15.6	9.22	82.7	199.9	2.34	273*	Windy, partly cloudy, warm.	Flow well below peak of last two weeks, and dropping; moved site to Beck Hill Road bridge, ~ 4 miles upstream from Garrison. Not wadeable, used bridge crane to collect samples.
FC-CFR	6/10/2014	13:30	70	8.36	13.7	10.87	104.7	217.0	8.31	144*		Flow well down from peak of last two weeks, dropping. MeHg collected after dissolved samples were pulled from churn by mistake.
CFR-84F	6/10/2014	12:00	70	8.03	14.7	8.93	88.1	325.7	8.09	1120*	High clouds, breezy, warm.	Flow moderately high but down from peak and dropping over last week to 10 days.

CSC	6/10/2014	10:30	60	7.60	9.9	7.68	68.0	326.3	0.39			
CFR-116A	6/10/2014	9:15	60	7.79	11.9	9.54	88.4	167.6	8.92	3420*	Clear, calm, warm.	Moderately high, post-peak runoff; hydrograph dropping steadily last week - 10 days.
MCWC-MWB	6/25/2014	15:30	75	8.24	14.7	9.11	89.8	113.9	8.02	108	High clouds, thunderstorms, warm.	Flow high, sustained runoff similar (higher?) than 6/11, off color and cool.
MWB-SBC	6/25/2014	13:30	75	8.32	14.6	9.94	97.8	179.8	5.41	116	High clouds, breezy, warm.	Flow moderately high, similar to 6/11; sustained runoff stage.
SBC-P2	6/25/2014	14:00	70	9.81	18.6	8.11	86.8	305.9	1.02		High clouds developing, warm.	Flow significantly higher than on 6/11, similar to first Q2 run.
SS-25	6/25/2014	12:45	70	9.38	16.2	8.95	91.1	245.6	3.60	188*	Mostly clear, calm, warm.	Flow fairly high, similar or slightly above 6/11, clear.
WSC-SBC	6/25/2014	12:00	70	7.98	10.5	9.83	88.3	166.4	4.81	193*	Partly cloudy, calm, warm.	Flow high, possibly greater than 6/11, fairly clear and cool.
CFR-03A	6/25/2014	11:00	65	8.82	12.5	9.64	90.6	209.9	4.89	398*	Partly cloudy, breezy, warm.	Flow moderately high, similar to 6/11 - good sustained runoff stage but clear; significant return flow upstream on river left.
CFR-07D	6/25/2014	10:00	60	8.56	12.9	9.03	85.6	258.3	5.56		Sunny, calm, low clouds lifting.	Flow up from 6/11, not wadeable; collected sample from bridge with long pole DH-81; rain last afternoon and night may have raised stage.

CFR-11F	6/25/2014	9:00	55	8.41	13.2	8.57	81.7	272.4	5.46	396	High clouds, calm, cool.	Good flow, possibly higher than 6/11, sustained runoff but clear; mosquitoes.
CFR-27H	6/24/2014	18:00	60	8.62	15.8	8.84	89.6	259.2	9.09	500*	Thundershower, breezy.	Flow moderately high, similar or slightly higher than 6/10; good sustained runoff.
CFR-42G	6/24/2014	17:00	70	8.44	16.1	8.91	90.6	302.1	10.80	595*	Overcast, dry thunderstorms.	Flow up some from 6/10, not easily wadeable if at all; collected sample with extendable pole from RR bridge - swift water was at limit of device.
LBR-CFR-02	6/24/2014	15:30	70	7.96	14.2	8.29	80.8	223.8	2.67	222	Overcast, thunder in area, warm.	Sampled at Beck Hill Road bridge and gaged flow there. Flow down some from 6/10, wadeable below bridge; gaged flow ~ 20 m below bridge; water clear.
FC-CFR	6/24/2014	13:45	70	8.57	14.4	9.91	97.1	274.5	6.38	139*	Thundershower, muggy.	Flow moderately high, similar to 6/10; quite clear.
CFR-84F	6/24/2014	11:45		8.32	16.0	8.74	88.7	332.4	8.45	1270*	High clouds, warm, thunderstorms?	Flow moderately high, similar to 6/10; fairly clear for stage.
CSC	6/24/2014	10:30	67	7.74	10.1	7.49	66.6	319.0	0.42		High clouds, calm, warm.	Water slightly lower than on 6/10, very clear.
CFR-116A	6/24/2014	9:00	55	7.99	13.9	8.98	87.0	215.9	5.55	2700*	High clouds, breezy.	Flow moderately high, down some from 6/10; minor bump last week due to rain; dropping again.

MCWC-MWB	9/17/2014	14:45	80	8.47	14.2	10.31	100.6	192.7	1.86	21	Thunderstorms building, windy and warm.	Average to slightly above average flow for the season. Very clear water.
MWB-SBC	9/17/2014	13:15	80	8.70	14.0	11.46	111.5	392.6	1.17	27	Breezy, clouding up, warm.	Good flow, above average for the season; extremely heavy periphyton layer over >95% of substrate.
SS-25	9/17/2014	12:30	75	9.48	13.5	11.00	105.6	372.3	1.24	99*	High clouds, breezy, warm.	Good flow, higher than average for the season; extremely heavy periphyton growth.
WSC-SBC	9/17/2014	11:15	75	8.16	10.1	10.34	91.9	321.9	1.12	42*	High clouds, sunny, calm.	Good flow, appears average for the season; good periphyton layer.
CFR-03A	9/17/2014	10:30	65	9.04	11.6	9.70	89.4	362.6	1.36	147*	High clouds, calm, warm.	Good flow, quite high for the season; heavy periphyton growth; overall a healthy looking, rich stream.
CFR-07D	9/17/2014	9:15	55	8.76	11.1	9.62	87.5	400.7	1.55	165	Sunny, calm, warming up.	Flow quite high for the season, very clear; heavy periphyton growth, near 100% coverage in deeper riffles and runs; relatively healthy but enriched in appearance.
LC-7.5	9/17/2014	16:00	75	8.35	13.6	10.32	99.6	484.6	1.39		Overcast, windy, warm.	Good flow, seems high for the time of year; very heavy periphyton.

RTC-1.5	9/17/2014	16:45	75	7.60	12.9	8.91	84.5	140.6	1.01		Overcast, calm, warm.	Good flow, higher than average and than in August, relatively thin slime (periphyton) layer.
CFR-11F	9/16/2014	17:30	75	9.06	13.6	11.52	111.0	400.7	1.50	190		Good flow, quite high for the season; very clear; very heavy Cladophora growth; heavy sand deposits over much of the slower runs and around cobble.
CFR-27H	9/16/2014	16:30	80	8.88	13.9	12.45	120.6	385.2	3.47	248*		Good flow, high for the season; heavy filamentous algae over much of the substrate; large sand dunes present below large cobble throughout the channel.
LBR-CFR-02	9/16/2014	14:30	75	8.08	13.3	10.08	96.4	250.5	0.94	54	High clouds, breezy, warm.	Sampled just below the bridge; good flow for late season, very clear; heavy diatom layer in deeper, lower velocity runs.
FC-CFR	9/16/2014	13:00	60	8.45	11.3	11.90	108.7	367.7	3.49	71*	Cloudy, mostly calm, cooler.	Good flow, considerably higher than last year; sampled water approximately 75 meters upstream; sediment sampled along bar just upstream of bridge.

CFR-84F	9/16/2014	11:30	58	8.20	12.9	10.56	100.1	448.5	3.68	536*	High clouds, calm, warm.	Flow higher than seasonal due to rains last week, clear water.
CFR-116A	9/16/2014	9:00	55	8.15	11.8	10.50	97.0	340.4	3.55	917*	Calm, high clouds, pleasant.	Flow seasonably high, 1.5-2x last year's flow as of 9/12; collected sediment and periphyton downstream of bridge on river right; near 100% coverage by diatom slime.
MCWC-MWB	12/2/2014	16:00	32	7.92	1.0	11.94	84.0	179.6	15.60	16	Mostly clear, calm.	Floodplain tailings removal in progress adjacent to sample site. Turbidity is elevated but not apparently due to the excavation work as the turbidity extends upstream from the operation. Shelf ice present but no anchor ice or slush ice.
MWB-SBC	12/2/2014	14:30	30	8.17	0.8	12.58	88.0	593.5	2.12	27	Clear, sunny, cold, breezy.	Some shelf ice, no slush or anchor ice. Moderately low flow.
SS-25	12/2/2014	13:45	28	8.10	2.1	12.46	90.5	579.0	2.60	73*	Sunny, light breeze, cold.	Channel is ice free. Foam patches on water surface. Low flow and clear. Depth integrated water sample across full cross section.



WSC-SBC	12/2/2014	12:45	20	8.10	0.0	12.43	85.0	341.4	2.55		Clear, sunny, light breeze, cold.	Shelf ice along both banks but channel open midstream. Depth integrated water sample across full cross section. Visible sand particles in water column but water is clear.
CFR-03A	12/2/2014	12:15	20	8.15	1.0	12.47	87.8	500.3	3.30		Sunny, calm.	Very limited shelf ice, slush ice now gone. Moderately low flow, pretty clear water.
CFR-07D	12/2/2014	11:00	18	8.09	0.0	12.33	84.3	547.2	2.45	175	Clear, calm, cold.	~10' shelf ice on right bank, little on left bank. Some slush ice, also anchor ice/slush on much of substrate. Collected water with DH-81, gauged flow at usual location.
CFR-11F	12/2/2014	9:00	14	8.00	0.0	12.06	82.7	579.0	3.53	166	Clear, calm, cold.	Small amount of slush ice, relatively little shelf ice, 1-8' out from banks. Opened channel to gauge flow at usual section. Collected water with DH-81, no problems with icing up unlike yesterday.
CFR-27H	12/1/2014	16:00	2	8.11	0.0	13.03	89.1	536.9	6.31	253*	Clearing, calm, cold.	2' of shelf ice along both banks. Slush ice coming downriver, very clear water.

LBR-CFR-02	12/1/2014	14:00	2	8.10	0.1	12.84	88.2	276.0	2.27		Clearing trend, calm, cold.	Some shelf ice present, moderate amounts of slush ice. Channel is mostly open, water very clear. Tried depth integrating with DH-81 but it plugged/froze immediately. Grab sampled instead by dipping churn splitter bucket.
FC-CFR	12/1/2014	13:00	6	8.22	0.0	13.50	93.1	356.2	5.89		100% cloud cover, calm, cold.	DH-81 inoperable due to cold. Grab sampled with churn splitter bucket and rope from the bridge. Shelf ice present and continual slush ice coming downriver.
CFR-84F	12/1/2014	10:45	6	8.01	0.0	12.20	83.5	490.9	5.34	548*	Mostly cloudy, light wind, cold.	River is full of slush ice. Limited shoreline shelf ice. Grab sampled with churn splitter bucket and a rope from the bridge.
CFR-116A	12/1/2014	9:30	6	8.01	0.0	12.96	88.5	341.3	5.79		Mostly cloudy, light breeze, cold.	Heavy slush ice, limited shelf ice. Grab sampled mid-river with churn splitter bucket and a rope from the bridge.

\* Streamflow measured by U.S. Geological Survey at co-located gauge. Data may be provisional.

## **APPENDIX D**

### **SEDIMENT DATA**

---

## APPENDIX D

### SEDIMENT DATA

**Table D1. Instream sediment monitoring data from Clark Fork River Operable Unit, 2014.**

Site	Sieve Size	Type	Lab ID	Collected Date	Parameter	Results	Reporting Limit	Units	Method
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Arsenic, Total	34	2	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Cadmium, Total	2.2	0.2	mg/kg	SW6020
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Copper, Total	108	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Lead, Total	53	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Zinc, Total	174	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Arsenic, Total	100	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Cadmium, Total	6.6	0.2	mg/kg-dry	SW6020
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Copper, Total	323	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Lead, Total	157	9	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14030285-030	3/19/2014	Zinc, Total	519	5	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Arsenic, Total	60	2	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Cadmium, Total	2.7	0.2	mg/kg	SW6020
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Copper, Total	106	5	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Lead, Total	82	5	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Zinc, Total	319	5	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Arsenic, Total	191	5	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Cadmium, Total	8.5	0.2	mg/kg-dry	SW6020
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Copper, Total	337	5	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Lead, Total	262	10	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14030285-029	3/19/2014	Zinc, Total	1020	5	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Arsenic, Total	47	2	mg/kg	SW6010B
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Cadmium, Total	2.9	0.2	mg/kg	SW6020
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Copper, Total	131	5	mg/kg	SW6010B
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Lead, Total	74	5	mg/kg	SW6010B
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Zinc, Total	412	5	mg/kg	SW6010B

SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Arsenic, Total	177	7	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Cadmium, Total	10.9	0.2	mg/kg-dry	SW6020
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Copper, Total	497	5	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Lead, Total	280	10	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14030285-028	3/19/2014	Zinc, Total	1560	5	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Arsenic, Total	33	2	mg/kg	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Cadmium, Total	1.6	0.2	mg/kg	SW6020
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Copper, Total	297	5	mg/kg	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Lead, Total	43	5	mg/kg	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Zinc, Total	132	5	mg/kg	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Arsenic, Total	86	5	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Cadmium, Total	4.2	0.2	mg/kg-dry	SW6020
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Copper, Total	771	5	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Lead, Total	111	8	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14030285-027	3/19/2014	Zinc, Total	343	5	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Arsenic, Total	42	2	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Cadmium, Total	1.9	0.2	mg/kg	SW6020
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Copper, Total	324	5	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Lead, Total	49	5	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Zinc, Total	293	5	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Arsenic, Total	222	9	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Cadmium, Total	9.9	0.3	mg/kg-dry	SW6020
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Copper, Total	1720	6	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Lead, Total	259	20	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14030285-026	3/19/2014	Zinc, Total	1550	5	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Arsenic, Total	60	2	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Cadmium, Total	2	0.2	mg/kg	SW6020
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Copper, Total	548	5	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Lead, Total	80	5	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Zinc, Total	411	5	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Arsenic, Total	133	4	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Cadmium, Total	4.4	0.2	mg/kg-dry	SW6020
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Copper, Total	1220	5	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Lead, Total	178	7	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14030285-025	3/19/2014	Zinc, Total	912	5	mg/kg-dry	SW6010B

CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Arsenic, Total	50	2	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Cadmium, Total	2.4	0.2	mg/kg	SW6020
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Copper, Total	451	5	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Lead, Total	66	5	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Zinc, Total	411	5	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Arsenic, Total	131	4	mg/kg-dry	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Cadmium, Total	6.2	0.2	mg/kg-dry	SW6020
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Copper, Total	1170	5	mg/kg-dry	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Lead, Total	171	8	mg/kg-dry	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14030285-024	3/18/2014	Zinc, Total	1070	5	mg/kg-dry	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Arsenic, Total	25	2	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Cadmium, Total	1.4	0.2	mg/kg	SW6020
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Copper, Total	113	5	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Lead, Total	68	5	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Zinc, Total	188	5	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Arsenic, Total	62	4	mg/kg-dry	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Cadmium, Total	3.4	0.2	mg/kg-dry	SW6020
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Copper, Total	279	5	mg/kg-dry	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Lead, Total	167	8	mg/kg-dry	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14030285-032	3/19/2014	Zinc, Total	464	5	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Arsenic, Total	29	2	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Cadmium, Total	0.8	0.2	mg/kg	SW6020
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Copper, Total	34	5	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Lead, Total	101	5	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Zinc, Total	72	5	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Arsenic, Total	76	5	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Cadmium, Total	2.1	0.2	mg/kg-dry	SW6020
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Copper, Total	92	5	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Lead, Total	271	8	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14030285-033	3/19/2014	Zinc, Total	191	5	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Arsenic, Total	55	2	mg/kg	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Cadmium, Total	2.2	0.2	mg/kg	SW6020
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Copper, Total	533	5	mg/kg	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Lead, Total	71	5	mg/kg	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Zinc, Total	363	5	mg/kg	SW6010B

CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Arsenic, Total	163	5	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Cadmium, Total	6.3	0.2	mg/kg-dry	SW6020
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Copper, Total	1570	5	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Lead, Total	209	9	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14030285-023	3/18/2014	Zinc, Total	1070	5	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Arsenic, Total	9	1	mg/kg	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Cadmium, Total	0.5	0.2	mg/kg	SW6020
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Copper, Total	17	5	mg/kg	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Lead, Total	24	5	mg/kg	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Zinc, Total	55	5	mg/kg	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Arsenic, Total	22	1	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Cadmium, Total	1.1	0.2	mg/kg-dry	SW6020
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Copper, Total	41	5	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Lead, Total	59	8	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14030285-022	3/18/2014	Zinc, Total	134	5	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Arsenic, Total	15	2	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Cadmium, Total	1.3	0.2	mg/kg	SW6020
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Copper, Total	159	5	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Lead, Total	30	5	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Zinc, Total	254	5	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Arsenic, Total	48	6	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Cadmium, Total	4.1	0.2	mg/kg-dry	SW6020
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Copper, Total	497	5	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Lead, Total	94	10	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14030285-021	3/18/2014	Zinc, Total	795	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Arsenic, Total	35	2	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Cadmium, Total	2.3	0.2	mg/kg	SW6020
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Copper, Total	122	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Lead, Total	53	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Zinc, Total	194	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Arsenic, Total	102	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Cadmium, Total	6.9	0.2	mg/kg-dry	SW6020
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Copper, Total	358	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Lead, Total	156	9	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14030285-031	3/19/2014	Zinc, Total	570	5	mg/kg-dry	SW6010B

MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Arsenic, Total	41	1	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Cadmium, Total	2.8	0.2	mg/kg	SW6020
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Copper, Total	118	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Lead, Total	59	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Zinc, Total	186	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Arsenic, Total	141	1	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Cadmium, Total	9.6	0.5	mg/kg-dry	SW6020
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Copper, Total	405	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Lead, Total	204	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Natural Sample	H14090349-029	9/17/2014	Zinc, Total	640	10	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Arsenic, Total	64	1	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Cadmium, Total	2.5	0.2	mg/kg	SW6020
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Copper, Total	92	5	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Lead, Total	47	5	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Zinc, Total	309	5	mg/kg	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Arsenic, Total	209	1	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Cadmium, Total	8.1	0.4	mg/kg-dry	SW6020
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Copper, Total	300	5	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Lead, Total	153	5	mg/kg-dry	SW6010B
MWB-SBC	<0.065 mm	Natural Sample	H14090349-028	9/17/2014	Zinc, Total	1000	10	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Arsenic, Total	45	1	mg/kg	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Cadmium, Total	3	0.2	mg/kg	SW6020
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Copper, Total	283	5	mg/kg	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Lead, Total	126	5	mg/kg	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Zinc, Total	976	5	mg/kg	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Arsenic, Total	119	1	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Cadmium, Total	7.9	0.3	mg/kg-dry	SW6020
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Copper, Total	748	5	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Lead, Total	332	5	mg/kg-dry	SW6010B
SS-25	<0.065 mm	Natural Sample	H14090349-027	9/17/2014	Zinc, Total	2580	9	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Arsenic, Total	32	1	mg/kg	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Cadmium, Total	1.4	0.2	mg/kg	SW6020
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Copper, Total	341	5	mg/kg	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Lead, Total	41	5	mg/kg	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Zinc, Total	169	5	mg/kg	SW6010B



WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Arsenic, Total	105	1	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Cadmium, Total	4.7	0.4	mg/kg-dry	SW6020
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Copper, Total	1110	5	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Lead, Total	133	5	mg/kg-dry	SW6010B
WSC-SBC	<0.065 mm	Natural Sample	H14090349-026	9/17/2014	Zinc, Total	550	10	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Arsenic, Total	64	1	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Cadmium, Total	3.1	0.2	mg/kg	SW6020
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Copper, Total	660	5	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Lead, Total	95	5	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Zinc, Total	530	5	mg/kg	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Arsenic, Total	192	1	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Cadmium, Total	9.1	0.5	mg/kg-dry	SW6020
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Copper, Total	1970	5	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Lead, Total	283	5	mg/kg-dry	SW6010B
CFR-03	<0.065 mm	Natural Sample	H14090349-025	9/17/2014	Zinc, Total	1580	10	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Arsenic, Total	89	1	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Cadmium, Total	3	0.2	mg/kg	SW6020
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Copper, Total	873	5	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Lead, Total	118	5	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Zinc, Total	659	5	mg/kg	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Arsenic, Total	192	1	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Cadmium, Total	6.5	0.3	mg/kg-dry	SW6020
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Copper, Total	1890	5	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Lead, Total	255	5	mg/kg-dry	SW6010B
CFR-07D	<0.065 mm	Natural Sample	H14090349-024	9/17/2014	Zinc, Total	1430	8	mg/kg-dry	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Arsenic, Total	80	1	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Cadmium, Total	2.3	0.2	mg/kg	SW6020
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Copper, Total	650	5	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Lead, Total	115	5	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Zinc, Total	511	5	mg/kg	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Arsenic, Total	151	1	mg/kg-dry	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Cadmium, Total	4.4	0.3	mg/kg-dry	SW6020
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Copper, Total	1220	5	mg/kg-dry	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Lead, Total	216	5	mg/kg-dry	SW6010B
CFR-11F	<0.065 mm	Natural Sample	H14090349-023	9/16/2014	Zinc, Total	963	7	mg/kg-dry	SW6010B

LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Arsenic, Total	36	1	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Cadmium, Total	1	0.2	mg/kg	SW6020
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Copper, Total	118	5	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Lead, Total	59	5	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Zinc, Total	149	5	mg/kg	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Arsenic, Total	91	1	mg/kg-dry	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Cadmium, Total	2.5	0.3	mg/kg-dry	SW6020
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Copper, Total	298	5	mg/kg-dry	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Lead, Total	149	5	mg/kg-dry	SW6010B
LC-7.5	<0.065 mm	Natural Sample	H14090349-031	9/17/2014	Zinc, Total	375	9	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Arsenic, Total	11	1	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Cadmium, Total	0.7	0.2	mg/kg	SW6020
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Copper, Total	39	5	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Lead, Total	68	5	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Zinc, Total	72	5	mg/kg	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Arsenic, Total	30	1	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Cadmium, Total	1.9	0.4	mg/kg-dry	SW6020
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Copper, Total	108	5	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Lead, Total	189	5	mg/kg-dry	SW6010B
RTC-1.5	<0.065 mm	Natural Sample	H14090349-032	9/17/2014	Zinc, Total	201	10	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Arsenic, Total	53	1	mg/kg	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Cadmium, Total	3.8	0.2	mg/kg	SW6020
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Copper, Total	692	5	mg/kg	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Lead, Total	102	5	mg/kg	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Zinc, Total	596	5	mg/kg	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Arsenic, Total	101	1	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Cadmium, Total	7.2	0.3	mg/kg-dry	SW6020
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Copper, Total	1320	5	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Lead, Total	194	5	mg/kg-dry	SW6010B
CFR-27H	<0.065 mm	Natural Sample	H14090349-022	9/16/2014	Zinc, Total	1140	7	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Arsenic, Total	10	1	mg/kg	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Cadmium, Total	0.7	0.2	mg/kg	SW6020
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Copper, Total	17	5	mg/kg	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Lead, Total	26	5	mg/kg	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Zinc, Total	75	5	mg/kg	SW6010B

LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Arsenic, Total	29	1	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Cadmium, Total	2	0.4	mg/kg-dry	SW6020
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Copper, Total	47	5	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Lead, Total	74	5	mg/kg-dry	SW6010B
LBR-CFR	<0.065 mm	Natural Sample	H14090349-021	9/16/2014	Zinc, Total	213	10	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Arsenic, Total	32	1	mg/kg	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Cadmium, Total	0.7	0.2	mg/kg	SW6020
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Copper, Total	24	5	mg/kg	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Lead, Total	73	5	mg/kg	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Zinc, Total	215	5	mg/kg	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Arsenic, Total	116	1	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Cadmium, Total	2.7	0.5	mg/kg-dry	SW6020
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Copper, Total	87	5	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Lead, Total	266	5	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Natural Sample	H14090349-019	9/16/2014	Zinc, Total	785	10	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Arsenic, Total	13	1	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Cadmium, Total	1.3	0.2	mg/kg	SW6020
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Copper, Total	179	5	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Lead, Total	39	5	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Zinc, Total	299	5	mg/kg	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Arsenic, Total	39	1	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Cadmium, Total	3.9	0.5	mg/kg-dry	SW6020
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Copper, Total	557	5	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Lead, Total	120	5	mg/kg-dry	SW6010B
CFR-116A	<0.065 mm	Natural Sample	H14090349-018	9/16/2014	Zinc, Total	933	10	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Arsenic, Total	29	1	mg/kg	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Cadmium, Total	0.7	0.2	mg/kg	SW6020
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Copper, Total	22	5	mg/kg	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Lead, Total	67	5	mg/kg	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Zinc, Total	197	5	mg/kg	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Arsenic, Total	112	1	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Cadmium, Total	2.6	0.5	mg/kg-dry	SW6020
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Copper, Total	87	5	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Lead, Total	262	5	mg/kg-dry	SW6010B
FC-CFR	<0.065 mm	Duplicate Sample	H14090349-020	9/16/2014	Zinc, Total	770	10	mg/kg-dry	SW6010B

MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Arsenic, Total	35	1	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Cadmium, Total	2.5	0.2	mg/kg	SW6020
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Copper, Total	113	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Lead, Total	57	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Zinc, Total	188	5	mg/kg	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Arsenic, Total	118	1	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Cadmium, Total	8.5	0.4	mg/kg-dry	SW6020
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Copper, Total	377	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Lead, Total	189	5	mg/kg-dry	SW6010B
MCWC-MWB	<0.065 mm	Duplicate Sample	H14090349-030	9/17/2014	Zinc, Total	625	10	mg/kg-dry	SW6010B

## **APPENDIX E**

### **DIATOM ASSOCIATION METRICS**

---

## APPENDIX E

### DIATOM ASSOCIATION METRICS

**Table E1. Diatom association metrics used by the state of Montana to evaluate biological integrity in mountain streams. The lowest rating for any one metric is the rating for that site.**

Metric	References	Metric range	Expected response to impairment or stress	Metric category				Description and notes
				Biotic Integrity				
				Excellent	Good	Fair	Poor	
				Impairment or stress				
				None	Minor	Moderate	Severe	
				Beneficial use support				
				Full	Full	Partial	Non-support	
Species counted	Bahls, 1979; 1993	0-100+	Decrease <sup>s</sup>	>29	20-29	19-10	<10	Based on a proportional count of 400 cells (800 valves).
Shannon diversity index	Bahls, 1979	0.00-5.00+	Decrease <sup>s</sup>	>2.99	2.00-2.99	1.00-1.99	<1.00	Base 2 (bits) [Weber, 1973].
Pollution index	Bahls, 1993	1.00-3.00	Decrease	>2.50	2.01-2.50	1.50-2.00	<1.50	Composite numeric expression of the pollution tolerances assigned by Lange-Bertalot [1979] to the common diatom species.
Siltation index	Bahls, 1993	0.0-90.0+	Increase	<20.0	20.0-39.9	40.0-59.9	>59.9	Sum of the percent abundances of all species in the genera <i>Navicula</i> , <i>Nitzschia</i> and <i>Surirella</i> .
Disturbance index	Barbour et al., 1999	0.0-100.0	Increase	<25.0	25.0-49.9	50.0-74.9	>74.9	Percent abundance of <i>Achnantheidium minutissimum</i> (synonym: <i>Achnanthes minutissima</i> ).
Dominant species (%)	Barbour et al., 1999	~5.0-100.0	Increase	<25.0	25.0-49.9	50.0-74.9	>74.9	Percent abundance of the species with the largest number of valves in the proportional count.
Abnormal valves (%)	McFarland et al., 1997	0.0-30.0+	Increase	0	>0.0, <3.0	3.0-9.9	>9.9	Valves with an irregular outline, with abnormal ornamentation, or both.

## **APPENDIX F**

### **PERIPHYTON DATA: NON-DIATOM ALGAE**

---

## APPENDIX F

### PERIPHYTON DATA: NON-DIATOM ALGAE

**Table F1. Non-diatom algae data for the Clark fork River Operable Unit, 2014.**

Site	Sample date	Sample staff	Analysis staff	Analysis Date	Taxon	Algal Division	Estimated relative abundance	Estimated biovolume rank
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Phormidium</i>	Cyanophyta	d	1
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Nostoc</i>	Cyanophyta	a	2
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	diatoms (all genera)	Bacillariophyta	a	3
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Staurastrum</i>	Chlorophyta	f	4
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Closterium</i>	Chlorophyta	c	5
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Homoeothrix</i>	Cyanophyta	f	6
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Cladophora</i>	Chlorophyta	o	7
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Audouinella</i>	Rhodophyta	c	8
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Stigeoclonium</i>	Chlorophyta	o	9
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Ulothrix</i>	Chlorophyta	o	10
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Vaucheria</i>	Xanthophyta	r	11
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Gloeocystis</i>	Chlorophyta	r	12
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Scenedesmus</i>	Chlorophyta	r	13
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Cosmarium</i>	Chlorophyta	r	14
MCWC-MWB	9/17/2014	E. Weber	E. Weber	11/5/2014	<i>Dactylococcopsis</i>	Cyanophyta	o	15
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	diatoms (all genera)	Bacillariophyta	d	1
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Phormidium</i>	Cyanophyta	d	2
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Nostoc</i>	Cyanophyta	d	3
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Stigeoclonium</i>	Chlorophyta	a	4
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Cladophora</i>	Chlorophyta	c	5
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Oedogonium</i>	Chlorophyta	c	6



MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Tolypothrix</i>	Cyanophyta	c	7
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Closterium</i>	Chlorophyta	o	8
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Chamaesiphon</i>	Cyanophyta	c	9
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Heteroleibleinia</i>	Cyanophyta	c	10
MWB-SBC	9/17/2014	E. Weber	E. Weber	11/7/2014	<i>Dactylococcopsis</i>	Cyanophyta	o	11
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Stigeoclonium</i>	Chlorophyta	d	1
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	diatoms (all genera)	Bacillariophyta	d	2
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Cladophora</i>	Chlorophyta	f	3
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Oedogonium</i>	Chlorophyta	f	4
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Ulothrix</i>	Chlorophyta	f	5
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Cosmarium</i>	Chlorophyta	o	6
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Phormidium</i>	Cyanophyta	o	7
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Nostoc</i>	Cyanophyta	o	8
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Chamaesiphon</i>	Cyanophyta	f	9
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Closterium</i>	Chlorophyta	r	10
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Leptolyngbya</i>	Cyanophyta	c	11
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Spirogyra</i>	Chlorophyta	r	12
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Microcystis</i>	Cyanophyta	r	13
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Microchaete</i>	Cyanophyta	r	14
SS-25	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Scenedesmus</i>	Chlorophyta	r	15
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Phormidium</i>	Cyanophyta	d	1
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Nostoc</i>	Cyanophyta	d	2
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	diatoms (all genera)	Bacillariophyta	d	3
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Audouinella</i>	Rhodophyta	a	4
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Oedogonium</i>	Chlorophyta	f	5
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Cladophora</i>	Chlorophyta	c	6
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Vaucheria</i>	Xanthophyta	c	7
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Ulothrix</i>	Cyanophyta	o	8
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Chamaesiphon</i>	Cyanophyta	f	9
WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Batrachospermum</i>	Rhodophyta	o	10

WSC-SBC	9/17/2014	E. Weber	E. Weber	12/11/2014	<i>Scenedesmus</i>	Chlorophyta	o	11
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	diatoms (all genera)	Bacillariophyta	d	1
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Cladophora</i>	Chlorophyta	a	2
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Spirogyra</i>	Chlorophyta	a	3
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Chara</i>	Chlorophyta	c	4
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Audouinella</i>	Rhodophyta	a	5
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Chamaesiphon</i>	Cyanophyta	a	6
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Closterium</i>	Chlorophyta	o	7
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Stigeoclonium</i>	Chlorophyta	o	8
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Oedogonium</i>	Chlorophyta	o	9
LC-7.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Ulothrix</i>	Chlorophyta	r	10
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Phormidium</i>	Cyanophyta	d	1
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	diatoms (all genera)	Bacillariophyta	a	2
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Vaucheria</i>	Xanthophyta	a	3
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Stigeoclonium</i>	Chlorophyta	a	4
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Cladophora</i>	Chlorophyta	c	5
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Audouinella</i>	Rhodophyta	f	6
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Closterium</i>	Chlorophyta	c	7
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Staurastrum</i>	Chlorophyta	o	8
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Heteroleibleinia</i>	Cyanophyta	f	9
RTC-1.5	9/17/2014	E. Weber	E. Weber	12/10/2014	<i>Dactylococcopsis</i>	Cyanophyta	r	10
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	diatoms (all genera)	Bacillariophyta	d	1
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Nostoc</i>	Cyanophyta	d	2
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Cladophora</i>	Chlorophyta	f	3
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Audouinella</i>	Rhodophyta	a	4
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Oedogonium</i>	Chlorophyta	f	5
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Vaucheria</i>	Xanthophyta	c	6
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Tolypothrix</i>	Cyanophyta	f	7
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Tribonema</i>	Xanthophyta	f	8
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Spirogyra</i>	Chlorophyta	c	9

LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Closterium</i>	Chlorophyta	c	10
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Cosmarium</i>	Chlorophyta	f	11
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Heribaudiella</i>	Phaeophyta	c	12
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Ulothrix</i>	Chlorophyta	o	13
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Heteroleibleinia</i>	Cyanophyta	f	14
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Leptolyngbya</i>	Cyanophyta	f	15
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Staurastrum</i>	Chlorophyta	o	16
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Phormidium</i>	Cyanophyta	o	17
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Chamaesiphon</i>	Cyanophyta	o	18
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Scenedesmus</i>	Chlorophyta	r	19
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Cladophora</i>	Chlorophyta	d	1
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Nostoc</i>	Cyanophyta	d	2
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	diatoms (all genera)	Bacillariophyta	d	3
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Oedogonium</i>	Chlorophyta	f	4
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Tolypothrix</i>	Cyanophyta	a	5
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Chamaesiphon</i>	Cyanophyta	a	6
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Microchaete</i>	Cyanophyta	c	7
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Heteroleibleinia</i>	Cyanophyta	f	8
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Leptolyngbya</i>	Cyanophyta	c	9
CFR-03A	9/17/2014	E. Weber	E. Weber	12/12/2014	<i>Cosmarium</i>	Chlorophyta	r	10
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	diatoms (all genera)	Bacillariophyta	d	1
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Cladophora</i>	Chlorophyta	a	2
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Oedogonium</i>	Chlorophyta	f	3
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Nostoc</i>	Cyanophyta	f	4
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Chamaesiphon</i>	Cyanophyta	a	5
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Leptolyngbya</i>	Cyanophyta	a	6
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Heteroleibleinia</i>	Cyanophyta	a	7
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Tolypothrix</i>	Cyanophyta	c	8
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Dichothrix</i>	Cyanophyta	c	9
CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Stigeoclonium</i>	Chlorophyta	c	10

CFR-07D	9/17/2014	E. Weber	E. Weber	12/15/2014	<i>Microchaete</i>	Cyanophyta	o	11
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Cladophora</i>	Chlorophyta	a	1
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Oedogonium</i>	Chlorophyta	a	2
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	diatoms (all genera)	Bacillariophyta	d	3
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Nostoc</i>	Cyanophyta	a	4
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Chamaesiphon</i>	Cyanophyta	d	5
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Heteroleibleinia</i>	Cyanophyta	d	6
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Dichothrix</i>	Cyanophyta	f	7
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Leptolyngbya</i>	Cyanophyta	a	8
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Tolypothrix</i>	Cyanophyta	c	9
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Stigeoclonium</i>	Chlorophyta	c	10
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Microchaete</i>	Cyanophyta	o	11
CFR-11F	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Asterocystis</i>	Rhodophyta	r	12
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Oedogonium</i>	Chlorophyta	d	1
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Cladophora</i>	Chlorophyta	a	2
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	diatoms (all genera)	Bacillariophyta	a	3
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Nostoc</i>	Cyanophyta	c	4
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Phormidium</i>	Cyanophyta	o	5
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Chamaesiphon</i>	Cyanophyta	c	6
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Heteroleibleinia</i>	Cyanophyta	c	7
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Closterium</i>	Chlorophyta	r	8
CFR-27H	9/16/2014	E. Weber	E. Weber	12/15/2014	<i>Ankistrodesmus</i>	Chlorophyta	r	9
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	diatoms (all genera)	Bacillariophyta	d	1
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Cladophora</i>	Chlorophyta	a	2
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Audouinella</i>	Rhodophyta	a	3
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Nostoc</i>	Cyanophyta	a	4
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Dichothrix</i>	Cyanophyta	f	5
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Tolypothrix</i>	Cyanophyta	c	6
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Chamaesiphon</i>	Cyanophyta	f	7
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Heteroleibleinia</i>	Cyanophyta	f	8

CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Ulothrix</i>	Chlorophyta	o	9
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Homoeothrix</i>	Cyanophyta	c	10
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Heribaudiella</i>	Phaeophyta	o	11
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Stigeoclonium</i>	Chlorophyta	r	12
CFR-116A	9/16/2014	E. Weber	E. Weber	12/16/2014	<i>Tribonema</i>	Xanthophyta	r	13

## **APPENDIX G**

### **PERIPHYTON DATA: DIATOM ALGAE**

---

## APPENDIX G

### PERIPHYTON DATA: DIATOM ALGAE

**Table G1. Diatom algae data for the Clark fork River Operable Unit, 2014.**

Site	Sample date	Sample staff	Analysis staff	Analysis Date	Species	Valves	Relative abundance (%)	Abnormal cells (%)
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Achnanthidium exiguum</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Achnanthidium minutissimum</i>	79	9.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Adlafia minuscula</i>	4	0.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Adlafia suchlandtii</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Amphipleura pellucida</i>	4	0.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Amphora pediculus</i>	8	1.00	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Aulacoseira lirata</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Brachysira microcephala</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Caloneis bacillum</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Caloneis silicula</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Cocconeis pediculus</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Cocconeis placentula</i>	179	22.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Cymatopleura solea</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Diatoma mesodon</i>	3	0.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Diatoma moniliformis</i>	6	0.75	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Diatomella balfouriana</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Encyonema minutum</i>	15	1.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Encyonema prostratum</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Encyonema silesiacum</i>	7	0.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Encyonema yellowstonianum</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Eolimna minima</i>	4	0.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Epithemia sorex</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Eunotia glacialis</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Fallacia subhamulata</i>	1	0.13	0

MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Fragilaria capucina</i> sbsp. <i>rumpens</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Fragilaria capucina</i> var. <i>gracilis</i>	3	0.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Fragilaria vaucheriae</i>	33	4.13	0.25
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Fragilariforma bicapitata</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Geissleria acceptata</i>	5	0.63	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Geissleria decussis</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Gomphoneis erianse</i>	6	0.75	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Gomphoneis olivaceum</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Gomphonema kobayasii</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Gomphonema micropus</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Gomphonema parvulum</i> var. <i>exilissimum</i>	9	1.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Gomphonema pumilum</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Gomphonema truncatum</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Hannaea arcus</i>	3	0.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Hantzschia amphioxys</i>	3	0.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Hippodonta capitata</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Luticola mutica</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Mayamaea atomus</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Melosira varians</i>	12	1.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Meridion circulare</i>	4	0.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula antonii</i>	6	0.75	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula aurora</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula capitatoradiata</i>	4	0.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula caterva</i>	41	5.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula cryptocephala</i>	7	0.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula cryptotenella</i>	25	3.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula germanii</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula gregaria</i>	7	0.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula radiosa</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula reichardtiana</i>	5	0.63	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula subhamulata</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula tenelloides</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Navicula tripunctata</i>	3	0.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Neidiomorpha binodiformis</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia acicularis</i>	2	0.25	0



MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia archibaldii</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia dissipata</i>	43	5.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia fonticola</i>	6	0.75	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia graciliformis</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia heufleriana</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia inconspicua</i>	11	1.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia linearis</i>	13	1.63	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia linearis var. subtilis</i>	4	0.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia palea</i>	3	0.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia paleacea</i>	27	3.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia perminuta</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia pura</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia pusilla</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia recta</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Nitzschia sociabilis</i>	6	0.75	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Planothidium dubium</i>	7	0.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Planothidium frequentissimum</i>	31	3.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Planothidium lanceolatum</i>	9	1.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Psammothidium daonense</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Psammothidium subatomoides</i>	2	0.25	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Pseudostaurosira brevistriata</i>	4	0.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Pseudostaurosira parasitica</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Reimeria sinuata</i>	14	1.75	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Rhoicosphenia abbreviata</i>	12	1.50	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Sellaphora hustedtii</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Sellaphora pupula</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Stauroneis smithii</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Staurosira construens var. binodis</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Staurosira construens var. venter</i>	19	2.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Staurosirella leptostauron var. dubia</i>	11	1.38	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Staurosirella pinnata</i>	5	0.63	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Staurosirella rhomboides</i>	8	1.00	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Stephanocyclus meneghiniana</i>	7	0.88	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Surirella angusta</i>	1	0.13	0
MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Surirella minuta</i>	7	0.88	0

MCWC- MWB	9/17/2014	E. Weber	E. Weber	1/23/2015	<i>Ulnaria ulna</i>	6	0.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Achnanthidium exigum</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Achnanthidium minutissimum</i>	39	4.88	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Achnanthidium pyrenaicum</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Adlafia minuscula</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Aulacoseira alpigena</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Caloneis bacillum</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Cocconeis pediculus</i>	7	0.88	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Cocconeis placentula</i>	158	19.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Cyclostephanos invisitatus</i>	4	0.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Cymbella affinis</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Cymbella compacta</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Cymbella janischii</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Diatoma moniliformis</i>	40	5.00	0.25
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Diatoma vulgaris</i>	29	3.63	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Encyonema minutum</i>	7	0.88	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Encyonema silesiacum</i>	6	0.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Eolimna minima</i>	4	0.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Epithemia sorex</i>	20	2.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Fragilaria capucina</i> var. <i>gracilis</i>	6	0.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Fragilaria vaucheriae</i>	13	1.63	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Geissleria acceptata</i>	9	1.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Geissleria decussis</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphoneis erienne</i>	5	0.63	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphoneis olivaceum</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphonema minutum</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphonema parvulum</i>	8	1.00	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphonema parvulum</i> var. <i>exilissimum</i>	3	0.38	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphonema pumilum</i>	4	0.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphonema sarcophagus</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Gomphonema truncatum</i>	14	1.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Luticola mutica</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Mayamaea atomus</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Melosira varians</i>	69	8.63	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Meridion circulare</i>	1	0.13	0

MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula antonii</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula capitatoradiata</i>	10	1.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula caterva</i>	35	4.38	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula cryptocephala</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula cryptotenella</i>	20	2.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula gregaria</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula reichardtiana</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Navicula tripunctata</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia acicularis</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia agnita</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia dissipata</i>	28	3.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia fonticola</i>	8	1.00	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia heufleriana</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia inconspicua</i>	6	0.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia lacuum</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia linearis</i>	4	0.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia linearis var. subtilis</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia palea</i>	10	1.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia paleacea</i>	52	6.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia pura</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia pusilla</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia recta</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Nitzschia vermicularis</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Planothidium dubium</i>	8	1.00	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Planothidium frequentissimum</i>	9	1.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Psammothidium daonense</i>	5	0.63	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Pseudostarosira parasitica</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Pseudostaurosira brevistriata</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Reimeria sinuata</i>	4	0.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Rhoicosphenia abbreviata</i>	5	0.63	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Sellaphora pupula</i>	4	0.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Stauroforma exiguiformis</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Stauroneis smithii</i>	1	0.13	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Staurosira construens var. venter</i>	6	0.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Staurosirella leptostauron</i>	1	0.13	0

MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Staurosirella leptostauron var. dubia</i>	2	0.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Staurosirella pinnata</i>	13	1.63	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Staurosirella rhombicum</i>	6	0.75	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Stephanocyclus meneghiniana</i>	12	1.50	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Ulnaria acus</i>	10	1.25	0
MWB-SBC	9/17/2014	E. Weber	E. Weber	1/26/2015	<i>Ulnaria ulna</i>	44	5.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Achnanthidium exigum</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Achnanthidium minutissimum</i>	17	2.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Amphora pediculus</i>	5	0.63	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Caloneis bacillum</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Cocconeis pediculus</i>	78	9.75	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Cocconeis placentula</i>	116	14.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Cyclotephanos invisitatus</i>	4	0.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Cymbella affinis</i>	4	0.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Diatoma moniliformis</i>	11	1.38	0.50
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Diatoma vulgaris</i>	26	3.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Encyonema cespitosum</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Encyonema silesiacum</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Eolimna minima</i>	3	0.38	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Epithemia sorex</i>	50	6.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Fallacia subhamulata</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Fragilaria capucina var. mesolepta</i>	13	1.63	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Fragilaria vaucheriae</i>	4	0.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Gomphoneis erienne</i>	7	0.88	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Gomphoneis minuta</i>	40	5.00	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Gomphonema parvulum</i>	8	1.00	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Gomphonema parvulum var. exilissimum</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Gomphonema pumilum</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Gomphonema subclavatum</i>	34	4.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Gomphonema truncatum</i>	3	0.38	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Halamphora veneta</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Hippodonta capitata</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Mayamaea atomus</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Melosira varians</i>	52	6.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Meridion circulare</i>	1	0.13	0

SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula antonii</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula capitatoradiata</i>	10	1.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula caterva</i>	9	1.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula cryptotenella</i>	5	0.63	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula gregaria</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula reichardtiana</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula tripunctata</i>	4	0.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Navicula trivialis</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia archibaldii</i>	4	0.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia dissipata</i>	4	0.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia fonticola</i>	20	2.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia hantzschiana</i>	5	0.63	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia linearis</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia palea</i>	5	0.63	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia paleacea</i>	57	7.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Nitzschia perminuta</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Planothidium dubium</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Planothidium frequentissimum</i>	6	0.75	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Planothidium lanceolatum</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Pseudostaurosira brevistriata</i>	5	0.63	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Reimeria sinuata</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Rhoicosphenia abbreviata</i>	9	1.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Rhopalodia gibba</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Staurosira construens</i> var. <i>venter</i>	10	1.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Staurosirella pinnata</i>	2	0.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Stephanocyclus meneghiniana</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Stephanodiscus hantzschii</i>	3	0.38	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Surirella brebissonii</i>	1	0.13	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Ulnaria acus</i>	44	5.50	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Ulnaria oxyrhynchus</i>	10	1.25	0
SS-25	9/17/2014	E. Weber	E. Weber	1/27/2015	<i>Ulnaria ulna</i>	80	10.00	0
WSC-SBC	9/17/2014	E. Weber	E. Weber	1/29/2015	<i>Achnanthidium minutissimum</i>	264	33.00	0
WSC-SBC	9/17/2014	E. Weber	E. Weber	1/29/2015	<i>Achnanthidium pyrenaicum</i>	9	1.13	0
WSC-SBC	9/17/2014	E. Weber	E. Weber	1/29/2015	<i>Adlafia minuscula</i>	2	0.25	0
WSC-SBC	9/17/2014	E. Weber	E. Weber	1/29/2015	<i>Amphora pediculus</i>	3	0.38	0

WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Cocconeis pediculus</i>	6	0.75	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Cocconeis placentula</i>	30	3.75	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Cymbella affinis</i>	32	4.00	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Cymbella compacta</i>	18	2.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Cymbella janischii</i>	1	0.13	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Diatoma moniliformis</i>	27	3.38	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Didymosphenia geminata</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Encyonema minutum</i>	28	3.50	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Encyonema reichardtii</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Encyonema silesiacum</i>	28	3.50	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Eolimna minima</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Eucocconeis laevis</i>	1	0.13	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Fragilaria vaucheriae</i>	8	1.00	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Geissleria acceptata</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Gomphoneis pseudokunoi</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Gomphonema kobayasii</i>	1	0.13	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Melosira varians</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Navicula antonii</i>	1	0.13	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Navicula capitatoradiata</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Navicula caterva</i>	10	1.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Navicula cryptocephala</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Navicula cryptotenella</i>	19	2.38	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Navicula reichardtiana</i>	8	1.00	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Navicula tripunctata</i>	40	5.00	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia agnita</i>	1	0.13	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia dissipata</i>	13	1.63	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia fonticola</i>	52	6.50	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia gracilis</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia innominata</i>	1	0.13	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia intermedia</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia linearis</i>	5	0.63	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia pura</i>	37	4.63	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia pusilla</i>	3	0.38	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia recta</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia sociabilis</i>	1	0.13	0

WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Nitzschia sublinearis</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Planothidium dubium</i>	3	0.38	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Planothidium frequentissimum</i>	4	0.50	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Pseudostaurosira brevistriata</i>	53	6.63	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Reimeria sinuata</i>	10	1.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Staurosira construens</i>	3	0.38	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Staurosira construens</i> var. <i>venter</i>	21	2.63	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Staurosirella leptostauron</i>	6	0.75	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Staurosirella pinnata</i>	17	2.13	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Staurosirella rhomboides</i>	2	0.25	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Stautosirella leptostauron</i> var. <i>dubia</i>	4	1.00	0
WSC-SBC	9/17/2014	E.Weber	E. Weber	1/29/2015	<i>Ulnaria ulna</i>	4	0.50	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Achnanthidium alpestre</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Achnanthidium minutissimum</i>	132	16.50	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Amphipectura pellucida</i>	7	0.88	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Amphora pediculus</i>	8	1.00	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Cocconeis pediculus</i>	9	1.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Cocconeis placentula</i>	6	0.75	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Cymbella affinis</i>	21	2.63	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Cymbella compacta</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Diatoma moniliformis</i>	231	28.88	4.00
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Diatoma vulgaris</i>	128	16.00	0.25
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonema minutum</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonema silesiacum</i>	4	0.50	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonopsis minuta</i>	84	10.50	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonopsis subminuta</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Fragilaria capucina</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Fragilaria capucina</i> var. <i>gracilis</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Fragilaria capucina</i> var. <i>mesolepta</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Fragilaria nanana</i>	5	0.63	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Geissleria acceptata</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema olivaceum</i>	5	0.63	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema micropumilum</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema minutum</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema parvulum</i> var. <i>exilissimum</i>	2	0.25	0

LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema subclavatum</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema truncatum</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula antonii</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula aquaedurae</i>	8	1.00	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula capitatoradiata</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula cryptotenella</i>	9	1.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula cryptotenelloides</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula tripunctata</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia acidoclinata</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia agnita</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia amphibia</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia amphibioides</i>	3	0.38	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia dissipata</i>	5	0.63	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia hantzschiana</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia linearis</i>	5	0.63	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia palea</i>	8	1.00	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia recta</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia sociabilis</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Pseudostaurosira brevistriata</i>	12	1.50	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Reimeria sinuata</i>	3	0.38	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Rhoicosphenia abbreviata</i>	4	0.50	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Rhopalodia operculata</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosira construens</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosira construens var. venter</i>	9	1.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella leptostauron</i>	3	0.38	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella leptostauron var. dubia</i>	2	0.25	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella pinnata</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella rhomboides</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Stephanocyclus meneghiniana</i>	1	0.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Ulnaria acus</i>	9	1.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Ulnaria oxyrhynchus</i>	9	1.13	0
LC-7.5	9/17/2014	E. Weber	E. Weber	2/9/2015	<i>Ulnaria ulna</i>	27	3.38	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Achnantheidium minutissimum</i>	239	29.88	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Achnantheidium pyrenaicum</i>	191	23.88	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Caloneis bacillum</i>	2	0.25	0



RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cocconeis pediculus</i>	4	0.50	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cocconeis placentula</i>	6	0.75	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cymbella affinis</i>	5	0.63	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Diatoma mesodon</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Diatoma moniliformis</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Encyonema minutum</i>	104	13.00	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Encyonema reichardtii</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Encyonema silesiacum</i>	31	3.88	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Eucocconeis laevis</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Fragilaria capucina</i>	4	0.50	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Fragilaria capucina sbsp. rumpens</i>	5	0.63	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Fragilaria capucina var. gracilis</i>	21	2.63	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Fragilaria vaucheriae</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Geissleria decussis</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema innocens</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema minutum</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema parvulum</i>	11	1.38	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema pumilum</i>	3	0.38	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema sp. 01</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Hippodonta capitata</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Hippodonta subtilissima</i>	11	1.38	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Melosira varians</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Meridion circulare</i>	3	0.38	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula antonii</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula caterva</i>	8	1.00	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula cryptocephala</i>	6	0.75	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula cryptotenella</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula gregaria</i>	21	2.63	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula harderii</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula reichardtiana</i>	10	1.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula tripunctata</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula viridula</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia archibaldii</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia dissipata</i>	4	0.50	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia fonticola</i>	4	0.50	0

RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia linearis</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia palea</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia pura</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia pusilla</i>	3	0.38	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia recta</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Planothidium dubium</i>	7	0.88	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Planothidium frequentissimum</i>	3	0.38	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Planothidium lanceolatum</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Psammothidium bioretii</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Psammothidium helveticum</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Psammothidium lauenbergianum</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Psammothidium subatomoides</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Pseudostaurosira brevistriata</i>	6	0.75	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Reimeria sinuata</i>	15	1.88	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Rhopalodia operculata</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosira construens var. venter</i>	6	0.75	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosirella leptostauron var. dubia</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosirella pinnata</i>	4	0.50	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosirella rhomboides</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Stephanocyclus meneghiniana</i>	2	0.25	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Surirella angusta</i>	1	0.13	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Ulnaria oxyrhynchus</i>	7	0.88	0
RTC-1.5	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Ulnaria ulna</i>	9	1.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Achnanthidium minutissimum</i>	35	4.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cocconeis disculus</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cocconeis pediculus</i>	19	2.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cocconeis placentula</i>	74	9.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cymbella janischii</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Diatoma moniliformis</i>	290	36.25	1.13
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Diatoma vulgaris</i>	3	0.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Encyonema minutum</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Encyonema silesiacum</i>	9	1.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Eolimna minima</i>	6	0.75	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Epithemia sorex</i>	78	9.75	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Fragilaria capucina sbsp. rumpens</i>	2	0.25	0

LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Fragilaria capucina</i> var. <i>gracilis</i>	8	1.00	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonéis erienae</i>	9	1.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema kobayasii</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema micropumilum</i>	3	0.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema minutum</i>	4	0.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Hippodonta capitata</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Mayamaea atomus</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Melosira varians</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Meridion circulare</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula capitatoradiata</i>	5	0.63	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula caterva</i>	23	2.88	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula cryptotenella</i>	4	0.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula cryptotenelloides</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula reichardtiana</i>	7	0.88	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula tripunctata</i>	3	0.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia agnita</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia archibaldii</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia dissipata</i>	44	5.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia fonticola</i>	10	1.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia hantzschiana</i>	6	0.75	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia heufleriana</i>	4	0.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia inconspicua</i>	4	0.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia linearis</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia palea</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia paleacea</i>	24	3.00	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia supralitorae</i>	4	0.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia vermicularis</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Planothidium dubium</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Planothidium frequentissimum</i>	9	1.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Planothidium lanceolatum</i>	5	0.63	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Psammothidium subatomoides</i>	2	0.25	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Pseudostaurosira brevistriata</i>	12	1.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Reimeria sinuata</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Rhoicosphenia abbreviata</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Sellaphora pupula</i>	4	0.50	0

LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosira construens var. pumila</i>	4	0.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosira construens var. venter</i>	12	1.50	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosirella pinnata</i>	3	0.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Stephanocyclus meneghiniana</i>	8	1.00	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Surirella angusta</i>	1	0.13	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Ulnaria acus</i>	19	2.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Ulnaria spathulifera</i>	11	1.38	0
LBR-CFR-02	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Ulnaria ulna</i>	6	0.75	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Achnanthidium minutissimum</i>	29	3.63	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Amphora pediculus</i>	23	2.88	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Cocconeis pediculus</i>	81	10.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Cocconeis placentula</i>	108	13.50	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Cymbella affinis</i>	17	2.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Cymbella compacta</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Diatoma mesodon</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Diatoma moniliformis</i>	35	4.38	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Diatoma vulgaris</i>	60	7.50	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Encyonema minutum</i>	6	0.75	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Encyonema silesiacum</i>	5	0.63	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Encyonopsis cesatii</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Eolimna minima</i>	8	1.00	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Epithemia sorex</i>	57	7.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Fragilaria capucina</i>	12	1.50	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Fragilaria vaucheriae</i>	3	0.38	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Geissleria acceptata</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Gomphoneis erienne</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Gomphoneis minuta</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Gomphoneis olivaceum</i>	6	0.75	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Gomphonema parvulum var. exilissimum</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Gomphonema subclavatum</i>	3	0.38	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Gomphonema truncatum</i>	4	0.50	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Gyrosigma acuminatum</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Mayamaea atomus</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Navicula capitatoradiata</i>	4	0.50	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Navicula caterva</i>	13	1.63	0

CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Navicula cryptotenella</i>	16	2.00	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Navicula cryptotenelloides</i>	19	2.38	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Navicula gregaria</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Navicula lanceolata</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Navicula tripunctata</i>	29	3.63	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia archibaldii</i>	8	1.00	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia dissipata</i>	22	2.75	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia fonticola</i>	23	2.88	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia heufleriana</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia inconspicua</i>	33	4.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia linearis</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia palea</i>	5	0.63	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia paleacea</i>	58	7.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia perminuta</i>	6	0.75	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Nitzschia pura</i>	9	1.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Planothidium dubium</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Planothidium frequentissimum</i>	4	0.50	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Planothidium lanceolatum</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Pseudostaurosira brevistriata</i>	12	1.50	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Reimeria sinuata</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Rhoicosphenia abbreviata</i>	15	1.88	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Sellaphora pupula</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Staurosira construens var. venter</i>	2	0	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Staurosirella leptostauron</i>	3	0.38	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Staurosirella pinnata</i>	3	0.38	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Stephanocyclus meneghiniana</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Stephanodiscus hantzschii</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Surirella angusta</i>	1	0.13	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Surirella minuta</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Ulnaria acus</i>	15	1.88	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Ulnaria oxyrhynchus</i>	2	0.25	0
CFR-03A	9/17/2014	E. Weber	E. Weber	1/30/2015	<i>Ulnaria ulna</i>	11	1.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Achnanthidium minutissimum</i>	15	1.88	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Adlafia suchlandtii</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Amphipleura pellucida</i>	1	0.13	0

CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Amphora pediculus</i>	7	0.88	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cocconeis pediculus</i>	38	4.75	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cocconeis placentula</i>	64	8.00	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cyclostephanos invisitatus</i>	5	0.63	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cymbella affinis</i>	19	2.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Cymbella compacta</i>	7	0.88	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Diatoma moniliformis</i>	71	8.88	0.63
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Diatoma vulgaris</i>	166	20.75	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Encyonema minutum</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Encyonema silesiacum</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Encyonopsis minuta</i>	10	1.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Eolimna minima</i>	16	2.00	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Epithemia sorex</i>	50	6.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Fragilaria capucina</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Fragilaria capucina</i> var. <i>gracilis</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Fragilaria vaucheriae</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Geissleria acceptata</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphoneis olivaceum</i>	18	2.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema minutum</i>	3	0.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema parvulum</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Gomphonema truncatum</i>	4	0.50	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Hannaea arcus</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Hippodonta capitata</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula antonii</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula capitatoradiata</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula caterva</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula cryptocephala</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula cryptotenella</i>	30	3.75	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula cryptotenelloides</i>	14	1.75	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula gregaria</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula libonensis</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Navicula tripunctata</i>	15	1.88	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia acicularis</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia acidoclinata</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia archibaldii</i>	4	0.50	0

CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia dissipata</i>	35	4.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia fonticola</i>	33	4.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia inconspicua</i>	6	0.75	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia lacuum</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia linearis</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia palea</i>	4	0.50	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia paleacea</i>	27	3.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia pusilla</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia sociabilis</i>	4	0.50	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia sublinearis</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Nitzschia supralitoria</i>	5	0.63	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Planothidium dubium</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Planothidium frequentissimum</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Psammothidium subatomoides</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Pseudostaurosira brevistriata</i>	4	0.50	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Reimeria sinuata</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Rhoicosphenia abbreviata</i>	2	0.25	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosira construens var. venter</i>	11	1.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosirella leptostauron</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosirella pinnata</i>	8	1.00	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Staurosirella rhombicum</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Stephanocyclus meneghiniana</i>	3	0.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Stephanodiscus hantzschii</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Surirella minuta</i>	3	0.38	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Ulnaria acus</i>	16	2.00	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Ulnaria oxyrhynchus</i>	1	0.13	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Ulnaria spathulifera</i>	7	0.88	0
CFR-07D	9/17/2014	E. Weber	E. Weber	2/3/2015	<i>Ulnaria ulna</i>	37	4.63	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Achnanthidium minutissimum</i>	9	1.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Achnanthidium pyrenaicum</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Adlafia minuscula</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Amphipleura pellucida</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Amphora pediculus</i>	21	2.63	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Cocconeis disculus</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Cocconeis pediculus</i>	96	12.00	0

CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Cocconeis placentula</i>	90	11.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Cyclotella distinguenda</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Cymbella affinis</i>	13	1.63	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Cymbella compacta</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Diatoma moniliformis</i>	85	10.63	1.00
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Diatoma tenuis</i>	22	2.75	0.50
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Diatoma vulgaris</i>	9	1.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonema minutum</i>	3	0.38	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonema silesiacum</i>	9	1.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonopsis cesatii</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Encyonopsis descripta</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Eolimna minima</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Epithemia sorex</i>	103	12.88	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Epithemia turgida</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Fragilaria capucina</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Fragilaria capucina subsp. rumpens</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Fragilaria capucina var. gracilis</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Geissleria acceptata</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Geissleria decussis</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphoneis olivaceum</i>	88	11.00	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphoneis pseudokunoi</i>	6	0.75	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema minutum</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Gomphonema subclavatum</i>	6	0.75	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Mayamaea atomus</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Melosira varians</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula caterva</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula cryptotenella</i>	12	1.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula cryptotenelloides</i>	8	1.00	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula lanceolata</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula reichardtiana</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula tripunctata</i>	8	1.00	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Navicula veneta</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Neidium ampliutum</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia amphibia</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia dissipata</i>	15	1.88	0



CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia fonticola</i>	12	1.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia heufleriana</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia inconspicua</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia linearis</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia palea</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia paleacea</i>	20	2.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia pura</i>	3	0.38	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia pusilla</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia sigmoidea</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia sociabilis</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Nitzschia sublinearis</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Planothidium dubium</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Planothidium frequentissimum</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Planothidium lanceolatum</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Pseudostaurosira brevistriata</i>	14	1.75	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Reimeria sinuata</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Rhoicosphenia abbreviata</i>	24	3.00	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Rhopalodia gibba</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosira construens</i> var. <i>venter</i>	3	0.38	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella leptostauron</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella leptostauron</i> var. <i>dubia</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella pinnata</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Staurosirella rhomboides</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Stephanocyclus meneghiniana</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Stephanodiscus hantzschii</i>	2	0.25	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Surirella minuta</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Ulnaria acus</i>	22	2.75	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Ulnaria oxyrhynchus</i>	1	0.13	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Ulnaria spathulifera</i>	4	0.50	0
CFR-11F	9/16/2014	E. Weber	E. Weber	2/9/2015	<i>Ulnaria ulna</i>	13	1.63	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Achnantheidium minutissimum</i>	32	4.00	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Adlafia minuscula</i>	4	0.50	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Amphora ovalis</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Amphora pediculus</i>	122	15.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Caloneis bacillum</i>	8	1.00	0

CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Cocconeis pediculus</i>	125	15.63	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Cocconeis placentula</i>	70	8.75	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Cymbella affinis</i>	3	0.38	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Cymbella compacta</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Diatoma moniliformis</i>	106	13.25	0.63
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Diatoma vulgaris</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Encyonema minutum</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Encyonema reichardtii</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Encyonema silesiacum</i>	8	1.00	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Eolimna minima</i>	14	1.75	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Epithemia sorex</i>	9	1.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Fragilaria capucina</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Geissleria acceptata</i>	3	0.38	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Geissleria decussis</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Gomphoneis olivaceum</i>	26	3.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Gomphonema micropus</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Gomphonema truncatum</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Halamphora veneta</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Hippodonta subtilissima</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Luticola mutica</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Mayamaea atomus</i>	4	0.50	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Melosira varians</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Meridion circulare</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Navicula antonii</i>	5	0.63	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Navicula capitatoradiata</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Navicula caterva</i>	10	1.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Navicula cryptotenella</i>	59	7.38	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Navicula cryptotenelloides</i>	7	0.88	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Navicula reichardtiana</i>	14	1.75	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Navicula tripunctata</i>	27	3.38	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia acidoclinata</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia dissipata</i>	15	1.88	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia fonticola</i>	5	0.63	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia graciliformis</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia inconspicua</i>	10	1.25	0

CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia linearis</i>	8	1.00	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia palea</i>	8	1.00	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia paleacea</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia pura</i>	3	0.38	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia sociabilis</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Nitzschia umbonata</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Planothidium frequentissimum</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Pseudostaurosira brevistriata</i>	8	1.00	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Reimeria sinuata</i>	13	1.63	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Rhoicosphenia abbreviata</i>	14	1.75	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Sellaphora pupula</i>	3	0.38	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Simonsenia delognei</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Staurosira construens var. venter</i>	10	1.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Staurosirella leptostauron</i>	4	0.50	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Surirella minuta</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Tryblionella hungarica</i>	1	0.13	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Ulnaria acus</i>	2	0.25	0
CFR-27H	9/16/2014	E. Weber	E. Weber	2/10/2015	<i>Ulnaria ulna</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Achnanthidium minutissimum</i>	39	4.88	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Adlafia suchlandtii</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Amphora copulata</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Amphora inariensis</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Amphora pediculus</i>	15	1.88	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Caloneis bacillum</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cocconeis pediculus</i>	24	3.00	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cocconeis placentula</i>	40	5.00	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cyclotephanos invisitatus</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Cymbella affinis</i>	94	11.75	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Diatoma moniliformis</i>	30	3.75	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Diatoma vulgaris</i>	32	4.00	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Encyonema minutum</i>	58	7.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Encyonema muelleri</i>	10	1.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Encyonema silesiacum</i>	12	1.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Epithemia adnata</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Epithemia sorex</i>	146	18.25	0

CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Epithemia turgida</i>	5	0.63	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Fragilaria capucina</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Fragilaria vaucheriae</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Geissleria acceptata</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphoneis eriense</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphoneis olivaceum</i>	3	0.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema micropumilum</i>	11	1.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema micropus</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema minusculum</i>	6	0.75	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema minutum</i>	4	0.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema parvulum</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Gomphonema rhombicum</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Melosira varians</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula antonii</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula capitatoradiata</i>	12	1.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula caterva</i>	11	1.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula cryptotenella</i>	9	1.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula gregaria</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula lanceolata</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula reichardtiana</i>	4	0.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula tripunctata</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Navicula veneta</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia archibaldii</i>	4	0.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia dissipata</i>	36	4.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia fonticola</i>	10	1.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia graciliformis</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia hantzschiana</i>	10	1.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia heufleriana</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia inconspicua</i>	16	2.00	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia linearis</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia palea</i>	4	0.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia paleacea</i>	20	2.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia perminuta</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia pura</i>	3	0.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia recta</i>	1	0.13	0

CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Nitzschia sociabilis</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Placoneis elginensis</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Planothidium frequentissimum</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Pseudostaurosira brevistriata</i>	22	2.75	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Reimeria sinuata</i>	8	1.00	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Rhoicosphenia abbreviata</i>	8	1.00	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Sellaphora pupula</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosira construens</i> var. <i>binodus</i>	5	0.63	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosira construens</i> var. <i>venter</i>	12	1.50	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosirella leptostauron</i>	6	0.75	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosirella leptostauron</i> var. <i>dubia</i>	2	0.25	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosirella pinnata</i>	8	1.00	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Staurosirella rhomboides</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Stephanocyclus meneghiniana</i>	3	0.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Surirella angusta</i>	1	0.13	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Surirella minuta</i>	3	0.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Ulnaria acus</i>	3	0.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Ulnaria spathulifera</i>	3	0.38	0
CFR-116A	9/16/2014	E. Weber	E. Weber	2/11/2015	<i>Ulnaria ulna</i>	3	0.38	0

## **APPENDIX H**

### **MACROINVERTEBRATE DATA**

---

**APPENDIX H**  
**MACROINVERTEBRATE MONITORING DATA**

---

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC001

RAI No.: PBSJ14CFRC001

Sta. Name: Silver Bow Creek at Warm Springs - Composite

Client ID: SS-25

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Hydrozoa	1	0.01%	Yes	Unknown		8	PR
Trepaxonemata	780	9.97%	Yes	Unknown		5	PR
Nemata	0	0.00%	Yes	Unknown		5	UN
Asellidae							
<i>Caecidotea</i> sp.	29	0.37%	Yes	Unknown		8	CG
Glossiphoniidae							
<i>Helobdella stagnalis</i>	1	0.01%	Yes	Unknown		10	PR
Hyalellidae							
<i>Hyalella</i> sp.	46	0.59%	Yes	Unknown		8	CG
Physidae							
<i>Physella</i> sp.	1	0.01%	Yes	Unknown		8	SC
Planorbidae							
<i>Gyraulus</i> sp.	2	0.03%	Yes	Unknown		8	SC
Sphaeriidae							
<i>Pisidium</i> sp.	112	1.43%	Yes	Unknown		8	CF
Sphaeriidae	9	0.12%	No	Immature		8	CF
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	13	0.17%	Yes	Unknown		4	CG
Naididae							
Naidinae	7	0.09%	Yes	Unknown		8	CG
Tubificinae	22	0.28%	Yes	Unknown		10	CG
<b>Odonata</b>							
Coenagrionidae							
Coenagrionidae	1	0.01%	Yes	Larva	Damaged	8	PR
<b>Ephemeroptera</b>							
Baetidae							
Baetis tricaudatus complex	162	2.07%	Yes	Larva		4	CG
<i>Diphetor hageni</i>	1	0.01%	Yes	Larva		5	CG
<i>Iswaeon</i> sp.	3	0.04%	Yes	Larva		6	UN
Ephemerellidae							
<i>Drunella</i> sp.	1	0.01%	Yes	Larva	Early Instar	11	SC
Ephemerellidae	1	0.01%	No	Larva	Early Instar	11	CG
Leptohyphidae							
<i>Tricorythodes</i> sp.	212	2.71%	Yes	Larva		4	CG
<b>Plecoptera</b>							
Nemouridae							
<i>Malenka</i> sp.	1	0.01%	Yes	Larva		2	SH
Pteronarcyidae							
<i>Pteronarcella</i> sp.	13	0.17%	Yes	Larva		3	SH



# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC001

RAI No.: PBSJ14CFRC001

Sta. Name: Silver Bow Creek at Warm Springs - Composite

Client ID: SS-25

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Brachycentridae							
Brachycentridae	2	0.03%	No	Pupa		11	CF
<i>Brachycentrus occidentalis</i>	250	3.19%	Yes	Larva		2	CF
Glossosomatidae							
<i>Glossosoma</i> sp.	8	0.10%	Yes	Larva		0	SC
<i>Protophila</i> sp.	18	0.23%	Yes	Larva		1	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	2	0.03%	Yes	Larva		3	SC
Hydropsychidae							
<i>Ceratopsyche cockerelli</i>	71	0.91%	Yes	Larva		4	CF
<i>Cheumatopsyche</i> sp.	1905	24.34%	Yes	Larva		5	CF
<i>Hydropsyche occidentalis</i>	306	3.91%	Yes	Larva		5	CF
Hydropsychidae	494	6.31%	No	Larva	Early Instar	11	CF
Hydropsychidae	60	0.77%	No	Pupa		11	CF
Hydroptilidae							
<i>Hydroptila</i> sp.	145	1.85%	Yes	Larva		6	PH
Hydroptilidae	369	4.72%	No	Pupa		11	PH
<i>Ochrotrichia</i> sp.	1	0.01%	Yes	Larva		4	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	1	0.01%	Yes	Larva		1	SH
Leptoceridae							
Leptoceridae	1	0.01%	Yes	Larva	Damaged	11	CG
<i>Nectopsyche</i> sp.	1	0.01%	Yes	Larva		3	SH
<i>Oecetis</i> sp.	75	0.96%	Yes	Larva		8	PR
<b>Lepidoptera</b>							
Crambidae							
<i>Petrophila</i> sp.	16	0.20%	Yes	Larva		5	SC
<b>Coleoptera</b>							
Elmidae							
<i>Cleptelmis addenda</i>	16	0.20%	No	Larva		4	CG
<i>Cleptelmis addenda</i>	1	0.01%	Yes	Adult		4	CG
<i>Optioservus</i> sp.	748	9.56%	No	Larva		5	SC
<i>Optioservus</i> sp.	62	0.79%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	25	0.32%	Yes	Adult		4	CG
<i>Zaitzevia</i> sp.	554	7.08%	No	Larva		4	CG

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC001

RAI No.: PBSJ14CFRC001

Sta. Name: Silver Bow Creek at Warm Springs - Composite

Client ID: SS-25

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Diptera</b>							
Empididae							
Empididae	6	0.08%	No	Pupa		11	PR
<i>Hemerodromia</i> sp.	6	0.08%	Yes	Larva		6	PR
<i>Neoplasta</i> sp.	1	0.01%	Yes	Larva		5	PR
Psychodidae							
<i>Pericoma</i> / <i>Telmatoscopus</i>	1	0.01%	Yes	Larva		4	CG
Simuliidae							
<i>Simulium</i> sp.	247	3.16%	Yes	Larva		6	CF
<i>Simulium</i> sp.	28	0.36%	No	Pupa		6	CF
Tipulidae							
<i>Antocha monticola</i>	6	0.08%	Yes	Larva		3	CG
<i>Hexatoma</i> sp.	2	0.03%	Yes	Larva		2	PR
<b>Chironomidae</b>							
Chironomidae							
<i>Cryptochironomus</i> sp.	1	0.01%	No	Pupa		8	PR
<i>Cryptochironomus</i> sp.	1	0.01%	Yes	Larva		8	PR
<i>Microtendipes</i> sp.	94	1.20%	Yes	Larva		6	CF
<i>Parachironomus</i> sp.	1	0.01%	Yes	Larva		10	PR
<i>Polypedilum</i> sp.	7	0.09%	No	Pupa		6	SH
<i>Polypedilum</i> sp.	62	0.79%	Yes	Larva		6	SH
<i>Pseudochironomus</i> sp.	1	0.01%	No	Pupa		11	CG
<i>Pseudochironomus</i> sp.	2	0.03%	Yes	Larva		11	CG
<i>Micropsectra</i> sp.	2	0.03%	Yes	Larva		11	CG
<i>Rheotanytarsus</i> sp.	1	0.01%	Yes	Larva		11	CF
<i>Stempellinella</i> sp.	1	0.01%	Yes	Larva		11	CG
<i>Pagastia</i> sp.	2	0.03%	Yes	Larva		1	CG
<i>Potthastia Longimana</i> Gr.	4	0.05%	Yes	Larva		2	CG
<i>Chaetocladius</i> sp.	9	0.12%	Yes	Larva		11	CG
<i>Cricotopus</i> sp.	2	0.03%	Yes	Larva		7	SH
<i>Cricotopus (Nostococladius)</i> sp.	22	0.28%	Yes	Larva		6	SH
<i>Eukiefferiella</i> sp.	1	0.01%	No	Pupa		8	CG
<i>Eukiefferiella</i> sp.	113	1.44%	Yes	Larva		8	CG
<i>Nanocladius</i> sp.	1	0.01%	Yes	Larva		3	CG
Orthoclaadiinae	4	0.05%	No	Larva	Early Instar	11	CG
<i>Orthocladus</i> sp.	7	0.09%	Yes	Larva		6	CG
<i>Parametriocnemus</i> sp.	5	0.06%	No	Pupa		5	CG
<i>Parametriocnemus</i> sp.	130	1.66%	Yes	Larva		5	CG
<i>Tvetenia</i> sp.	488	6.24%	Yes	Larva		5	CG
<i>Tvetenia</i> sp.	9	0.12%	No	Pupa		5	CG
<i>Thienemannimyia</i> Gr.	10	0.13%	Yes	Larva		11	PR
Sample Count	7826						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC002

RAI No.: PBSJ14CFRC002

Client ID: CFR-03A

Date Coll.: 8/7/2014

No. Jars: 1

Sta. Name: Clark Fork near Galen (Perkins Ln. bridge) - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Trepaxonemata	34	0.52%	Yes	Unknown		5	PR
Nemata	0	0.00%	Yes	Unknown		5	UN
Glossiphoniidae							
<i>Helobdella stagnalis</i>	2	0.03%	Yes	Unknown		10	PR
Planorbidae							
<i>Gyraulus</i> sp.	1	0.02%	Yes	Unknown		8	SC
Sphaeriidae							
<i>Pisidium</i> sp.	11	0.17%	Yes	Unknown		8	CF
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	15	0.23%	Yes	Unknown		4	CG
Naididae							
Naidinae	64	0.99%	Yes	Unknown		8	CG
Tubificinae	12	0.18%	Yes	Unknown		10	CG
<b>Odonata</b>							
Gomphidae							
Gomphidae	2	0.03%	No	Larva	Early Instar	11	PR
<i>Ophiogomphus</i> sp.	2	0.03%	Yes	Larva		5	PR
<b>Ephemeroptera</b>							
Baetidae							
<i>Acentrella insignificans</i>	2	0.03%	Yes	Larva		4	CG
Baetis tricaudatus complex	152	2.34%	Yes	Larva		4	CG
<i>Iswaeon</i> sp.	7	0.11%	Yes	Larva		6	UN
Ephemerellidae							
<i>Attenella margarita</i>	76	1.17%	Yes	Larva		3	CG
<i>Drunella</i> sp.	3	0.05%	Yes	Larva	Early Instar	11	SC
Ephemerellidae	5	0.08%	No	Larva	Early Instar	11	CG
Heptageniidae							
<i>Heptagenia</i> sp.	1	0.02%	Yes	Larva		4	SC
Leptohyphidae							
<i>Tricorythodes</i> sp.	76	1.17%	Yes	Larva		4	CG
<b>Plecoptera</b>							
Nemouridae							
<i>Malenka</i> sp.	1	0.02%	Yes	Larva		2	SH
Perlidae							
<i>Hesperoperla pacifica</i>	1	0.02%	Yes	Larva		11	PR
Perlidae	1	0.02%	No	Larva	Early Instar	11	PR
Perlodidae							
Perlodidae	4	0.06%	No	Larva	Early Instar	11	PR
<i>Skwala</i> sp.	36	0.55%	Yes	Larva		3	PR
Pteronarcyidae							
<i>Pteronarcella</i> sp.	14	0.22%	Yes	Larva		3	SH

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC002

RAI No.: PBSJ14CFRC002

Client ID: CFR-03A

Date Coll.: 8/7/2014

No. Jars: 1

Sta. Name: Clark Fork near Galen (Perkins Ln. bridge) - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Brachycentridae							
Brachycentridae	1	0.02%	No	Pupa		11	CF
<i>Brachycentrus occidentalis</i>	517	7.96%	Yes	Larva		2	CF
Glossosomatidae							
<i>Glossosoma</i> sp.	79	1.22%	Yes	Larva		0	SC
Glossosomatidae	13	0.20%	No	Pupa		11	SC
<i>Protoptila</i> sp.	147	2.26%	Yes	Larva		1	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	20	0.31%	Yes	Larva		3	SC
Hydropsychidae							
<i>Ceratopsyche</i> sp.	312	4.81%	No	Larva	Early Instar	5	CF
<i>Ceratopsyche cockerelli</i>	180	2.77%	Yes	Larva		4	CF
<i>Ceratopsyche slossonae</i>	3	0.05%	Yes	Larva		4	CF
<i>Cheumatopsyche</i> sp.	15	0.23%	Yes	Larva		5	CF
<i>Hydropsyche</i> sp.	5	0.08%	No	Larva	Early Instar	5	CF
<i>Hydropsyche occidentalis</i>	2	0.03%	Yes	Larva		5	CF
Hydropsychidae	171	2.63%	No	Larva	Early Instar	11	CF
Hydropsychidae	2	0.03%	No	Pupa		11	CF
Hydroptilidae							
<i>Hydroptila</i> sp.	20	0.31%	Yes	Larva		6	PH
Hydroptilidae	24	0.37%	No	Pupa		11	PH
<i>Ochrotrichia</i> sp.	2	0.03%	Yes	Larva		4	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	9	0.14%	Yes	Larva		1	SH
Leptoceridae							
Leptoceridae	4	0.06%	No	Pupa		11	CG
<i>Oecetis</i> sp.	6	0.09%	Yes	Larva		8	PR
Limnephilidae							
<i>Onocosmoecus unicolor</i>	1	0.02%	Yes	Larva		11	SH
Psychomyiidae							
Psychomyiidae	2	0.03%	Yes	Larva	Early Instar	2	CG
Rhyacophilidae							
<i>Rhyacophila</i> sp.	1	0.02%	No	Larva	Early Instar	11	PR
<i>Rhyacophila</i> sp.	2	0.03%	No	Pupa		11	PR
<i>Rhyacophila Brunnea/Vemna</i> Gr.	3	0.05%	Yes	Larva		2	PR
<b>Coleoptera</b>							
Elmidae							
<i>Cleptelmis addenda</i>	13	0.20%	Yes	Adult		4	CG
<i>Cleptelmis addenda</i>	131	2.02%	No	Larva		4	CG
Elmidae	1	0.02%	No	Larva	Early Instar	11	CG
<i>Optioservus</i> sp.	929	14.31%	No	Larva		5	SC
<i>Optioservus</i> sp.	185	2.85%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	252	3.88%	No	Larva		4	CG
<i>Zaitzevia</i> sp.	41	0.63%	Yes	Adult		4	CG

Monday, March 02, 2015

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC002

RAI No.: PBSJ14CFRC002

Client ID: CFR-03A

Date Coll.: 8/7/2014

No. Jars: 1

Sta. Name: Clark Fork near Galen (Perkins Ln. bridge) - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Diptera</b>							
Diptera	1	0.02%	No	Pupa	Damaged	11	UN
Athericidae							
<i>Atherix</i> sp.	131	2.02%	Yes	Larva		4	PR
Empididae							
<i>Chelifera</i> / <i>Metachela</i> sp.	1	0.02%	Yes	Larva		5	PR
Empididae	13	0.20%	No	Pupa		11	PR
Simuliidae							
<i>Simulium</i> sp.	19	0.29%	No	Pupa		6	CF
<i>Simulium</i> sp.	184	2.83%	Yes	Larva		6	CF
Tipulidae							
<i>Antocha monticola</i>	20	0.31%	No	Pupa		3	CG
<i>Antocha monticola</i>	232	3.57%	Yes	Larva		3	CG
<i>Hexatoma</i> sp.	3	0.05%	Yes	Larva		2	PR
<b>Chironomidae</b>							
Chironomidae							
<i>Microtendipes</i> sp.	71	1.09%	Yes	Larva		6	CF
<i>Polypedilum</i> sp.	32	0.49%	Yes	Larva		6	SH
<i>Polypedilum</i> sp.	1	0.02%	No	Pupa		6	SH
<i>Micropsectra</i> sp.	4	0.06%	Yes	Larva		11	CG
<i>Rheotanytarsus</i> sp.	4	0.06%	Yes	Larva		11	CF
<i>Pagastia</i> sp.	71	1.09%	Yes	Larva		1	CG
<i>Cardiocladius</i> sp.	3	0.05%	Yes	Larva		5	PR
<i>Corynoneura</i> sp.	1	0.02%	Yes	Larva		7	CG
<i>Cricotopus</i> sp.	18	0.28%	Yes	Larva		7	SH
<i>Cricotopus</i> sp.	23	0.35%	No	Pupa		7	SH
<i>Cricotopus (Nostoccladius)</i> sp.	1690	26.03%	Yes	Larva		6	SH
<i>Eukiefferiella</i> sp.	2	0.03%	No	Pupa		8	CG
<i>Eukiefferiella</i> sp.	63	0.97%	Yes	Larva		8	CG
<i>Nanocladius</i> sp.	4	0.06%	Yes	Larva		3	CG
Orthoclaadiinae	6	0.09%	No	Larva	Early Instar	11	CG
Orthoclaadiinae	3	0.05%	No	Pupa	Damaged	11	CG
<i>Orthocladus</i> sp.	66	1.02%	Yes	Larva		6	CG
<i>Parametriocnemus</i> sp.	2	0.03%	Yes	Larva		5	CG
<i>Tveteria</i> sp.	199	3.07%	Yes	Larva		5	CG
<i>Tveteria</i> sp.	2	0.03%	No	Pupa		5	CG
<i>Pentaneura</i> sp.	3	0.05%	Yes	Larva		6	PR
Tanypodinae	1	0.02%	No	Pupa	Damaged	11	PR
Thienemannimyia Gr.	4	0.06%	Yes	Larva		11	PR
Sample Count	6492						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC003

RAI No.: PBSJ14CFRC003

Sta. Name: Clark Fork at Galen Road - Composite

Client ID: CFR-07D

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Trepaxonemata	3	0.07%	Yes	Unknown		5	PR
Nemata	0	0.00%	Yes	Unknown		5	UN
Glossiphoniidae							
<i>Glossiphonia complanata</i>	1	0.02%	Yes	Unknown		9	PR
<i>Helobdella stagnalis</i>	1	0.02%	Yes	Unknown		10	PR
Sphaeriidae							
<i>Pisidium</i> sp.	6	0.15%	Yes	Unknown		8	CF
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	51	1.24%	Yes	Unknown		4	CG
Naididae							
Naidinae	27	0.66%	Yes	Unknown		8	CG
Rhyacodrilinae	1	0.02%	Yes	Unknown		10	CG
Tubificinae	1	0.02%	Yes	Unknown		10	CG
<b>Ephemeroptera</b>							
Baetidae							
<i>Acentrella</i> sp.	4	0.10%	Yes	Larva	Damaged	4	CG
<i>Baetis tricaudatus</i> complex	40	0.98%	Yes	Larva		4	CG
<i>Diphetor hageni</i>	2	0.05%	Yes	Larva		5	CG
Ephemerellidae							
<i>Attenella margarita</i>	6	0.15%	Yes	Larva		3	CG
<i>Drunella</i> sp.	2	0.05%	Yes	Larva	Early Instar	11	SC
Leptohyphidae							
<i>Tricorythodes</i> sp.	3	0.07%	Yes	Larva		4	CG
<b>Plecoptera</b>							
Perlidae							
<i>Hesperoperla pacifica</i>	2	0.05%	Yes	Larva		11	PR
Perlodidae							
Perlodidae	1	0.02%	No	Larva	Early Instar	11	PR
<i>Skwala</i> sp.	39	0.95%	Yes	Larva		3	PR
Pteronarcyidae							
<i>Pteronarcella</i> sp.	2	0.05%	Yes	Larva		3	SH
<i>Pteronarcys</i> sp.	11	0.27%	Yes	Larva	Damaged	2	SH

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC003

RAI No.: PBSJ14CFRC003

Sta. Name: Clark Fork at Galen Road - Composite

Client ID: CFR-07D

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Brachycentridae							
Brachycentridae	37	0.90%	No	Pupa		11	CF
<i>Brachycentrus occidentalis</i>	563	13.73%	Yes	Larva		2	CF
Glossosomatidae							
<i>Glossosoma</i> sp.	27	0.66%	Yes	Larva		0	SC
Glossosomatidae	9	0.22%	No	Pupa		11	SC
<i>Protophila</i> sp.	4	0.10%	Yes	Larva		1	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	7	0.17%	Yes	Larva		3	SC
Hydropsychidae							
<i>Ceratopsyche cockerelli</i>	608	14.83%	Yes	Larva		4	CF
<i>Cheumatopsyche</i> sp.	11	0.27%	Yes	Larva		5	CF
<i>Hydropsyche occidentalis</i>	65	1.58%	Yes	Larva		5	CF
Hydropsychidae	42	1.02%	No	Pupa		11	CF
Hydropsychidae	134	3.27%	No	Larva	Early Instar	11	CF
Hydroptilidae							
<i>Hydroptila</i> sp.	8	0.20%	Yes	Larva		6	PH
Hydroptilidae	8	0.20%	No	Pupa		11	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	1	0.02%	Yes	Larva		1	SH
Rhyacophilidae							
<i>Rhyacophila</i> sp.	1	0.02%	No	Pupa		11	PR
<i>Rhyacophila</i> sp.	1	0.02%	Yes	Larva	Early Instar	11	PR
<i>Rhyacophila Brunnea/Vemna</i> Gr.	8	0.20%	Yes	Larva		2	PR
<b>Coleoptera</b>							
Elmidae							
<i>Cleptelmis addenda</i>	78	1.90%	No	Larva		4	CG
<i>Cleptelmis addenda</i>	9	0.22%	Yes	Adult		4	CG
<i>Optioservus</i> sp.	871	21.24%	No	Larva		5	SC
<i>Optioservus</i> sp.	138	3.37%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	13	0.32%	Yes	Adult		4	CG
<i>Zaitzevia</i> sp.	91	2.22%	No	Larva		4	CG

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC003

RAI No.: PBSJ14CFRC003

Sta. Name: Clark Fork at Galen Road - Composite

Client ID: CFR-07D

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Diptera</b>							
Athericidae							
<i>Atherix</i> sp.	18	0.44%	Yes	Larva		4	PR
Ceratopogonidae							
Ceratopogoninae	1	0.02%	Yes	Larva		6	PR
Empididae							
<i>Chelifera</i> / <i>Metachela</i> sp.	1	0.02%	Yes	Larva		5	PR
Empididae	5	0.12%	No	Pupa		11	PR
Simuliidae							
<i>Simulium</i> sp.	34	0.83%	No	Pupa		6	CF
<i>Simulium</i> sp.	117	2.85%	Yes	Larva		6	CF
Tipulidae							
<i>Antocha monticola</i>	148	3.61%	Yes	Larva		3	CG
<i>Antocha monticola</i>	14	0.34%	No	Pupa		3	CG
<i>Hexatoma</i> sp.	3	0.07%	Yes	Larva		2	PR
Tipulidae	3	0.07%	Yes	Larva	Damaged	11	SH
<b>Chironomidae</b>							
Chironomidae							
<i>Microtendipes</i> sp.	4	0.10%	Yes	Larva		6	CF
<i>Polypedilum</i> sp.	1	0.02%	No	Pupa		6	SH
<i>Polypedilum</i> sp.	29	0.71%	Yes	Larva		6	SH
<i>Pagastia</i> sp.	69	1.68%	Yes	Larva		1	CG
<i>Cardiocladius</i> sp.	10	0.24%	Yes	Larva		5	PR
<i>Cardiocladius</i> sp.	1	0.02%	No	Pupa		5	PR
<i>Cricotopus</i> sp.	15	0.37%	No	Pupa		7	SH
<i>Cricotopus</i> sp.	4	0.10%	Yes	Larva		7	SH
<i>Cricotopus (Nostococladius)</i> sp.	410	10.00%	Yes	Larva		6	SH
<i>Eukiefferiella</i> sp.	3	0.07%	No	Pupa		8	CG
<i>Eukiefferiella</i> sp.	32	0.78%	Yes	Larva		8	CG
<i>Orthocladius</i> sp.	54	1.32%	Yes	Larva		6	CG
<i>Parametriocnemus</i> sp.	3	0.07%	Yes	Larva		5	CG
<i>Tveteria</i> sp.	166	4.05%	Yes	Larva		5	CG
<i>Tveteria</i> sp.	1	0.02%	No	Pupa		5	CG
Tanypodinae	3	0.07%	No	Pupa	Damaged	11	PR
Thienemannimyia Gr.	15	0.37%	Yes	Larva		11	PR
Sample Count	4101						



# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC004

RAI No.: PBSJ14CFRC004

Client ID: CFR-11F

Date Coll.: 8/8/2014

No. Jars: 1

Sta. Name: Clark Fork at Gem Backroad near Racetrack - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Trepaxonemata	2	0.09%	Yes	Unknown		5	PR
Physidae							
<i>Physella</i> sp.	1	0.04%	Yes	Unknown		8	SC
Planorbidae							
<i>Gyraulus</i> sp.	1	0.04%	Yes	Unknown		8	SC
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	2	0.09%	Yes	Unknown		4	CG
Naididae							
Rhyacodrilinae	1	0.04%	Yes	Unknown		10	CG
Tubificinae	17	0.73%	Yes	Unknown		10	CG
<b>Odonata</b>							
Gomphidae							
Gomphidae	2	0.09%	Yes	Larva	Damaged	11	PR
<b>Ephemeroptera</b>							
Baetidae							
<i>Acentrella</i> sp.	2	0.09%	Yes	Larva	Damaged	4	CG
Baetidae	2	0.09%	Yes	Larva	Early Instar	11	CG
Baetis tricaudatus complex	18	0.77%	Yes	Larva		4	CG
<i>Iswaeon</i> sp.	4	0.17%	Yes	Larva		6	UN
Ephemerellidae							
<i>Attenella margarita</i>	17	0.73%	Yes	Larva		3	CG
<i>Drunella</i> sp.	3	0.13%	Yes	Larva	Early Instar	11	SC
<i>Drunella grandis</i>	4	0.17%	Yes	Larva		2	PR
<i>Ephemerella excrucians</i>	1	0.04%	Yes	Larva		4	SH
Ephemerellidae	16	0.68%	No	Larva	Damaged	11	CG
Heptageniidae							
<i>Ecdyonurus criddlei</i>	2	0.09%	Yes	Larva		4	SH
Leptohyphidae							
<i>Tricorythodes</i> sp.	80	3.42%	Yes	Larva		4	CG
<b>Plecoptera</b>							
Perlodidae							
<i>Skwala</i> sp.	38	1.63%	Yes	Larva		3	PR
Pteronarcyidae							
<i>Pteronarcys</i> sp.	14	0.60%	Yes	Larva	Early Instar	2	SH

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC004

RAI No.: PBSJ14CFRC004

Client ID: CFR-11F

Date Coll.: 8/8/2014

No. Jars: 1

Sta. Name: Clark Fork at Gem Backroad near Racetrack - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Brachycentridae							
<i>Brachycentrus occidentalis</i>	144	6.16%	Yes	Larva		2	CF
Glossosomatidae							
<i>Protophila</i> sp.	13	0.56%	Yes	Larva		1	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	19	0.81%	Yes	Larva		3	SC
<i>Helicopsyche</i> sp.	10	0.43%	No	Pupa		3	SC
Hydropsychidae							
<i>Arctopsyche</i> sp.	1	0.04%	Yes	Larva		2	PR
<i>Ceratopsyche cockerelli</i>	630	26.96%	Yes	Larva		4	CF
<i>Cheumatopsyche</i> sp.	140	5.99%	Yes	Larva		5	CF
<i>Hydropsyche occidentalis</i>	8	0.34%	Yes	Larva		5	CF
Hydropsychidae	2	0.09%	No	Pupa		11	CF
Hydropsychidae	175	7.49%	No	Larva	Early Instar	11	CF
Hydroptilidae							
<i>Hydroptila</i> sp.	38	1.63%	Yes	Larva		6	PH
Leptoceridae							
<i>Oecetis</i> sp.	1	0.04%	Yes	Larva		8	PR
Limnephilidae							
<i>Onocosmoecus unicolor</i>	1	0.04%	Yes	Larva		11	SH
<b>Coleoptera</b>							
Elmidae							
<i>Optioservus</i> sp.	324	13.86%	No	Larva		5	SC
<i>Optioservus</i> sp.	92	3.94%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	34	1.45%	No	Larva		4	CG
<i>Zaitzevia</i> sp.	10	0.43%	Yes	Adult		4	CG
<b>Diptera</b>							
Athericidae							
<i>Atherix</i> sp.	130	5.56%	Yes	Larva		4	PR
Simuliidae							
<i>Simulium</i> sp.	36	1.54%	Yes	Larva		6	CF
<i>Simulium</i> sp.	5	0.21%	No	Pupa		6	CF
Tipulidae							
<i>Antocha monticola</i>	44	1.88%	Yes	Larva		3	CG
<i>Antocha monticola</i>	1	0.04%	No	Pupa		3	CG
<i>Hexatoma</i> sp.	10	0.43%	Yes	Larva		2	PR

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC004

RAI No.: PBSJ14CFRC004

Client ID: CFR-11F

Date Coll.: 8/8/2014

No. Jars: 1

Sta. Name: Clark Fork at Gem Backroad near Racetrack -  
Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Chironomidae</b>							
Chironomidae							
<i>Cryptochironomus</i> sp.	2	0.09%	Yes	Larva		8	PR
<i>Microtendipes</i> sp.	13	0.56%	Yes	Larva		6	CF
<i>Polypedilum</i> sp.	1	0.04%	No	Pupa		6	SH
<i>Polypedilum</i> sp.	18	0.77%	Yes	Larva		6	SH
<i>Pagastia</i> sp.	6	0.26%	Yes	Larva		1	CG
<i>Cricotopus</i> sp.	3	0.13%	Yes	Larva		7	SH
<i>Cricotopus</i> sp.	2	0.09%	No	Pupa		7	SH
<i>Cricotopus (Nostococladius)</i> sp.	48	2.05%	Yes	Larva		6	SH
<i>Orthocladius</i> sp.	68	2.91%	Yes	Larva		6	CG
<i>Orthocladius</i> sp.	2	0.09%	No	Pupa		6	CG
<i>Parametriocnemus</i> sp.	1	0.04%	Yes	Larva		5	CG
<i>Parametriocnemus</i> sp.	1	0.04%	No	Pupa		5	CG
<i>Tvetenia</i> sp.	72	3.08%	Yes	Larva		5	CG
<i>Tvetenia</i> sp.	1	0.04%	No	Pupa		5	CG
Thienemannimyia Gr.	4	0.17%	Yes	Larva		11	PR
Sample Count	2337						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC005

RAI No.: PBSJ14CFRC005

Sta. Name: Clark Fork at Turah - Composite

Client ID: CFR-116A

Date Coll.: 8/8/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Astacidae							
<i>Pacifastacus leniusculus</i>	1	0.04%	Yes	Unknown		6	SH
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	1	0.04%	Yes	Unknown		4	CG
Naididae							
Tubificinae	1	0.04%	Yes	Unknown		10	CG
<b>Odonata</b>							
Gomphidae							
Gomphidae	1	0.04%	Yes	Larva	Early Instar	11	PR
<b>Ephemeroptera</b>							
Baetidae							
<i>Acentrella</i> sp.	10	0.41%	No	Larva	Early Instar	4	CG
<i>Acentrella insignificans</i>	87	3.56%	Yes	Larva		4	CG
<i>Baetis tricaudatus</i> complex	41	1.68%	Yes	Larva		4	CG
<i>Diphetor hageni</i>	7	0.29%	Yes	Larva		5	CG
<i>Iswaeon</i> sp.	23	0.94%	Yes	Larva		6	UN
Ephemerellidae							
<i>Attenella margarita</i>	46	1.88%	Yes	Larva		3	CG
<i>Drunella</i> sp.	33	1.35%	Yes	Larva	Early Instar	11	SC
<i>Ephemerella tibialis</i>	25	1.02%	Yes	Larva		2	CG
Heptageniidae							
<i>Ecdyonurus criddlei</i>	13	0.53%	Yes	Larva		4	SH
<i>Epeorus</i> sp.	6	0.25%	Yes	Larva	Damaged	2	CG
<i>Heptagenia</i> sp.	2	0.08%	Yes	Larva		4	SC
Leptohyphidae							
<i>Asioplax edmundsi</i>	26	1.06%	Yes	Larva		11	CG
<i>Tricorythodes</i> sp.	107	4.37%	Yes	Larva		4	CG
<b>Plecoptera</b>							
Perlidae							
<i>Hesperoperla pacifica</i>	15	0.61%	Yes	Larva		11	PR
Perlodidae							
<i>Isogenoides</i> sp.	2	0.08%	Yes	Larva		11	PR
<i>Skwala</i> sp.	43	1.76%	Yes	Larva		3	PR
Pteronarcyidae							
<i>Pteronarcys</i> sp.	14	0.57%	No	Larva	Early Instar	2	SH
<i>Pteronarcys californica</i>	23	0.94%	Yes	Larva		2	SH

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC005

RAI No.: PBSJ14CFRC005

Sta. Name: Clark Fork at Turah - Composite

Client ID: CFR-116A

Date Coll.: 8/8/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Brachycentridae							
<i>Brachycentrus occidentalis</i>	35	1.43%	Yes	Larva		2	CF
Hydropsychidae							
<i>Arctopsyche</i> sp.	57	2.33%	Yes	Larva		2	PR
<i>Ceratopsyche cockerelli</i>	82	3.35%	Yes	Larva		4	CF
<i>Cheumatopsyche</i> sp.	175	7.15%	Yes	Larva		5	CF
<i>Hydropsyche occidentalis</i>	223	9.12%	Yes	Larva		5	CF
Hydropsychidae	511	20.89%	No	Larva	Early Instar	11	CF
Hydroptilidae							
<i>Hydroptila</i> sp.	43	1.76%	Yes	Larva		6	PH
Leptoceridae							
Leptoceridae	1	0.04%	No	Pupa		11	CG
<i>Oecetis</i> sp.	35	1.43%	Yes	Larva		8	PR
Philopotamidae							
<i>Wormaldia</i> sp.	2	0.08%	Yes	Larva		0	CF
Psychomyiidae							
Psychomyiidae	1	0.04%	Yes	Larva	Damaged	2	CG
<b>Lepidoptera</b>							
Crambidae							
<i>Petrophila</i> sp.	13	0.53%	Yes	Larva		5	SC
<b>Coleoptera</b>							
Elmidae							
<i>Optioservus</i> sp.	121	4.95%	No	Larva		5	SC
<i>Optioservus</i> sp.	32	1.31%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	36	1.47%	No	Larva		4	CG
<i>Zaitzevia</i> sp.	4	0.16%	Yes	Adult		4	CG
<b>Diptera</b>							
Athericidae							
<i>Atherix</i> sp.	62	2.53%	Yes	Larva		4	PR
Empididae							
<i>Chelifera</i> / <i>Metachela</i> sp.	12	0.49%	Yes	Larva		5	PR
Empididae	6	0.25%	No	Pupa		11	PR
Simuliidae							
<i>Simulium</i> sp.	16	0.65%	No	Pupa		6	CF
<i>Simulium</i> sp.	33	1.35%	Yes	Larva		6	CF
Tipulidae							
<i>Antocha monticola</i>	189	7.73%	Yes	Larva		3	CG
<i>Antocha monticola</i>	9	0.37%	No	Pupa		3	CG
<i>Tipula</i> sp.	1	0.04%	Yes	Larva		4	SH

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC005

RAI No.: PBSJ14CFRC005

Sta. Name: Clark Fork at Turah - Composite

Client ID: CFR-116A

Date Coll.: 8/8/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Chironomidae</b>							
Chironomidae							
<i>Microtendipes</i> sp.	8	0.33%	Yes	Larva		6	CF
<i>Polypedilum</i> sp.	5	0.20%	Yes	Larva		6	SH
<i>Micropsectra</i> sp.	1	0.04%	Yes	Larva		11	CG
<i>Rheotanytarsus</i> sp.	8	0.33%	Yes	Larva		11	CF
<i>Sublettea coffmani</i>	1	0.04%	Yes	Larva		11	UN
<i>Tanytarsus</i> sp.	1	0.04%	Yes	Larva		11	CF
<i>Pagastia</i> sp.	3	0.12%	Yes	Larva		1	CG
<i>Potthastia Gaedii</i> Gr.	6	0.25%	Yes	Larva		2	CG
<i>Cardiocladius</i> sp.	10	0.41%	Yes	Larva		5	PR
<i>Cricotopus</i> sp.	7	0.29%	No	Pupa		7	SH
<i>Cricotopus</i> sp.	64	2.62%	Yes	Larva		7	SH
<i>Cricotopus (Nostococladius)</i> sp.	13	0.53%	Yes	Larva		6	SH
<i>Eukiefferiella</i> sp.	49	2.00%	Yes	Larva		8	CG
<i>Eukiefferiella</i> sp.	2	0.08%	No	Pupa		8	CG
Orthoclaadiinae	1	0.04%	No	Pupa	Damaged	11	CG
<i>Orthocladus</i> sp.	1	0.04%	No	Pupa		6	CG
<i>Orthocladus</i> sp.	25	1.02%	Yes	Larva		6	CG
<i>Thienemanniella</i> sp.	1	0.04%	Yes	Larva		6	CG
<i>Thienemanniella</i> sp.	2	0.08%	No	Pupa		6	CG
<i>Tvetenia</i> sp.	11	0.45%	Yes	Larva		5	CG
<i>Thienemannimyia</i> Gr.	1	0.04%	Yes	Larva		11	PR
<b>Sample Count</b>	<b>2446</b>						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC006

RAI No.: PBSJ14CFRC006

Client ID: MCWC-MWB

Date Coll.: 8/7/2014

No. Jars: 1

Sta. Name: Mill-Willow Creeks above Mill-Willow Bypass at Frontage Rd. - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Trepaxonemata	2	0.06%	Yes	Unknown		5	PR
Nemata	0	0.00%	Yes	Unknown		5	UN
Lymnaeidae							
Galba sp.	2	0.06%	Yes	Unknown		6	SC
Planorbidae							
Gyraulus sp.	7	0.21%	Yes	Unknown		8	SC
Sphaeriidae							
Pisidium sp.	2	0.06%	Yes	Unknown		8	CF
Sphaeriidae	1	0.03%	Yes	Immature		8	CF
<b>Oligochaeta</b>							
Naididae							
Naidinae	15	0.45%	Yes	Unknown		8	CG
<b>Ephemeroptera</b>							
Baetidae							
Acentrella sp.	12	0.36%	No	Larva	Damaged	4	CG
Acentrella insignificans	30	0.90%	Yes	Larva		4	CG
Baetidae	2	0.06%	No	Larva	Damaged	11	CG
Baetis tricaudatus complex	14	0.42%	Yes	Larva		4	CG
Diphetor hageni	10	0.30%	Yes	Larva		5	CG
Ephemerellidae							
Attenella margarita	5	0.15%	Yes	Larva		3	CG
Drunella sp.	8	0.24%	Yes	Larva	Early Instar	11	SC
Drunella grandis	8	0.24%	Yes	Larva		2	PR
Ephemerella tibialis	8	0.24%	Yes	Larva		2	CG
Ephemerellidae	3	0.09%	No	Larva	Damaged	11	CG
Heptageniidae							
Ecdyonurus criddlei	34	1.02%	Yes	Larva		4	SH
Epeorus Albertae Gr.	1	0.03%	Yes	Larva		2	SC
Leptohyphidae							
Tricorythodes sp.	30	0.90%	Yes	Larva		4	CG
Leptophlebiidae							
Paraleptophlebia sp.	1	0.03%	Yes	Larva		1	CG
<b>Plecoptera</b>							
Chloroperlidae							
Chloroperlidae	2	0.06%	No	Larva	Early Instar	1	PR
Sweltsa sp.	1	0.03%	Yes	Larva		1	PR
Perlidae							
Hesperoperla pacifica	5	0.15%	Yes	Larva		11	PR
Perlodidae							
Skwala sp.	28	0.84%	Yes	Larva		3	PR
Pteronarcyidae							
Pteronarcella sp.	2	0.06%	Yes	Larva		3	SH
Pteronarcys sp.	1	0.03%	Yes	Larva	Early Instar	2	SH

Monday, March 02, 2015

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC006

RAI No.: PBSJ14CFRC006

Client ID: MCWC-MWB

Date Coll.: 8/7/2014

No. Jars: 1

Sta. Name: Mill-Willow Creeks above Mill-Willow Bypass at Frontage Rd. - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Brachycentridae							
Brachycentridae	1	0.03%	No	Pupa		11	CF
<i>Brachycentrus americanus</i>	2	0.06%	Yes	Larva		1	CF
<i>Brachycentrus occidentalis</i>	1264	37.80%	Yes	Larva		2	CF
Glossosomatidae							
<i>Agapetus</i> sp.	30	0.90%	Yes	Larva		0	SC
<i>Glossosoma</i> sp.	23	0.69%	Yes	Larva		0	SC
Glossosomatidae	79	2.36%	No	Pupa		11	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	16	0.48%	Yes	Larva		3	SC
<i>Helicopsyche</i> sp.	2	0.06%	No	Pupa		3	SC
Hydropsychidae							
<i>Arctopsyche</i> sp.	87	2.60%	Yes	Larva		2	PR
<i>Ceratopsyche cockerelli</i>	4	0.12%	Yes	Larva		4	CF
<i>Cheumatopsyche</i> sp.	4	0.12%	Yes	Larva		5	CF
Hydropsychidae	90	2.69%	No	Larva	Early Instar	11	CF
Hydropsychidae	1	0.03%	No	Pupa		11	CF
Hydroptilidae							
<i>Hydroptila</i> sp.	9	0.27%	Yes	Larva		6	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	25	0.75%	Yes	Larva		1	SH
Leptoceridae							
Leptoceridae	2	0.06%	No	Pupa		11	CG
<i>Oecetis</i> sp.	7	0.21%	Yes	Larva		8	PR
Rhyacophilidae							
<i>Rhyacophila</i> sp.	3	0.09%	No	Pupa		11	PR
<i>Rhyacophila</i> sp.	4	0.12%	Yes	Larva	Early Instar	11	PR
Uenoidae							
<i>Neophylax rickerti</i>	6	0.18%	Yes	Larva		3	SC
<b>Lepidoptera</b>							
Crambidae							
<i>Petrophila</i> sp.	1	0.03%	Yes	Larva		5	SC
<b>Coleoptera</b>							
Elmidae							
Elmidae	51	1.53%	No	Adult	Damaged	11	CG
<i>Optioservus</i> sp.	243	7.27%	No	Larva		5	SC
<i>Optioservus</i> sp.	173	5.17%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	12	0.36%	Yes	Adult		4	CG
<i>Zaitzevia</i> sp.	31	0.93%	No	Larva		4	CG



# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC006

RAI No.: PBSJ14CFRC006

Client ID: MCWC-MWB

Date Coll.: 8/7/2014

No. Jars: 1

Sta. Name: Mill-Willow Creeks above Mill-Willow Bypass at Frontage Rd. - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Diptera</b>							
Empididae							
Empididae	5	0.15%	Yes	Pupa		11	PR
Simuliidae							
Simulium sp.	9	0.27%	No	Pupa		6	CF
Simulium sp.	14	0.42%	Yes	Larva		6	CF
Tipulidae							
Antocha monticola	18	0.54%	Yes	Larva		3	CG
Antocha monticola	8	0.24%	No	Pupa		3	CG
Hexatoma sp.	32	0.96%	Yes	Larva		2	PR
<b>Chironomidae</b>							
Chironomidae							
Microtendipes sp.	1	0.03%	Yes	Larva		6	CF
Polypedilum sp.	4	0.12%	Yes	Larva		6	SH
Micropsectra sp.	22	0.66%	Yes	Larva		11	CG
Rheotanytarsus sp.	223	6.67%	Yes	Larva		11	CF
Rheotanytarsus sp.	11	0.33%	No	Pupa		11	CF
Tanytarsini	1	0.03%	No	Pupa	Damaged	11	CF
Pagastia sp.	77	2.30%	Yes	Larva		1	CG
Brillia sp.	1	0.03%	Yes	Larva		4	SH
Cricotopus sp.	4	0.12%	No	Pupa		7	SH
Cricotopus sp.	12	0.36%	Yes	Larva		7	SH
Cricotopus (Nostococladius) sp.	204	6.10%	Yes	Larva		6	SH
Eukiefferiella sp.	84	2.51%	Yes	Larva		8	CG
Eukiefferiella sp.	4	0.12%	No	Pupa		8	CG
Nanocladius sp.	1	0.03%	Yes	Larva		3	CG
Orthocladius sp.	64	1.91%	Yes	Larva		6	CG
Parametriocnemus sp.	1	0.03%	No	Pupa		5	CG
Parametriocnemus sp.	10	0.30%	Yes	Larva		5	CG
Thienemanniella sp.	7	0.21%	Yes	Larva		6	CG
Tvetenia sp.	113	3.38%	Yes	Larva		5	CG
Tvetenia sp.	2	0.06%	No	Pupa		5	CG
Conchapelopia sp.	1	0.03%	Yes	Pupa		11	PR
Nilotanytus sp.	1	0.03%	Yes	Larva		11	PR
Pentaneura sp.	2	0.06%	Yes	Larva		6	PR
Tanypodinae	1	0.03%	No	Pupa	Damaged	11	PR
Thienemannimyia Gr.	3	0.09%	No	Larva		11	PR
Sample Count	3344						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC007

RAI No.: PBSJ14CFRC007

Sta. Name: Warm Springs Creek near mouth - Composite

Client ID: WSC-SBC

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Planorbidae							
<i>Gyraulus</i> sp.	1	0.13%	Yes	Unknown		8	SC
Sphaeriidae							
<i>Pisidium</i> sp.	5	0.67%	Yes	Unknown		8	CF
<b>Oligochaeta</b>							
Naididae							
Naidinae	1	0.13%	Yes	Unknown		8	CG
<b>Ephemeroptera</b>							
Baetidae							
<i>Acentrella insignificans</i>	32	4.28%	Yes	Larva		4	CG
<i>Baetis tricaudatus</i> complex	85	11.38%	Yes	Larva		4	CG
<i>Dipheter hageni</i>	2	0.27%	Yes	Larva		5	CG
Ephemerellidae							
<i>Drunella grandis</i>	2	0.27%	Yes	Larva		2	PR
Ephemerellidae	1	0.13%	No	Larva	Damaged	11	CG
Heptageniidae							
<i>Epeorus</i> sp.	1	0.13%	Yes	Larva	Damaged	2	CG
<b>Plecoptera</b>							
Perlidae							
<i>Hesperoperla pacifica</i>	24	3.21%	Yes	Larva		11	PR
Perlodidae							
<i>Skwala</i> sp.	1	0.13%	Yes	Larva		3	PR
Pteronarcyidae							
<i>Pteronarcella</i> sp.	1	0.13%	Yes	Larva		3	SH

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC007

RAI No.: PBSJ14CFRC007

Sta. Name: Warm Springs Creek near mouth - Composite

Client ID: WSC-SBC

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Trichoptera	1	0.13%	No	Pupa	Damaged	11	UN
Brachycentridae							
Brachycentridae	2	0.27%	No	Pupa		11	CF
<i>Brachycentrus americanus</i>	15	2.01%	Yes	Larva		1	CF
<i>Brachycentrus occidentalis</i>	15	2.01%	Yes	Larva		2	CF
<i>Micrasema</i> sp.	1	0.13%	Yes	Larva		1	SH
Glossosomatidae							
<i>Agapetus</i> sp.	6	0.80%	Yes	Larva		0	SC
<i>Glossosoma</i> sp.	9	1.20%	Yes	Larva		0	SC
Glossosomatidae	2	0.27%	No	Pupa		11	SC
Hydropsychidae							
<i>Arctopsyche</i> sp.	113	15.13%	Yes	Larva		2	PR
Hydroptilidae							
Hydroptilidae	2	0.27%	No	Pupa		11	PH
<i>Ochrotrichia</i> sp.	11	1.47%	Yes	Larva		4	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	2	0.27%	Yes	Larva		1	SH
Rhyacophilidae							
<i>Rhyacophila</i> sp.	1	0.13%	No	Pupa		11	PR
<i>Rhyacophila</i> sp.	4	0.54%	Yes	Pupa		11	PR
<i>Rhyacophila</i> Angelita Gr.	1	0.13%	Yes	Larva		0	PR
<i>Rhyacophila</i> Brunnea/Vemna Gr.	2	0.27%	Yes	Larva		2	PR
Uenoidae							
<i>Neophylax rickeri</i>	1	0.13%	Yes	Larva		3	SC
<b>Coleoptera</b>							
Elmidae							
<i>Cleptelmis addenda</i>	10	1.34%	Yes	Adult		4	CG
<i>Cleptelmis addenda</i>	2	0.27%	No	Larva		4	CG
Elmidae	27	3.61%	No	Adult	Damaged	11	CG
<i>Narpus concolor</i>	3	0.40%	Yes	Larva		2	CG
<i>Optioservus</i> sp.	48	6.43%	Yes	Adult		5	SC
<i>Optioservus</i> sp.	166	22.22%	No	Larva		5	SC

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC007

RAI No.: PBSJ14CFRC007

Sta. Name: Warm Springs Creek near mouth - Composite

Client ID: WSC-SBC

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Diptera</b>							
Deuterophlebiidae							
<i>Deuterophlebia</i> sp.	2	0.27%	Yes	Pupa		11	SC
Empididae							
<i>Chelifera</i> / <i>Metachela</i> sp.	16	2.14%	Yes	Larva		5	PR
Empididae	7	0.94%	No	Pupa		11	PR
Empididae	2	0.27%	Yes	Pupa		11	PR
Simuliidae							
<i>Simulium</i> sp.	10	1.34%	No	Pupa		6	CF
<i>Simulium</i> sp.	8	1.07%	Yes	Larva		6	CF
Tipulidae							
<i>Antocha monticola</i>	2	0.27%	Yes	Larva		3	CG
<i>Antocha monticola</i>	1	0.13%	No	Pupa		3	CG
<i>Hexatoma</i> sp.	8	1.07%	Yes	Larva		2	PR
<b>Chironomidae</b>							
Chironomidae							
<i>Rheotanytarsus</i> sp.	2	0.27%	Yes	Larva		11	CF
<i>Pagastia</i> sp.	21	2.81%	Yes	Larva		1	CG
<i>Cardiocladius</i> sp.	1	0.13%	Yes	Larva		5	PR
<i>Cricotopus</i> sp.	1	0.13%	Yes	Larva		7	SH
<i>Cricotopus</i> sp.	1	0.13%	No	Pupa		7	SH
<i>Cricotopus</i> ( <i>Nostococladius</i> ) sp.	4	0.54%	Yes	Larva		6	SH
<i>Eukiefferiella</i> sp.	4	0.54%	No	Pupa		8	CG
<i>Eukiefferiella</i> sp.	38	5.09%	Yes	Larva		8	CG
<i>Orthocladius</i> sp.	6	0.80%	Yes	Larva		6	CG
<i>Rheocricotopus</i> sp.	1	0.13%	Yes	Larva		4	CG
<i>Tveteria</i> sp.	1	0.13%	No	Pupa		5	CG
<i>Tveteria</i> sp.	11	1.47%	Yes	Larva		5	CG
Sample Count	747						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC008

RAI No.: PBSJ14CFRC008

Sta. Name: Lost Creek at Frontage Road - Composite

Client ID: LC-7.5

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Trepaxonemata	14	0.25%	Yes	Unknown		5	PR
Nemata	0	0.00%	Yes	Unknown		5	UN
Amphipoda	4	0.07%	No	Immature		11	CG
Erpobdellidae							
Erpobdellidae	5	0.09%	Yes	Unknown		8	PR
Gammaridae							
<i>Gammarus</i> sp.	247	4.34%	Yes	Unknown		4	SH
Glossiphoniidae							
<i>Glossiphonia complanata</i>	25	0.44%	Yes	Unknown		9	PR
<i>Helobdella stagnalis</i>	116	2.04%	Yes	Unknown		10	PR
Hyalellidae							
<i>Hyalella</i> sp.	1334	23.47%	Yes	Unknown		8	CG
Physidae							
<i>Physella</i> sp.	48	0.84%	Yes	Unknown		8	SC
Planorbidae							
<i>Gyraulus</i> sp.	39	0.69%	Yes	Unknown		8	SC
Sphaeriidae							
<i>Pisidium</i> sp.	192	3.38%	Yes	Unknown		8	CF
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	1	0.02%	Yes	Unknown		4	CG
Naididae							
Naidinae	5	0.09%	Yes	Unknown		8	CG
Rhyacodrilinae	4	0.07%	Yes	Unknown		10	CG
Tubificinae	17	0.30%	Yes	Unknown		10	CG
<b>Odonata</b>							
Coenagrionidae							
Coenagrionidae	1	0.02%	Yes	Larva	Damaged	8	PR
<b>Ephemeroptera</b>							
Baetidae							
<i>Acentrella</i> sp.	1	0.02%	Yes	Larva	Damaged	4	CG
Baetidae	1	0.02%	No	Larva	Damaged	11	CG
Baetis tricaudatus complex	89	1.57%	Yes	Larva		4	CG
<i>Diphetor hageni</i>	65	1.14%	Yes	Larva		5	CG
<i>Iswaeon</i> sp.	16	0.28%	Yes	Larva		6	UN
Ephemerellidae							
<i>Ephemerella</i> sp.	1	0.02%	Yes	Larva	Damaged	11	SC
Leptohyphidae							
<i>Tricorythodes</i> sp.	45	0.79%	Yes	Larva		4	CG
Leptophlebiidae							
<i>Paraleptophlebia</i> sp.	3	0.05%	Yes	Larva		1	CG
<b>Plecoptera</b>							
Perlodidae							
<i>Skwala</i> sp.	56	0.99%	Yes	Larva		3	PR

Monday, March 02, 2015

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC008

RAI No.: PBSJ14CFRC008

Sta. Name: Lost Creek at Frontage Road - Composite

Client ID: LC-7.5

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Megaloptera</b>							
Sialidae							
<i>Sialis</i> sp.	1	0.02%	Yes	Larva		4	PR
<b>Trichoptera</b>							
Trichoptera	3	0.05%	No	Pupa	Damaged	11	UN
Brachycentridae							
<i>Brachycentrus occidentalis</i>	608	10.69%	Yes	Larva		2	CF
Glossosomatidae							
<i>Glossosoma</i> sp.	4	0.07%	Yes	Larva		0	SC
Glossosomatidae	4	0.07%	No	Pupa		11	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	548	9.64%	Yes	Larva		3	SC
<i>Helicopsyche</i> sp.	2	0.04%	No	Pupa		3	SC
Hydropsychidae							
<i>Ceratopsyche cockerelli</i>	3	0.05%	Yes	Larva		4	CF
<i>Ceratopsyche slosonae</i>	241	4.24%	Yes	Larva		4	CF
<i>Cheumatopsyche</i> sp.	32	0.56%	Yes	Larva		5	CF
<i>Hydropsyche</i> sp.	4	0.07%	Yes	Larva	Early Instar	5	CF
Hydropsychidae	12	0.21%	No	Pupa		11	CF
Hydropsychidae	125	2.20%	No	Larva	Early Instar	11	CF
Hydroptilidae							
<i>Hydroptila</i> sp.	138	2.43%	Yes	Larva		6	PH
Hydroptilidae	298	5.24%	No	Pupa		11	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	26	0.46%	Yes	Larva		1	SH
Leptoceridae							
<i>Oecetis</i> sp.	229	4.03%	Yes	Larva		8	PR
Limnephilidae							
<i>Onocosmoecus unicolor</i>	3	0.05%	Yes	Larva		11	SH
Philopotamidae							
Philopotamidae	2	0.04%	No	Pupa		11	CF
<i>Wormaldia</i> sp.	2	0.04%	Yes	Larva		0	CF
<b>Coleoptera</b>							
Dytiscidae							
<i>Laccophilus</i> sp.	1	0.02%	Yes	Adult		11	PR
<i>Oreodytes</i> sp.	7	0.12%	Yes	Adult		11	PR
Elmidae							
<i>Cleptelmis addenda</i>	160	2.81%	No	Larva		4	CG
<i>Cleptelmis addenda</i>	51	0.90%	Yes	Adult		4	CG
Elmidae	21	0.37%	No	Larva	Early Instar	11	CG
Elmidae	113	1.99%	No	Adult	Damaged	11	CG
<i>Optioservus</i> sp.	178	3.13%	No	Larva		5	SC
<i>Optioservus</i> sp.	258	4.54%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	30	0.53%	No	Larva		4	CG
<i>Zaitzevia</i> sp.	10	0.18%	Yes	Adult		4	CG

Monday, March 02, 2015

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC008

RAI No.: PBSJ14CFRC008

Sta. Name: Lost Creek at Frontage Road - Composite

Client ID: LC-7.5

Date Coll.: 8/7/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Diptera</b>							
Psychodidae							
<i>Pericoma / Telmatoscopus</i>	15	0.26%	Yes	Larva		4	CG
Simuliidae							
<i>Simulium</i> sp.	1	0.02%	No	Pupa		6	CF
<i>Simulium</i> sp.	13	0.23%	Yes	Larva		6	CF
Tipulidae							
<i>Antocha monticola</i>	13	0.23%	Yes	Larva		3	CG
<i>Dicranota</i> sp.	51	0.90%	Yes	Larva		3	PR
<i>Tipula</i> sp.	3	0.05%	Yes	Larva		4	SH
<b>Chironomidae</b>							
Chironomidae							
<i>Microtendipes</i> sp.	2	0.04%	Yes	Larva		6	CF
<i>Polypedilum</i> sp.	1	0.02%	Yes	Pupa		6	SH
<i>Micropsectra</i> sp.	4	0.07%	Yes	Larva		11	CG
<i>Rheotanytarsus</i> sp.	9	0.16%	Yes	Larva		11	CF
<i>Pagastia</i> sp.	72	1.27%	Yes	Larva		1	CG
<i>Corynoneura</i> sp.	1	0.02%	Yes	Pupa		7	CG
<i>Cricotopus</i> sp.	1	0.02%	Yes	Larva		7	SH
<i>Eukiefferiella</i> sp.	6	0.11%	Yes	Larva		8	CG
<i>Tvetenia</i> sp.	5	0.09%	Yes	Larva		5	CG
<i>Pentaneura</i> sp.	29	0.51%	Yes	Larva		6	PR
Tanypodinae	1	0.02%	Yes	Pupa	Damaged	11	PR
Tanypodinae	3	0.05%	No	Pupa	Damaged	11	PR
Thienemannimyia Gr.	12	0.21%	Yes	Larva		11	PR
Sample Count	5685						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC009

RAI No.: PBSJ14CFRC009

Sta. Name: Racetrack Creek at Frontage Road - Composite

Client ID: RTC-1.5

Date Coll.: 8/8/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Trepaxonemata	1	0.08%	Yes	Unknown		5	PR
Nemata	0	0.00%	Yes	Unknown		5	UN
Hyalellidae							
<i>Hyalella</i> sp.	1	0.08%	Yes	Unknown		8	CG
Sphaeriidae							
<i>Pisidium</i> sp.	2	0.17%	Yes	Unknown		8	CF
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	72	6.09%	Yes	Unknown		4	CG
Haplotaxidae							
Haplotaxidae	10	0.85%	Yes	Unknown		11	PR
Naididae							
Naidinae	5	0.42%	Yes	Unknown		8	CG
Tubificinae	6	0.51%	Yes	Unknown		10	CG
<b>Ephemeroptera</b>							
Ameletidae							
<i>Ameletus</i> sp.	4	0.34%	Yes	Larva		0	SC
Baetidae							
<i>Anafroptilum</i> sp.	1	0.08%	Yes	Larva		2	UN
Baetis tricaudatus complex	254	21.49%	Yes	Larva		4	CG
<i>Diphetor hageni</i>	1	0.08%	Yes	Larva		5	CG
Ephemerellidae							
<i>Attenella margarita</i>	1	0.08%	Yes	Larva		3	CG
<i>Drunella coloradensis</i>	2	0.17%	Yes	Larva		0	SC
<i>Drunella grandis</i>	37	3.13%	Yes	Larva		2	PR
<i>Ephemerella excrucians</i>	1	0.08%	Yes	Larva		4	SH
<i>Ephemerella tibialis</i>	67	5.67%	Yes	Larva		2	CG
Ephemerellidae	44	3.72%	No	Larva	Damaged	11	CG
Heptageniidae							
<i>Ecdyonurus criddlei</i>	17	1.44%	Yes	Larva		4	SH
<i>Rhithrogena</i> sp.	2	0.17%	Yes	Larva		0	SC
Leptophlebiidae							
<i>Paraleptophlebia</i> sp.	12	1.02%	Yes	Larva		1	CG
<b>Plecoptera</b>							
Chloroperlidae							
Chloroperlidae	1	0.08%	No	Larva	Early Instar	1	PR
<i>Paraperla</i> sp.	1	0.08%	Yes	Larva		1	CG
<i>Suwallia</i> sp.	7	0.59%	Yes	Larva		1	PR
Nemouridae							
<i>Malenka</i> sp.	8	0.68%	Yes	Larva		2	SH
Perlodidae							
Perlodidae	7	0.59%	No	Larva	Damaged	11	PR
<i>Skwala</i> sp.	38	3.21%	Yes	Larva		3	PR

Monday, March 02, 2015



# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC009

RAI No.: PBSJ14CFRC009

Sta. Name: Racetrack Creek at Frontage Road - Composite

Client ID: RTC-1.5

Date Coll.: 8/8/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Heteroptera</b>							
Corixidae							
<i>Sigara</i> sp.	1	0.08%	Yes	Adult		11	PH
<b>Trichoptera</b>							
Brachycentridae							
<i>Brachycentrus americanus</i>	1	0.08%	Yes	Larva		1	CF
Glossosomatidae							
<i>Agapetus</i> sp.	7	0.59%	Yes	Larva		0	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	1	0.08%	No	Pupa		3	SC
<i>Helicopsyche</i> sp.	2	0.17%	Yes	Larva		3	SC
Hydroptilidae							
<i>Hydroptila</i> sp.	1	0.08%	Yes	Larva		6	PH
Hydroptilidae	1	0.08%	No	Larva	Early Instar	11	PH
<i>Ochrotrichia</i> sp.	4	0.34%	Yes	Larva		4	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	3	0.25%	Yes	Larva		1	SH
<i>Lepidostoma</i> sp.	1	0.08%	No	Pupa		1	SH
Rhyacophilidae							
<i>Rhyacophila Brunnea/Vemna</i> Gr.	1	0.08%	Yes	Larva		2	PR
Uenoidae							
<i>Neophylax rickeri</i>	21	1.78%	Yes	Larva		3	SC
Uenoidae	1	0.08%	No	Pupa		11	SC
<b>Coleoptera</b>							
Dytiscidae							
<i>Liodessus</i> sp.	1	0.08%	Yes	Adult		11	PR
<i>Oreodytes</i> sp.	2	0.17%	Yes	Adult		11	PR
Elmidae							
<i>Optioservus</i> sp.	15	1.27%	No	Larva		5	SC
<i>Optioservus</i> sp.	24	2.03%	Yes	Adult		5	SC
<i>Zaitzevia</i> sp.	3	0.25%	Yes	Adult		4	CG
Haliplidae							
Haliplidae	2	0.17%	Yes	Larva	Early Instar	11	SH
<b>Diptera</b>							
Ceratopogonidae							
Ceratopogoninae	1	0.08%	Yes	Larva		6	PR
Simuliidae							
<i>Simulium</i> sp.	1	0.08%	No	Pupa		6	CF
<i>Simulium</i> sp.	1	0.08%	Yes	Larva		6	CF
Tipulidae							
<i>Dicranota</i> sp.	5	0.42%	Yes	Larva		3	PR
<i>Hexatoma</i> sp.	3	0.25%	Yes	Larva		2	PR
<i>Tipula</i> sp.	3	0.25%	Yes	Larva		4	SH
Tipulidae	3	0.25%	No	Larva	Damaged	11	SH

Monday, March 02, 2015

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC009

RAI No.: PBSJ14CFRC009

Sta. Name: Racetrack Creek at Frontage Road - Composite

Client ID: RTC-1.5

Date Coll.: 8/8/2014

No. Jars: 1

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Chironomidae</b>							
Chironomidae							
<i>Phaenopsectra</i> sp.	3	0.25%	Yes	Larva		7	SC
<i>Micropsectra</i> sp.	46	3.89%	Yes	Larva		11	CG
Tanytarsini	2	0.17%	No	Larva	Early Instar	11	CF
<i>Tanytarsus</i> sp.	12	1.02%	Yes	Larva		11	CF
<i>Tanytarsus</i> sp.	2	0.17%	No	Pupa		11	CF
<i>Pagastia</i> sp.	285	24.11%	Yes	Larva		1	CG
<i>Corynoneura</i> sp.	1	0.08%	Yes	Pupa		7	CG
<i>Cricotopus</i> sp.	44	3.72%	Yes	Larva		7	SH
<i>Cricotopus (Nostococladius)</i> sp.	1	0.08%	Yes	Larva		6	SH
<i>Diplocladius cultriger</i>	1	0.08%	Yes	Larva		11	CG
<i>Eukiefferiella</i> sp.	6	0.51%	Yes	Larva		8	CG
Orthoclaadiinae	1	0.08%	No	Pupa	Damaged	11	CG
Orthoclaadiinae	36	3.05%	No	Larva	Early Instar	11	CG
<i>Orthocladus</i> sp.	10	0.85%	Yes	Larva		6	CG
<i>Tvetenia</i> sp.	17	1.44%	Yes	Larva		5	CG
Thienemannimyia Gr.	4	0.34%	Yes	Larva		11	PR
Sample Count	1182						

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC010

RAI No.: PBSJ14CFRC010

Client ID: LBR-CFR-1.5

Date Coll.: 8/8/2014

No. Jars: 1

Sta. Name: Little Blackfoot River at Beck Hill Rd. bridge - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Other Non-Insect</b>							
Trepaxonemata	1	0.06%	Yes	Unknown		5	PR
Nemata	0	0.00%	Yes	Unknown		5	UN
Physidae							
<i>Physella</i> sp.	3	0.17%	Yes	Unknown		8	SC
<b>Oligochaeta</b>							
Enchytraeidae							
Enchytraeidae	4	0.23%	Yes	Unknown		4	CG
Naididae							
Naidinae	22	1.25%	Yes	Unknown		8	CG
<b>Ephemeroptera</b>							
Baetidae							
<i>Acentrella insignificans</i>	17	0.97%	Yes	Larva		4	CG
Baetis tricaudatus complex	86	4.88%	Yes	Larva		4	CG
Ephemerellidae							
<i>Attenella margarita</i>	57	3.24%	Yes	Larva		3	CG
<i>Drunella grandis</i>	85	4.83%	Yes	Larva		2	PR
<i>Ephemerella tibialis</i>	12	0.68%	Yes	Larva		2	CG
Ephemerellidae	29	1.65%	No	Larva	Damaged	11	CG
<i>Timpanoga hecuba</i>	1	0.06%	Yes	Larva		2	CG
Heptageniidae							
<i>Ecdyonurus criddlei</i>	50	2.84%	Yes	Larva		4	SH
Leptohyphidae							
<i>Tricorythodes</i> sp.	27	1.53%	Yes	Larva		4	CG
Leptophlebiidae							
<i>Paraleptophlebia</i> sp.	1	0.06%	No	Larva		1	CG
<i>Paraleptophlebia bicornuta</i>	3	0.17%	Yes	Larva		2	CG
<b>Plecoptera</b>							
Chloroperlidae							
<i>Sweltsa</i> sp.	22	1.25%	Yes	Larva		1	PR
Perlidae							
<i>Claassenia sabulosa</i>	2	0.11%	Yes	Larva		11	PR
<i>Hesperoperla pacifica</i>	8	0.45%	Yes	Larva		11	PR
Perlodidae							
Perlodidae	2	0.11%	No	Larva	Damaged	11	PR
<i>Skwala</i> sp.	20	1.14%	Yes	Larva		3	PR
Pteronarcyidae							
<i>Pteronarcella</i> sp.	5	0.28%	Yes	Larva		3	SH
<i>Pteronarcys californica</i>	1	0.06%	Yes	Larva		2	SH

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC010

RAI No.: PBSJ14CFRC010

Client ID: LBR-CFR-1.5

Date Coll.: 8/8/2014

No. Jars: 1

Sta. Name: Little Blackfoot River at Beck Hill Rd. bridge - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Trichoptera</b>							
Brachycentridae							
<i>Amiocentrus aspilus</i>	1	0.06%	Yes	Larva		3	CG
Brachycentridae	4	0.23%	No	Pupa		11	CF
<i>Brachycentrus occidentalis</i>	44	2.50%	Yes	Larva		2	CF
Glossosomatidae							
<i>Glossosoma</i> sp.	33	1.87%	Yes	Larva		0	SC
Glossosomatidae	1	0.06%	No	Pupa		11	SC
<i>Protoptila</i> sp.	1	0.06%	Yes	Larva		1	SC
Helicopsychidae							
<i>Helicopsyche</i> sp.	1	0.06%	Yes	Larva		3	SC
Hydropsychidae							
<i>Arctopsyche</i> sp.	54	3.07%	Yes	Larva		2	PR
<i>Ceratopsyche</i> sp.	11	0.62%	Yes	Larva	Early Instar	5	CF
<i>Hydropsyche</i> sp.	57	3.24%	Yes	Larva	Early Instar	5	CF
Hydropsychidae	111	6.30%	No	Larva	Early Instar	11	CF
Hydropsychidae	1	0.06%	No	Pupa		11	CF
Hydroptilidae							
Hydroptilidae	3	0.17%	No	Pupa		11	PH
<i>Ochrotrichia</i> sp.	2	0.11%	Yes	Larva		4	PH
Lepidostomatidae							
<i>Lepidostoma</i> sp.	5	0.28%	Yes	Larva		1	SH
Rhyacophilidae							
<i>Rhyacophila</i> sp.	2	0.11%	No	Pupa		11	PR
<i>Rhyacophila</i> sp.	5	0.28%	Yes	Larva	Early Instar	11	PR
Uenoidae							
<i>Neophylax rickeri</i>	2	0.11%	Yes	Larva		3	SC
<b>Coleoptera</b>							
Elmidae							
Elmidae	11	0.62%	No	Adult	Damaged	11	CG
<i>Narpus concolor</i>	1	0.06%	Yes	Larva		2	CG
<i>Optioservus</i> sp.	11	0.62%	Yes	Adult		5	SC
<i>Optioservus</i> sp.	57	3.24%	No	Larva		5	SC
<i>Zaitzevia</i> sp.	99	5.62%	No	Larva		4	CG
<i>Zaitzevia</i> sp.	10	0.57%	Yes	Adult		4	CG

# Taxa Listing

Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC010

RAI No.: PBSJ14CFRC010

Client ID: LBR-CFR-1.5

Date Coll.: 8/8/2014

No. Jars: 1

Sta. Name: Little Blackfoot River at Beck Hill Rd. bridge - Composite

STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
<b>Diptera</b>							
Athericidae							
<i>Atherix</i> sp.	19	1.08%	Yes	Larva		4	PR
Ceratopogonidae							
Ceratopogoninae	6	0.34%	Yes	Larva		6	PR
Empididae							
Empididae	1	0.06%	Yes	Pupa		11	PR
Simuliidae							
<i>Simulium</i> sp.	6	0.34%	No	Pupa		6	CF
<i>Simulium</i> sp.	11	0.62%	Yes	Larva		6	CF
Tipulidae							
<i>Antocha monticola</i>	39	2.21%	Yes	Larva		3	CG
<i>Cryptolabis</i> sp.	3	0.17%	Yes	Larva		11	SH
<i>Hexatoma</i> sp.	14	0.80%	Yes	Larva		2	PR
Tipulidae	1	0.06%	No	Pupa		11	SH
<b>Chironomidae</b>							
Chironomidae							
<i>Microtendipes</i> sp.	3	0.17%	Yes	Larva		6	CF
<i>Polypedilum</i> sp.	1	0.06%	No	Pupa		6	SH
<i>Polypedilum</i> sp.	37	2.10%	Yes	Larva		6	SH
<i>Micropsectra</i> sp.	66	3.75%	Yes	Larva		11	CG
<i>Rheotanytarsus</i> sp.	11	0.62%	Yes	Larva		11	CF
<i>Tanytarsus</i> sp.	5	0.28%	Yes	Larva		11	CF
<i>Pagastia</i> sp.	7	0.40%	Yes	Larva		1	CG
Potthastia Gaedii Gr.	3	0.17%	Yes	Larva		2	CG
<i>Brillia</i> sp.	1	0.06%	Yes	Larva		4	SH
<i>Cardiocladius</i> sp.	2	0.11%	Yes	Larva		5	PR
<i>Corynoneura</i> sp.	1	0.06%	Yes	Larva		7	CG
<i>Cricotopus</i> sp.	9	0.51%	No	Pupa		7	SH
<i>Cricotopus</i> sp.	1	0.06%	Yes	Larva		7	SH
<i>Cricotopus (Nostococladius)</i> sp.	173	9.82%	Yes	Larva		6	SH
<i>Eukiefferiella</i> sp.	186	10.56%	Yes	Larva		8	CG
<i>Orthocladius</i> sp.	36	2.04%	Yes	Larva		6	CG
<i>Parametriocnemus</i> sp.	2	0.11%	Yes	Larva		5	CG
<i>Rheocricotopus</i> sp.	1	0.06%	Yes	Larva		4	CG
<i>Thienemanniella</i> sp.	1	0.06%	Yes	Larva		6	CG
<i>Tvetenia</i> sp.	126	7.16%	Yes	Larva		5	CG
<i>Tvetenia</i> sp.	1	0.06%	No	Pupa		5	CG
<i>Pentaneura</i> sp.	1	0.06%	Yes	Larva		6	PR
Tanypodinae	1	0.06%	Yes	Pupa	Damaged	11	PR
Thienemannimyia Gr.	1	0.06%	Yes	Larva		11	PR
Sample Count	1761						

# Metrics Report

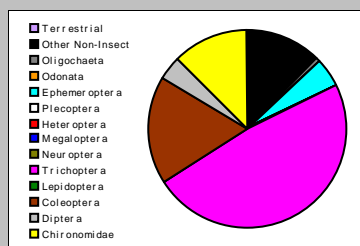
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC001  
Sta. Name: Silver Bow Creek at Warm Springs - Composite  
Client ID: SS-25  
STORET ID  
Coll. Date: 8/7/2014  
Latitude: 46.18123 Longitude: -112.77917

## Abundance Measures

Sample Count: 7826  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	8	981	12.54%
Oligochaeta	3	42	0.54%
Odonata	1	1	0.01%
Ephemeroptera	5	380	4.86%
Plecoptera	2	14	0.18%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	13	3709	47.39%
Lepidoptera	1	16	0.20%
Coleoptera	3	1406	17.97%
Diptera	6	297	3.80%
Chironomidae	19	980	12.52%

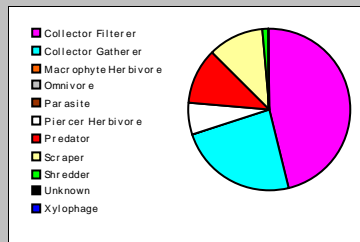


## Dominant Taxa

Category	A	PRA
Cheumatopsyche	1905	24.34%
Optioservus	810	10.35%
Trepaxonemata	780	9.97%
Zaitzevia	579	7.40%
Hydropsychidae	554	7.08%
Tvetenia	497	6.35%
Hydroptilidae	369	4.72%
Hydropsyche occidentalis	306	3.91%
Simulium	275	3.51%
Brachycentrus occidentalis	250	3.19%
Tricorythodes	212	2.71%
Baetis tricaudatus complex	162	2.07%
Hydroptila	145	1.85%
Parametriochnemus	135	1.73%
Eukiefferiella	114	1.46%

## Functional Composition

Category	R	A	PRA
Predator	11	886	11.32%
Parasite			
Collector Gatherer	24	1876	23.97%
Collector Filterer	8	3579	45.73%
Macrophyte Herbivore			
Piercer Herbivore	2	515	6.58%
Xylophage			
Scraper	8	858	10.96%
Shredder	7	109	1.39%
Omnivore			
Unknown	1	3	0.04%



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	61
E Richness	5
P Richness	2
P Percent	0.18%
T Richness	13
EPT Richness	20
EPT Percent	52.43%
All Non-Insect Abundance	1023
Diptera and Non-Insect Percent	29.39%
All Non-Insect Richness	11
All Non-Insect Percent	13.07%
Oligochaeta+Hirudinea Percent	0.55%
Baetidae/Ephemeroptera	0.437
E (no Baetids) Percent	2.73%
Hydropsychidae/Trichoptera	0.765
T (no Hydropsychids) Percent	11.16%
<i>Diversity</i>	
Shannon H (loge)	2.478
Shannon H (log10)	
Shannon H (log2)	3.575
Margalef D	6.965
Simpson D	0.160
Evenness	0.055
<i>Function</i>	
Predator Richness	11
Predator Percent	11.32%
Filterer Richness	8
Filterer Percent	45.73%
Collector Percent	69.70%
Scraper Percent	10.96%
Scraper+Shredder Percent	12.36%
Scraper/Filterer	0.240
Scraper/Scraper+Filterer	0.193
<i>Habit</i>	
Burrower Richness	5
Burrower Percent	0.37%
Swimmer Richness	2
Swimmer Percent	0.03%
Clinger Richness	20
Clinger Percent	65.74%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.28%
Hemoglobin Bearer Richness	6
Hemoglobin Bearer Percent	2.19%
Air Breather Richness	2
Air Breather Percent	0.10%
<i>Voltinism</i>	
Univoltine Richness	26
Semivoltine Richness	5
Multivoltine Percent	29.12%
<i>Tolerance</i>	
Sediment Tolerant Richness	5
Sediment Tolerant Percent	2.85%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	0.38%
Metals Tolerance Index	4.585
Pollution Sensitive Richness	2
Pollution Tolerant Percent	48.34%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	4.992
Intolerant Percent	3.65%
Supertolerant Percent	5.41%
CTQa	104.000

# Metrics Report

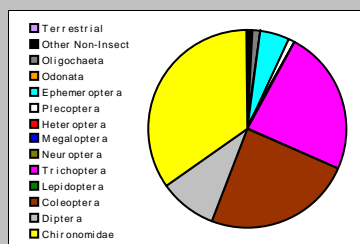
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC002  
Sta. Name: Clark Fork near Galen (Perkins Ln. bridge) - Composite  
Client ID: CFR-03A  
STORET ID  
Coll. Date: 8/7/2014  
Latitude: 46.20877 Longitude: -112.7674

## Abundance Measures

Sample Count: 6492  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	4	48	0.74%
Oligochaeta	3	91	1.40%
Odonata	1	4	0.06%
Ephemeroptera	7	322	4.96%
Plecoptera	4	57	0.88%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	15	1541	23.74%
Lepidoptera			
Coleoptera	3	1552	23.91%
Diptera	5	604	9.30%
Chironomidae	16	2273	35.01%

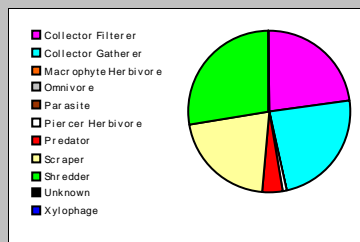


## Dominant Taxa

Category	A	PRA
Cricotopus (Nostococladus)	1690	26.03%
Optioservus	1114	17.16%
Brachycentrus occidentalis	517	7.96%
Ceratopsyche	312	4.81%
Zaitzevia	293	4.51%
Antocha monticola	252	3.88%
Simulium	203	3.13%
Tvetenia	201	3.10%
Ceratopsyche cockerelli	180	2.77%
Hydropsychidae	173	2.66%
Baetis tricaudatus complex	152	2.34%
Protophila	147	2.26%
Cleptelmis addenda	144	2.22%
Atherix	131	2.02%
Glossosoma	79	1.22%

## Functional Composition

Category	R	A	PRA
Predator	13	253	3.90%
Parasite			
Collector Gatherer	19	1521	23.43%
Collector Filterer	9	1497	23.06%
Macrophyte Herbivore			
Piercer Herbivore	2	46	0.71%
Xylophage			
Scraper	7	1378	21.23%
Shredder	7	1789	27.56%
Omnivore			
Unknown	1	8	0.12%



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	58
E Richness	7
P Richness	4
P Percent	0.88%
T Richness	15
EPT Richness	26
EPT Percent	29.57%
All Non-Insect Abundance	139
Diptera and Non-Insect Percent	46.46%
All Non-Insect Richness	7
All Non-Insect Percent	2.14%
Oligochaeta+Hirudinea Percent	1.43%
Baetidae/Ephemeroptera	0.500
E (no Baetids) Percent	2.48%
Hydropsychidae/Trichoptera	0.448
T (no Hydropsychids) Percent	13.11%
<i>Diversity</i>	
Shannon H (loge)	2.584
Shannon H (log10)	
Shannon H (log2)	3.728
Margalef D	6.769
Simpson D	0.166
Evenness	0.053
<i>Function</i>	
Predator Richness	13
Predator Percent	3.90%
Filterer Richness	9
Filterer Percent	23.06%
Collector Percent	46.49%
Scraper Percent	21.23%
Scraper+Shredder Percent	48.78%
Scraper/Filterer	0.921
Scraper/Scraper+Filterer	0.479
<i>Habit</i>	
Burrower Richness	4
Burrower Percent	26.19%
Swimmer Richness	1
Swimmer Percent	0.03%
Clinger Richness	24
Clinger Percent	55.53%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	26.03%
Hemoglobin Bearer Richness	3
Hemoglobin Bearer Percent	1.62%
Air Breather Richness	2
Air Breather Percent	3.93%
<i>Voltinism</i>	
Univoltine Richness	22
Semivoltine Richness	7
Multivoltine Percent	36.38%
<i>Tolerance</i>	
Sediment Tolerant Richness	5
Sediment Tolerant Percent	5.14%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	27.25%
Metals Tolerance Index	4.500
Pollution Sensitive Richness	1
Pollution Tolerant Percent	25.91%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	4.679
Intolerant Percent	12.82%
Supertolerant Percent	2.48%
CTQa	104.000

# Metrics Report

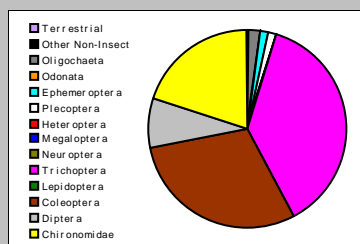
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC003  
Sta. Name: Clark Fork at Galen Road - Composite  
Client ID: CFR-07D  
STORET ID  
Coll. Date: 8/7/2014  
Latitude: 46.23725 Longitude: -112.75302

## Abundance Measures

Sample Count: 4101  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	4	11	0.27%
Oligochaeta	4	80	1.95%
Odonata			
Ephemeroptera	6	57	1.39%
Plecoptera	4	55	1.34%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	11	1534	37.41%
Lepidoptera			
Coleoptera	3	1200	29.26%
Diptera	7	344	8.39%
Chironomidae	11	820	20.00%

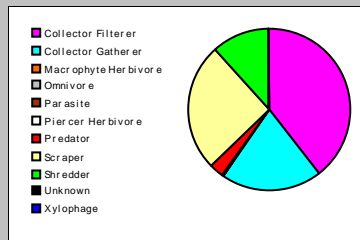


## Dominant Taxa

Category	A	PRA
Optioservus	1009	24.60%
Ceratopsyche cockerelli	608	14.83%
Brachycentrus occidentalis	563	13.73%
Cricotopus (Nostococladius)	410	10.00%
Hydropsychidae	176	4.29%
Tvetenia	167	4.07%
Antocha monticola	162	3.95%
Simulium	151	3.68%
Zaitzevia	104	2.54%
Cleptelmis addenda	87	2.12%
Paqastia	69	1.68%
Hydropsyche occidentalis	65	1.58%
Orthocladus	54	1.32%
Enchytraeidae	51	1.24%
Baetis tricaudatus complex	40	0.98%

## Functional Composition

Category	R	A	PRA
Predator	13	114	2.78%
Parasite			
Collector Gatherer	17	816	19.90%
Collector Filterer	7	1621	39.53%
Macrophyte Herbivore			
Piercer Herbivore	1	16	0.39%
Xylophage			
Scraper	5	1058	25.80%
Shredder	7	476	11.61%
Omnivore			
Unknown			



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	50
E Richness	6
P Richness	4
P Percent	1.34%
T Richness	11
EPT Richness	21
EPT Percent	40.14%
All Non-Insect Abundance	91
Diptera and Non-Insect Percent	30.60%
All Non-Insect Richness	8
All Non-Insect Percent	2.22%
Oligochaeta+Hirudinea Percent	2.00%
Baetidae/Ephemeroptera	0.807
E (no Baetids) Percent	0.27%
Hydropsychidae/Trichoptera	0.561
T (no Hydropsychids) Percent	16.44%
<i>Diversity</i>	
Shannon H (loge)	2.562
Shannon H (log10)	
Shannon H (log2)	3.696
Margalef D	6.187
Simpson D	0.126
Evenness	0.058
<i>Function</i>	
Predator Richness	13
Predator Percent	2.78%
Filterer Richness	7
Filterer Percent	39.53%
Collector Percent	59.42%
Scraper Percent	25.80%
Scraper+Shredder Percent	37.41%
Scraper/Filterer	0.653
Scraper/Scraper+Filterer	0.395
<i>Habit</i>	
Burrower Richness	4
Burrower Percent	10.41%
Swimmer Richness	2
Swimmer Percent	0.15%
Clinger Richness	21
Clinger Percent	59.96%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	10.00%
Hemoglobin Bearer Richness	2
Hemoglobin Bearer Percent	0.83%
Air Breather Richness	3
Air Breather Percent	4.10%
<i>Voltinism</i>	
Univoltine Richness	20
Semivoltine Richness	7
Multivoltine Percent	20.60%
<i>Tolerance</i>	
Sediment Tolerant Richness	4
Sediment Tolerant Percent	4.17%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	10.66%
Metals Tolerance Index	4.409
Pollution Sensitive Richness	1
Pollution Tolerant Percent	28.31%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	4.319
Intolerant Percent	16.73%
Supertolerant Percent	1.76%
CTQa	104.000



# Metrics Report

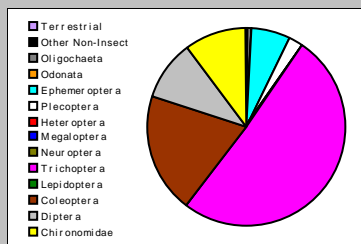
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC004  
Sta. Name: Clark Fork at Gem Backroad near Racetrack - Composite  
Client ID: CFR-11F  
STORET ID  
Coll. Date: 8/8/2014  
Latitude: 46.2652 Longitude: -112.7443

## Abundance Measures

Sample Count: 2337  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	3	4	0.17%
Oligochaeta	3	20	0.86%
Odonata	1	2	0.09%
Ephemeroptera	10	149	6.38%
Plecoptera	2	52	2.23%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	10	1182	50.58%
Lepidoptera			
Coleoptera	2	460	19.68%
Diptera	4	226	9.67%
Chironomidae	10	242	10.36%

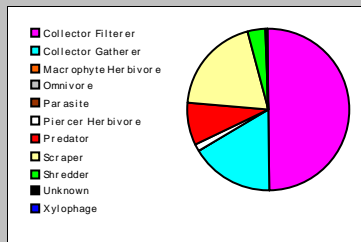


## Dominant Taxa

Category	A	PRA
Ceratopsyche cockerelli	630	26.96%
Optioservus	416	17.80%
Hydropsychidae	177	7.57%
Brachycentrus occidentalis	144	6.16%
Cheumatopsyche	140	5.99%
Atherix	130	5.56%
Tricorythodes	80	3.42%
Tvetenia	73	3.12%
Orthocladus	70	3.00%
Cricotopus (Nostococladus)	48	2.05%
Antocha monticola	45	1.93%
Zaitzevia	44	1.88%
Simulium	41	1.75%
Skwala	38	1.63%
Hydroptila	38	1.63%

## Functional Composition

Category	R	A	PRA
Predator	10	194	8.30%
Parasite			
Collector Gatherer	14	395	16.90%
Collector Filterer	6	1153	49.34%
Macrophyte Herbivore			
Piercer Herbivore	1	38	1.63%
Xylophage			
Scraper	6	463	19.81%
Shredder	7	90	3.85%
Omnivore			
Unknown	1	4	0.17%



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	45
E Richness	10
P Richness	2
P Percent	2.23%
T Richness	10
EPT Richness	22
EPT Percent	59.18%
All Non-Insect Abundance	24
Diptera and Non-Insect Percent	21.05%
All Non-Insect Richness	6
All Non-Insect Percent	1.03%
Oligochaeta+Hirudinea Percent	0.86%
Baetidae/Ephemeroptera	0.174
E (no Baetids) Percent	5.26%
Hydropsychidae/Trichoptera	0.809
T (no Hydropsychids) Percent	9.67%
<i>Diversity</i>	
Shannon H (loge)	2.548
Shannon H (log10)	
Shannon H (log2)	3.675
Margalef D	5.886
Simpson D	0.157
Evenness	0.057
<i>Function</i>	
Predator Richness	10
Predator Percent	8.30%
Filterer Richness	6
Filterer Percent	49.34%
Collector Percent	66.24%
Scraper Percent	19.81%
Scraper+Shredder Percent	23.66%
Scraper/Filterer	0.402
Scraper/Scraper+Filterer	0.287
<i>Habit</i>	
Burrower Richness	3
Burrower Percent	2.57%
Swimmer Richness	1
Swimmer Percent	0.09%
Clinger Richness	19
Clinger Percent	51.35%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	2.05%
Hemoglobin Bearer Richness	4
Hemoglobin Bearer Percent	1.50%
Air Breather Richness	2
Air Breather Percent	2.35%
<i>Voltinism</i>	
Univoltine Richness	18
Semivoltine Richness	6
Multivoltine Percent	12.41%
<i>Tolerance</i>	
Sediment Tolerant Richness	5
Sediment Tolerant Percent	5.86%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	2.10%
Metals Tolerance Index	4.212
Pollution Sensitive Richness	2
Pollution Tolerant Percent	37.74%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	4.337
Intolerant Percent	8.22%
Supertolerant Percent	0.98%
CTQa	104.000

# Metrics Report

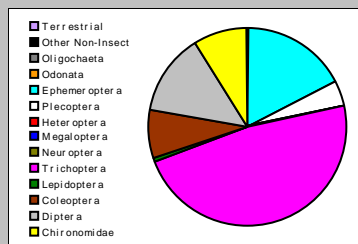
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC005  
Sta. Name: Clark Fork at Turah - Composite  
Client ID: CFR-116A  
STORET ID  
Coll. Date: 8/8/2014  
Latitude: 46.4934 Longitude: -113.4848

## Abundance Measures

Sample Count: 2446  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	1	0.04%
Oligochaeta	2	2	0.08%
Odonata	1	1	0.04%
Ephemeroptera	12	426	17.42%
Plecoptera	4	97	3.97%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	9	1165	47.63%
Lepidoptera	1	13	0.53%
Coleoptera	2	193	7.89%
Diptera	5	328	13.41%
Chironomidae	16	220	8.99%

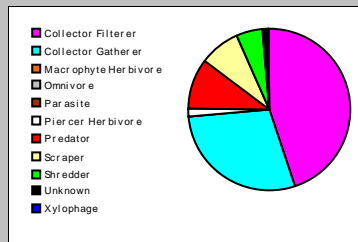


## Dominant Taxa

Category	A	PRA
Hydropsychidae	511	20.89%
Hydropsyche occidentalis	223	9.12%
Antocha monticola	198	8.09%
Cheumatopsyche	175	7.15%
Optioservus	153	6.26%
Tricorythodes	107	4.37%
Acentrella insignificans	87	3.56%
Ceratopsyche cockerelli	82	3.35%
Cricotopus	71	2.90%
Atherix	62	2.53%
Arctopsyche	57	2.33%
Eukiefferiella	51	2.09%
Simulium	49	2.00%
Attenella margarita	46	1.88%
Skwala	43	1.76%

## Functional Composition

Category	R	A	PRA
Predator	10	244	9.98%
Parasite			
Collector Gatherer	20	699	28.58%
Collector Filterer	9	1094	44.73%
Macrophyte Herbivore			
Piercer Herbivore	1	43	1.76%
Xylophage			
Scraper	4	201	8.22%
Shredder	7	141	5.76%
Omnivore			
Unknown	2	24	0.98%



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	53
E Richness	12
P Richness	4
P Percent	3.97%
T Richness	9
EPT Richness	25
EPT Percent	69.01%
All Non-Insect Abundance	3
Diptera and Non-Insect Percent	22.53%
All Non-Insect Richness	3
All Non-Insect Percent	0.12%
Oligochaeta+Hirudinea Percent	0.08%
Baetidae/Ephemeroptera	0.394
E (no Baetids) Percent	10.55%
Hydropsychidae/Trichoptera	0.900
T (no Hydropsychids) Percent	4.78%
<i>Diversity</i>	
Shannon H (loge)	3.210
Shannon H (log10)	
Shannon H (log2)	4.631
Margalef D	6.986
Simpson D	0.059
Evenness	0.038
<i>Function</i>	
Predator Richness	10
Predator Percent	9.98%
Filterer Richness	9
Filterer Percent	44.73%
Collector Percent	73.30%
Scraper Percent	8.22%
Scraper+Shredder Percent	13.98%
Scraper/Filterer	0.184
Scraper/Scraper+Filterer	0.155
<i>Habit</i>	
Burrower Richness	4
Burrower Percent	1.02%
Swimmer Richness	2
Swimmer Percent	4.25%
Clinger Richness	22
Clinger Percent	65.62%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.53%
Hemoglobin Bearer Richness	2
Hemoglobin Bearer Percent	0.53%
Air Breather Richness	2
Air Breather Percent	8.14%
<i>Voltinism</i>	
Univoltine Richness	18
Semivoltine Richness	8
Multivoltine Percent	15.94%
<i>Tolerance</i>	
Sediment Tolerant Richness	3
Sediment Tolerant Percent	12.51%
Sediment Sensitive Richness	3
Sediment Sensitive Percent	2.94%
Metals Tolerance Index	4.402
Pollution Sensitive Richness	2
Pollution Tolerant Percent	25.67%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	4.474
Intolerant Percent	7.03%
Supertolerant Percent	3.56%
CTQa	104.000

# Metrics Report

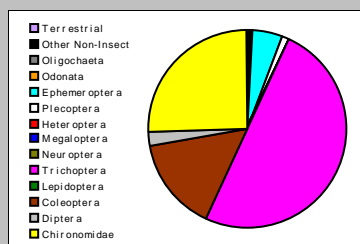
**Project ID:** PBSJ14CFRC  
**RAI No.:** PBSJ14CFRC006  
**Sta. Name:** Mill-Willow Creeks above Mill-Willow Bypass at Frontage Rd. - Composite  
**Client ID:** MCWC-MWB  
**STORET ID**  
**Coll. Date:** 8/7/2014  
**Latitude:** 46.12649 **Longitude:** -112.79876

## Abundance Measures

**Sample Count:** 3344  
**Sample Abundance:** of sample used  
**Coll. Procedure:**  
**Sample Notes:**

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	5	14	0.42%
Oligochaeta	1	15	0.45%
Odonata			
Ephemeroptera	11	166	4.96%
Plecoptera	5	39	1.17%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	13	1659	49.61%
Lepidoptera	1	1	0.03%
Coleoptera	2	510	15.25%
Diptera	4	86	2.57%
Chironomidae	17	854	25.54%

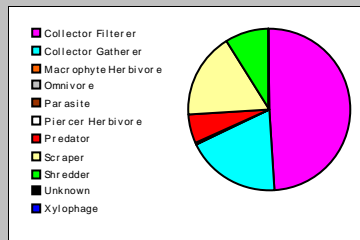


## Dominant Taxa

Category	A	PRA
Brachycentrus occidentalis	1264	37.80%
Optioservus	416	12.44%
Rheotanytarsus	234	7.00%
Cricotopus (Nostococcladius)	204	6.10%
Tvetenia	115	3.44%
Hydropsychidae	91	2.72%
Eukiefferiella	88	2.63%
Arctopsyche	87	2.60%
Glossosomatidae	79	2.36%
Paqastia	77	2.30%
Orthocladus	64	1.91%
Elmidae	51	1.53%
Zaitzevia	43	1.29%
Ecdyonurus criddlei	34	1.02%
Hexatoma	32	0.96%

## Functional Composition

Category	R	A	PRA
Predator	13	192	5.74%
Parasite			
Collector Gatherer	18	637	19.05%
Collector Filterer	9	1628	48.68%
Macrophyte Herbivore			
Piercer Herbivore	1	9	0.27%
Xylophage			
Scraper	10	591	17.67%
Shredder	8	287	8.58%
Omnivore			
Unknown			



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	59
E Richness	11
P Richness	5
P Percent	1.17%
T Richness	13
EPT Richness	29
EPT Percent	55.74%
All Non-Insect Abundance	29
Diptera and Non-Insect Percent	28.98%
All Non-Insect Richness	6
All Non-Insect Percent	0.87%
Oligochaeta+Hirudinea Percent	0.45%
Baetidae/Ephemeroptera	0.410
E (no Baetids) Percent	2.93%
Hydropsychidae/Trichoptera	0.112
T (no Hydropsychids) Percent	44.05%
<i>Diversity</i>	
Shannon H (loge)	2.368
Shannon H (log10)	
Shannon H (log2)	3.417
Margalef D	7.314
Simpson D	0.229
Evenness	0.056
<i>Function</i>	
Predator Richness	13
Predator Percent	5.74%
Filterer Richness	9
Filterer Percent	48.68%
Collector Percent	67.73%
Scraper Percent	17.67%
Scraper+Shredder Percent	26.26%
Scraper/Filterer	0.363
Scraper/Scraper+Filterer	0.266
<i>Habit</i>	
Burrower Richness	3
Burrower Percent	7.09%
Swimmer Richness	3
Swimmer Percent	1.58%
Clinger Richness	29
Clinger Percent	75.09%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	6.10%
Hemoglobin Bearer Richness	3
Hemoglobin Bearer Percent	0.36%
Air Breather Richness	2
Air Breather Percent	1.73%
<i>Voltinism</i>	
Univoltine Richness	26
Semivoltine Richness	8
Multivoltine Percent	27.48%
<i>Tolerance</i>	
Sediment Tolerant Richness	5
Sediment Tolerant Percent	2.90%
Sediment Sensitive Richness	3
Sediment Sensitive Percent	9.39%
Metals Tolerance Index	3.907
Pollution Sensitive Richness	2
Pollution Tolerant Percent	16.06%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	3.397
Intolerant Percent	46.71%
Supertolerant Percent	3.59%
CTQa	104.000

# Metrics Report

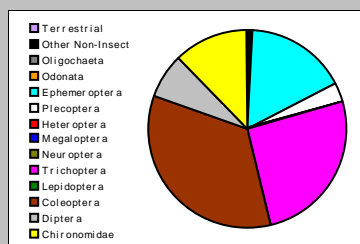
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC007  
Sta. Name: Warm Springs Creek near mouth - Composite  
Client ID: WSC-SBC  
STORET ID  
Coll. Date: 8/7/2014  
Latitude: 46.18041 Longitude: -112.78592

## Abundance Measures

Sample Count: 747  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	6	0.80%
Oligochaeta	1	1	0.13%
Odonata			
Ephemeroptera	5	123	16.47%
Plecoptera	3	26	3.48%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	12	188	25.17%
Lepidoptera			
Coleoptera	3	256	34.27%
Diptera	6	56	7.50%
Chironomidae	9	91	12.18%

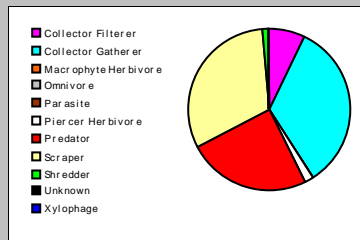


## Dominant Taxa

Category	A	PRA
Optioservus	214	28.65%
Arctopsyche	113	15.13%
Baetis tricaudatus complex	85	11.38%
Eukiefferiella	42	5.62%
Acentrella insignificans	32	4.28%
Elmidae	27	3.61%
Hesperoperla pacifica	24	3.21%
Pagastia	21	2.81%
Simulium	18	2.41%
Chelifera / Metachela	16	2.14%
Brachycentrus occidentalis	15	2.01%
Brachycentrus americanus	15	2.01%
Tvetenia	12	1.61%
Cleptelmis addenda	12	1.61%
Ochrotrichia	11	1.47%

## Functional Composition

Category	R	A	PRA
Predator	11	182	24.36%
Parasite			
Collector Gatherer	13	249	33.33%
Collector Filterer	5	57	7.63%
Macrophyte Herbivore			
Piercer Herbivore	1	13	1.74%
Xylophage			
Scraper	6	235	31.46%
Shredder	5	10	1.34%
Omnivore			
Unknown	0	1	0.13%



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	41
E Richness	5
P Richness	3
P Percent	3.48%
T Richness	12
EPT Richness	20
EPT Percent	45.11%
All Non-Insect Abundance	7
Diptera and Non-Insect Percent	20.62%
All Non-Insect Richness	3
All Non-Insect Percent	0.94%
Oligochaeta+Hirudinea Percent	0.13%
Baetidae/Ephemeroptera	0.967
E (no Baetids) Percent	0.54%
Hydropsychidae/Trichoptera	0.601
T (no Hydropsychids) Percent	10.04%
<i>Diversity</i>	
Shannon H (loge)	2.791
Shannon H (log10)	
Shannon H (log2)	4.026
Margalef D	6.398
Simpson D	0.099
Evenness	0.053
<i>Function</i>	
Predator Richness	11
Predator Percent	24.36%
Filterer Richness	5
Filterer Percent	7.63%
Collector Percent	40.96%
Scraper Percent	31.46%
Scraper+Shredder Percent	32.80%
Scraper/Filterer	4.123
Scraper/Scraper+Filterer	0.805
<i>Habit</i>	
Burrower Richness	3
Burrower Percent	1.74%
Swimmer Richness	2
Swimmer Percent	4.55%
Clinger Richness	23
Clinger Percent	66.40%
<i>Characteristics</i>	
Cold Stenotherm Richness	2
Cold Stenotherm Percent	0.80%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	0.13%
Air Breather Richness	2
Air Breather Percent	1.47%
<i>Voltinism</i>	
Univoltine Richness	17
Semivoltine Richness	8
Multivoltine Percent	18.47%
<i>Tolerance</i>	
Sediment Tolerant Richness	3
Sediment Tolerant Percent	1.61%
Sediment Sensitive Richness	3
Sediment Sensitive Percent	16.87%
Metals Tolerance Index	4.658
Pollution Sensitive Richness	3
Pollution Tolerant Percent	30.25%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	4.042
Intolerant Percent	26.64%
Supertolerant Percent	6.56%

# Metrics Report

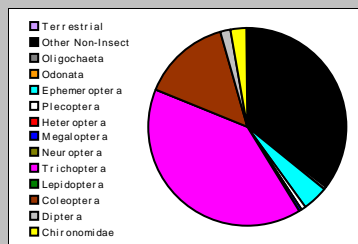
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC008  
Sta. Name: Lost Creek at Frontage Road - Composite  
Client ID: LC-7.5  
STORET ID  
Coll. Date: 8/7/2014  
Latitude: 46.21862 Longitude: -112.77384

## Abundance Measures

Sample Count: 5685  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	9	2024	35.60%
Oligochaeta	4	27	0.47%
Odonata	1	1	0.02%
Ephemeroptera	7	221	3.89%
Plecoptera	1	56	0.99%
Heteroptera			
Megaloptera	1	1	0.02%
Neuroptera			
Trichoptera	12	2284	40.18%
Lepidoptera			
Coleoptera	5	829	14.58%
Diptera	5	96	1.69%
Chironomidae	12	146	2.57%

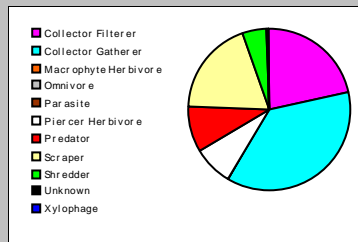


## Dominant Taxa

Category	A	PRA
Hyalella	1334	23.47%
Brachycentrus occidentalis	608	10.69%
Helicopsyche	550	9.67%
Optioservus	436	7.67%
Hydroptilidae	298	5.24%
Gammarus	247	4.34%
Ceratopsyche slossonae	241	4.24%
Oecetis	229	4.03%
Cleptelmis addenda	211	3.71%
Pisidium	192	3.38%
Hydroptila	138	2.43%
Hydropsychidae	137	2.41%
Elmidae	134	2.36%
Helobdella stagnalis	116	2.04%
Baetis tricaudatus complex	89	1.57%

## Functional Composition

Category	R	A	PRA
Predator	14	551	9.69%
Parasite			
Collector Gatherer	19	2070	36.41%
Collector Filterer	10	1246	21.92%
Macrophyte Herbivore			
Piercer Herbivore	1	436	7.67%
Xylophage			
Scraper	6	1082	19.03%
Shredder	6	281	4.94%
Omnivore			
Unknown	1	19	0.33%



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	57
E Richness	7
P Richness	1
P Percent	0.99%
T Richness	12
EPT Richness	20
EPT Percent	45.05%
All Non-Insect Abundance	2051
Diptera and Non-Insect Percent	40.33%
All Non-Insect Richness	13
All Non-Insect Percent	36.08%
Oligochaeta+Hirudinea Percent	3.04%
Baetidae/Ephemeroptera	0.778
E (no Baetids) Percent	0.86%
Hydropsychidae/Trichoptera	0.183
T (no Hydropsychids) Percent	32.84%
<i>Diversity</i>	
Shannon H (loge)	2.660
Shannon H (log10)	
Shannon H (log2)	3.838
Margalef D	6.618
Simpson D	0.125
Evenness	0.053
<i>Function</i>	
Predator Richness	14
Predator Percent	9.69%
Filterer Richness	10
Filterer Percent	21.92%
Collector Percent	58.33%
Scraper Percent	19.03%
Scraper+Shredder Percent	23.98%
Scraper/Filterer	0.868
Scraper/Scraper+Filterer	0.465
<i>Habit</i>	
Burrower Richness	3
Burrower Percent	0.33%
Swimmer Richness	5
Swimmer Percent	1.35%
Clinger Richness	18
Clinger Percent	51.45%
<i>Characteristics</i>	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	3
Hemoglobin Bearer Percent	0.74%
Air Breather Richness	5
Air Breather Percent	1.32%
<i>Voltinism</i>	
Univoltine Richness	26
Semivoltine Richness	6
Multivoltine Percent	11.94%
<i>Tolerance</i>	
Sediment Tolerant Richness	6
Sediment Tolerant Percent	3.50%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	0.11%
Metals Tolerance Index	3.459
Pollution Sensitive Richness	0
Pollution Tolerant Percent	33.81%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	5.409
Intolerant Percent	12.58%
Supertolerant Percent	35.55%
CTQa	104.000

# Metrics Report

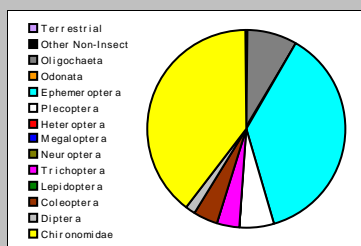
Project ID: PBSJ14CFRC  
RAI No.: PBSJ14CFRC009  
Sta. Name: Racetrack Creek at Frontage Road - Composite  
Client ID: RTC-1.5  
STORET ID  
Coll. Date: 8/8/2014  
Latitude: 46.28395 Longitude: -112.74921

## Abundance Measures

Sample Count: 1182  
Sample Abundance: of sample used  
Coll. Procedure:  
Sample Notes:

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	3	4	0.34%
Oligochaeta	4	93	7.87%
Odonata			
Ephemeroptera	12	443	37.48%
Plecoptera	4	62	5.25%
Heteroptera	1	1	0.08%
Megaloptera			
Neuroptera			
Trichoptera	8	44	3.72%
Lepidoptera			
Coleoptera	5	47	3.98%
Diptera	5	17	1.44%
Chironomidae	12	471	39.85%

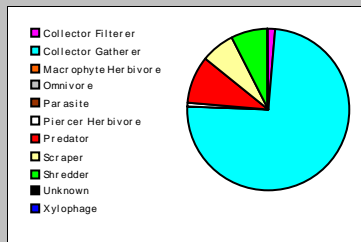


## Dominant Taxa

Category	A	PRA
Paqastia	285	24.11%
Baetis tricaudatus complex	254	21.49%
Enchytraeidae	72	6.09%
Ephemerella tibialis	67	5.67%
Micropsectra	46	3.89%
Ephemerellidae	44	3.72%
Cricotopus	44	3.72%
Optioservus	39	3.30%
Skwala	38	3.21%
Orthocladinae	37	3.13%
Drunella arandis	37	3.13%
Neophylax rickeri	21	1.78%
Tvetenia	17	1.44%
Ecdyonurus criddlei	17	1.44%
Tanytarsus	14	1.18%

## Functional Composition

Category	R	A	PRA
Predator	12	118	9.98%
Parasite			
Collector Gatherer	18	870	73.60%
Collector Filterer	4	21	1.78%
Macrophyte Herbivore			
Piercer Herbivore	3	7	0.59%
Xylophage			
Scraper	8	82	6.94%
Shredder	8	83	7.02%
Omnivore			
Unknown	1	1	0.08%



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	54
E Richness	12
P Richness	4
P Percent	5.25%
T Richness	8
EPT Richness	24
EPT Percent	46.45%
All Non-Insect Abundance	97
Diptera and Non-Insect Percent	49.49%
All Non-Insect Richness	7
All Non-Insect Percent	8.21%
Oligochaeta+Hirudinea Percent	7.87%
Baetidae/Ephemeroptera	0.578
E (no Baetids) Percent	15.82%
Hydropsychidae/Trichoptera	0.000
T (no Hydropsychids) Percent	3.72%
<i>Diversity</i>	
Shannon H (loge)	2.575
Shannon H (log10)	
Shannon H (log2)	3.715
Margalef D	7.602
Simpson D	0.144
Evenness	0.057
<i>Function</i>	
Predator Richness	12
Predator Percent	9.98%
Filterer Richness	4
Filterer Percent	1.78%
Collector Percent	75.38%
Scraper Percent	6.94%
Scraper+Shredder Percent	13.96%
Scraper/Filterer	3.905
Scraper/Scraper+Filterer	0.796
<i>Habit</i>	
Burrower Richness	3
Burrower Percent	0.85%
Swimmer Richness	6
Swimmer Percent	1.78%
Clinger Richness	21
Clinger Percent	28.76%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.08%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	0.25%
Air Breather Richness	5
Air Breather Percent	1.44%
<i>Voltinism</i>	
Univoltine Richness	25
Semivoltine Richness	6
Multivoltine Percent	40.52%
<i>Tolerance</i>	
Sediment Tolerant Richness	3
Sediment Tolerant Percent	1.18%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	0.08%
Metals Tolerance Index	5.162
Pollution Sensitive Richness	3
Pollution Tolerant Percent	4.40%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	3.035
Intolerant Percent	37.48%
Supertolerant Percent	1.69%
CTQa	104.000

# Metrics Report

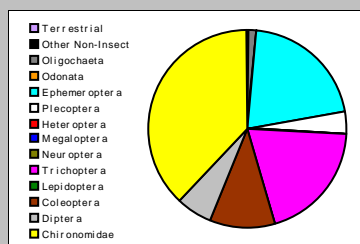
**Project ID:** PBSJ14CFRC  
**RAI No.:** PBSJ14CFRC010  
**Sta. Name:** Little Blackfoot River at Beck Hill Rd. bridge - Composite  
**Client ID:** LBR-CFR-1.5  
**STORET ID**  
**Coll. Date:** 8/8/2014  
**Latitude:** 46.53710 **Longitude:** -112.72443

## Abundance Measures

**Sample Count:** 1761  
**Sample Abundance:** of sample used  
**Coll. Procedure:**  
**Sample Notes:**

## Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	4	0.23%
Oligochaeta	2	26	1.48%
Odonata			
Ephemeroptera	9	368	20.90%
Plecoptera	6	60	3.41%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	12	338	19.19%
Lepidoptera			
Coleoptera	3	189	10.73%
Diptera	7	100	5.68%
Chironomidae	21	676	38.39%

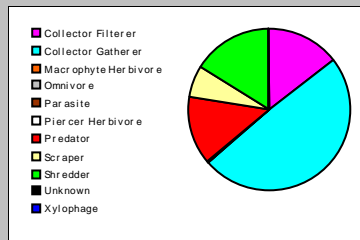


## Dominant Taxa

Category	A	PRA
Eukiefferiella	186	10.56%
Cricotopus (Nostococladus)	173	9.82%
Tvetenia	127	7.21%
Hydropsychidae	112	6.36%
Zaitzevia	109	6.19%
Baetis tricaudatus complex	86	4.88%
Drunella arandis	85	4.83%
Optioservus	68	3.86%
Micropsectra	66	3.75%
Hydropsyche	57	3.24%
Attenella margarita	57	3.24%
Arctopsyche	54	3.07%
Ecdyonurus criddlei	50	2.84%
Brachycentrus occidentalis	44	2.50%
Antocha monticola	39	2.21%

## Functional Composition

Category	R	A	PRA
Predator	16	246	13.97%
Parasite			
Collector Gatherer	23	850	48.27%
Collector Filterer	7	264	14.99%
Macrophyte Herbivore			
Piercer Herbivore	1	5	0.28%
Xylophage			
Scraper	6	109	6.19%
Shredder	9	287	16.30%
Omnivore			
Unknown			



## Metric Values and Scores

Metric	Value
<i>Composition</i>	
Taxa Richness	62
E Richness	9
P Richness	6
P Percent	3.41%
T Richness	12
EPT Richness	27
EPT Percent	43.50%
All Non-Insect Abundance	30
Diptera and Non-Insect Percent	45.77%
All Non-Insect Richness	4
All Non-Insect Percent	1.70%
Oligochaeta+Hirudinea Percent	1.48%
Baetidae/Ephemeroptera	0.280
E (no Baetids) Percent	15.05%
Hydropsychidae/Trichoptera	0.692
T (no Hydropsychids) Percent	5.91%
<i>Diversity</i>	
Shannon H (loge)	3.212
Shannon H (log10)	
Shannon H (log2)	4.634
Margalef D	8.402
Simpson D	0.060
Evenness	0.037
<i>Function</i>	
Predator Richness	16
Predator Percent	13.97%
Filterer Richness	7
Filterer Percent	14.99%
Collector Percent	63.26%
Scraper Percent	6.19%
Scraper+Shredder Percent	22.49%
Scraper/Filterer	0.413
Scraper/Scraper+Filterer	0.292
<i>Habit</i>	
Burrower Richness	5
Burrower Percent	11.02%
Swimmer Richness	2
Swimmer Percent	1.19%
Clinger Richness	28
Clinger Percent	47.93%
<i>Characteristics</i>	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	9.82%
Hemoglobin Bearer Richness	2
Hemoglobin Bearer Percent	2.33%
Air Breather Richness	3
Air Breather Percent	3.24%
<i>Voltinism</i>	
Univoltine Richness	26
Semivoltine Richness	9
Multivoltine Percent	39.69%
<i>Tolerance</i>	
Sediment Tolerant Richness	4
Sediment Tolerant Percent	4.77%
Sediment Sensitive Richness	3
Sediment Sensitive Percent	14.76%
Metals Tolerance Index	4.320
Pollution Sensitive Richness	3
Pollution Tolerant Percent	13.00%
Pollution Tolerant Richness	
Hilsenhoff Biotic Index	4.599
Intolerant Percent	16.30%
Supertolerant Percent	11.98%
CTQa	104.000

## **APPENDIX I**

### **MACROINVERTEBRATE BIOINDEX SCORES**

---



# APPENDIX I

## MACROINVERTEBRATE QUALITY ASSURANCE AND QUALITY CONTROL PARAMETERS

**Table I1. Macroinvertebrate bioindex scores and impairment classification for the Clark fork River Operable Unit, 2014.**

Site	Replicate number	Index					
		McGuire biointegrity metrics [McGuire, 2010]		McGuire metals-sensitive subset [McGuire, 2010]		McGuire nutrient-sensitive subset [McGuire, 2010]	
		score	impairment class	score	impairment class	score	impairment class
MCWC-MWB	1	87.88	slightly impaired	72.22	slightly impaired	94.44	nonimpaired
MCWC-MWB	2	90.91	nonimpaired	94.44	nonimpaired	88.89	nonimpaired
MCWC-MWB	3	92.42	nonimpaired	88.89	nonimpaired	94.44	nonimpaired
MCWC-MWB	4	92.42	nonimpaired	94.44	nonimpaired	100	nonimpaired
WSC-SBC	1	84.85	slightly impaired	61.11	slightly impaired	94.44	nonimpaired
WSC-SBC	2	83.33	slightly impaired	55.56	moderately impaired	94.44	nonimpaired
WSC-SBC	3	84.85	slightly impaired	61.11	slightly impaired	94.44	nonimpaired
WSC-SBC	4	83.33	slightly impaired	50	moderately impaired	100	nonimpaired
SS-25	1	86.36	slightly impaired	77.78	slightly impaired	83.33	nonimpaired
SS-25	2	86.36	slightly impaired	77.78	slightly impaired	88.89	nonimpaired
SS-25	3	81.82	slightly impaired	83.33	nonimpaired	66.67	slightly impaired
SS-25	4	87.88	slightly impaired	77.78	slightly impaired	88.89	nonimpaired
CFR-03A	1	89.39	slightly impaired	88.89	nonimpaired	88.89	nonimpaired
CFR-03A	2	87.88	slightly impaired	83.33	nonimpaired	94.44	nonimpaired
CFR-03A	3	90.91	nonimpaired	88.89	nonimpaired	88.89	nonimpaired
CFR-03A	4	90.91	nonimpaired	88.89	nonimpaired	88.89	nonimpaired
CFR-7D	1	92.42	nonimpaired	88.89	nonimpaired	100	nonimpaired
CFR-7D	2	90.91	nonimpaired	83.33	nonimpaired	94.44	nonimpaired
CFR-7D	3	87.88	slightly impaired	72.22	slightly impaired	94.44	nonimpaired
CFR-7D	4	87.88	slightly impaired	77.78	slightly impaired	88.89	nonimpaired
CFR-11F	1	83.33	slightly impaired	77.78	slightly impaired	77.78	slightly impaired
CFR-11F	2	83.33	slightly impaired	55.56	moderately impaired	94.44	nonimpaired
CFR-11F	3	87.88	slightly impaired	83.33	nonimpaired	88.89	nonimpaired
CFR-11F	4	87.88	slightly impaired	83.33	nonimpaired	88.89	nonimpaired
CFR-116A	1	87.88	slightly impaired	83.33	nonimpaired	83.33	nonimpaired
CFR-116A	2	90.91	nonimpaired	88.89	nonimpaired	88.89	nonimpaired
CFR-116A	3	89.39	slightly impaired	83.33	nonimpaired	94.44	nonimpaired

CFR-116A	4	86.36	slightly impaired	72.22	slightly impaired	88.89	nonimpaired
LC-7.5	1	90.91	nonimpaired	88.89	nonimpaired	83.33	nonimpaired
LC-7.5	2	87.88	slightly impaired	88.89	nonimpaired	77.78	slightly impaired
LC-7.5	3	92.42	nonimpaired	88.89	nonimpaired	88.89	nonimpaired
LC-7.5	4	89.39	slightly impaired	88.89	nonimpaired	83.33	nonimpaired
RTC-1.5	1	84.85	slightly impaired	61.11	slightly impaired	100	nonimpaired
RTC-1.5	2	86.36	slightly impaired	66.67	slightly impaired	100	nonimpaired
RTC-1.5	3	80.3	slightly impaired	50	moderately impaired	100	nonimpaired
RTC-1.5	4	84.85	slightly impaired	61.11	slightly impaired	100	nonimpaired
LBR-CFR	1	89.39	slightly impaired	77.78	slightly impaired	100	nonimpaired
LBR-CFR	2	84.85	slightly impaired	72.22	slightly impaired	94.44	nonimpaired
LBR-CFR	3	87.88	slightly impaired	83.33	nonimpaired	88.89	nonimpaired
LBR-CFR	4	84.85	slightly impaired	72.22	slightly impaired	94.44	nonimpaired

## **APPENDIX J**

### **MACROINVERTEBRATE QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES**

---

## APPENDIX J

### MACROINVERTEBRATE QUALITY ASSURANCE AND QUALITY CONTROL PARAMETERS

**Table J1. Results of internal quality control procedures for subsampling and taxonomy for macroinvertebrate samples from the Clark Fork River basin, 2014. Rhithron internal quality standards, consistent with industry norms are:  $\geq 95\%$  for sorting efficiency;  $\geq 95\%$  for Bray-Curtis similarity;  $\leq 5\%$  for percent taxonomic disagreement; and  $\leq 5\%$  for percent difference in enumeration.**

Rhithron Sample ID	Site ID	Sorting efficiency (%)	Bray-Curtis similarity (%)	Percent taxonomic disagreement (%)	Percent difference in enumeration (%)
PBSJ14CFR021	MCWC-MWB	92.9			
PBSJ14CFR026	WSC-SBC		100.0	0.0	0.0
PBSJ14CFR005	CFR-03A	96.6			
PBSJ14CFR007	CFR-03A		100.0	0.0	0.0

## **APPENDIX K**

### **PUBLISHED ELECTROFISHING DATA FROM LINDSTROM [2011]**

---

## APPENDIX K

### PUBLISHED ELECTROFISHING DATA FROM LINDSTROM [2011]

Table K1. Electrofishing data collected on the Upper Clark Fork River at the pH Shack Section from 2008 through 2010. Population estimates and capture efficiencies are for brown trout greater than 175 mm (~7") in total length. Number following the population estimate (in parentheses) represents the 95 % confidence interval. Cutt x Rbow represents a phenotypic hybrid between a cutthroat and rainbow trout.

Year	Trout Species	Population Estimate (fish/mile)	Capture Efficiency (%)	# of Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2008	Brown	708 (+/- 102)	26	567	318	88-461	99
	Rainbow	-	-	5	388	296-502	< 1
	Cutthroat	-	-	3	365	355-381	< 1
2009	Brown	185 (+/- 73)	22	116	357	96-500	95
	Rainbow	-	-	5	362	302-560	4
	Cutthroat	-	-	1	383	-	1
2010	Brown	421 (+/- 149)	15	232	300	111-615	95
	Rainbow	-	-	5	478	312-565	2
	Cutthroat	-	-	3	260	252-276	1
	Cutt x Rbow	-	-	3	357	338-392	1

Table K2. Electrofishing data collected on the Upper Clark Fork River at the Below Sager Lane Section in 2010. Population estimates and capture efficiencies are for brown trout greater than 175 mm (~7") in total length. Number following the population estimate (in parentheses) represents the 95 % confidence interval.

Year	Trout Species	Population Estimate (fish/mile)	Capture Efficiency (%)	# of Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2010	Brown	262 (+/- 85)	14	383	293	93-525	99
	Brook	-	-	3	232	125-293	< 1
	Rainbow	-	-	1	645	-	< 1

Table K3. Electrofishing data collected on the Upper Clark Fork River at the original Williams-Tavener Section from 2008 through 2010. Population estimates and capture efficiencies are for brown trout greater than 175 mm (~7") in total length. Number following the population estimate (in parentheses) represents the 95 % confidence interval.

Year	Trout Species	Population Estimate -fish/mile-	Capture Efficiency -%-	# of Fish Handled	Mean Length -mm-	Length Range -mm-	Species Composition -%-
2008	Brown	324 (+/- 84)	28	194	349	118-524	100
2009	Brown	158 (+/- 77)	19	77	341	132-527	99
	Cutthroat	-	-	1	279	-	1
2010	Brown	206 (+/- 59)	27	146	332	114-509	99
	Cutthroat	-	-	1	285	-	<1
	Brook	-	-	1	145	-	<1



Table K4. Electrofishing data collected on the Upper Clark Fork River at the Phosphate Section from 2008 through 2010. Population estimates and capture efficiencies are for brown trout greater than 175 mm (~7") in total length. Number following the population estimate (in parentheses) represents the 95 % confidence interval.

Year	Trout Species	Population Estimate (fish/mile)	Capture Efficiency (%)	# of Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
2008	Brown	316 (+/- 58)	31	343	333	97-468	99
	Cutthroat	-	-	3	325	256-380	1
2009	Brown	292 (+/- 143)	13	159	334	125-465	99
	Cutthroat	-	-	1	274	-	1
2010	Brown	233 (+/- 46)	35	279	308	97-478	99
	Cutthroat	-	-	3	291	242-345	1

## **APPENDIX L**

### **COMBINED RESULTS OF U. S. GEOLOGICAL SURVEY AND MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY SURFACE WATER MONITORING FOR CONTAMINANTS OF CONCERN IN THE CLARK FORK RIVER OPERABLE UNIT, 2014**

---

## **APPENDIX L**

### **COMBINED RESULTS OF U. S. GEOLOGICAL SURVEY AND MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY SURFACE WATER MONITORING FOR CONTAMINANTS OF CONCERN IN THE CLARK FORK RIVER OPERABLE UNIT, 2014**

---

#### **L.1 INTRODUCTION**

---

This appendix provides the combined results of the U. S. Geological Survey (USGS) and Montana Department of Environmental Quality (MDEQ) surface water monitoring for concentrations of contaminants of concern (COC) in the Clark Fork River Operable Unit (CFROU) in 2014. Data are summarized in scatterplot format by COC (arsenic, cadmium, copper, lead, and zinc) and by sample fraction (dissolved or total recoverable). The USGS data was acquired from USGS [2015]. The MDEQ data included in these summaries are those described in Section 2.0 of this monitoring report.

The U.S. Geological Survey (USGS) has been collecting surface water chemistry data in the upper Clark Fork River basin for several decades, with records from some sites extending back to at least 1969 [USGS, 2015]. In order to minimize data duplication, the MDEQ monitoring program has discontinued sampling at certain sites in the CFROU which were already sampled under the USGS monitoring program. Some sites continue to be monitored by both programs. This report includes preliminary data for COC metals (arsenic, cadmium, copper, lead, and zinc) from the 2014 USGS monitoring program at all available sites in the CFROU. Inclusion of both MDEQ and USGS monitoring data provides a more robust dataset to evaluate progress toward attainment of performance goals, improves the ability to evaluate spatial and temporal trends, and provides the ability to compare results from each program for quality control purposes.

USGS sample collection and analysis methods in 2014 were generally similar to those implemented in the MDEQ monitoring program. For example, both programs collected width- and depth-integrated samples following USGS methods [USGS, 2006] and dissolved samples were filtered at 0.45  $\mu\text{m}$  pore size. However, there were minor differences in sample collection methods between the two programs. For example, the USGS program filters dissolved samples using a peristaltic pump whereas the MDEQ program filters dissolved samples using handheld syringes. Additionally, the USGS processes collected samples in an enclosed space whereas currently MDEQ samples are processed outside the sampling vehicles.

USGS data was downloaded from the USGS website on March 12, 2015 [USGS, 2015]. At that time, data results were preliminary and subject to revision pending internal quality control and quality assurance review. All USGS data included in this report should therefore be presumed as preliminary and therefore interpreted with caution.

## L.2 RESULTS

---

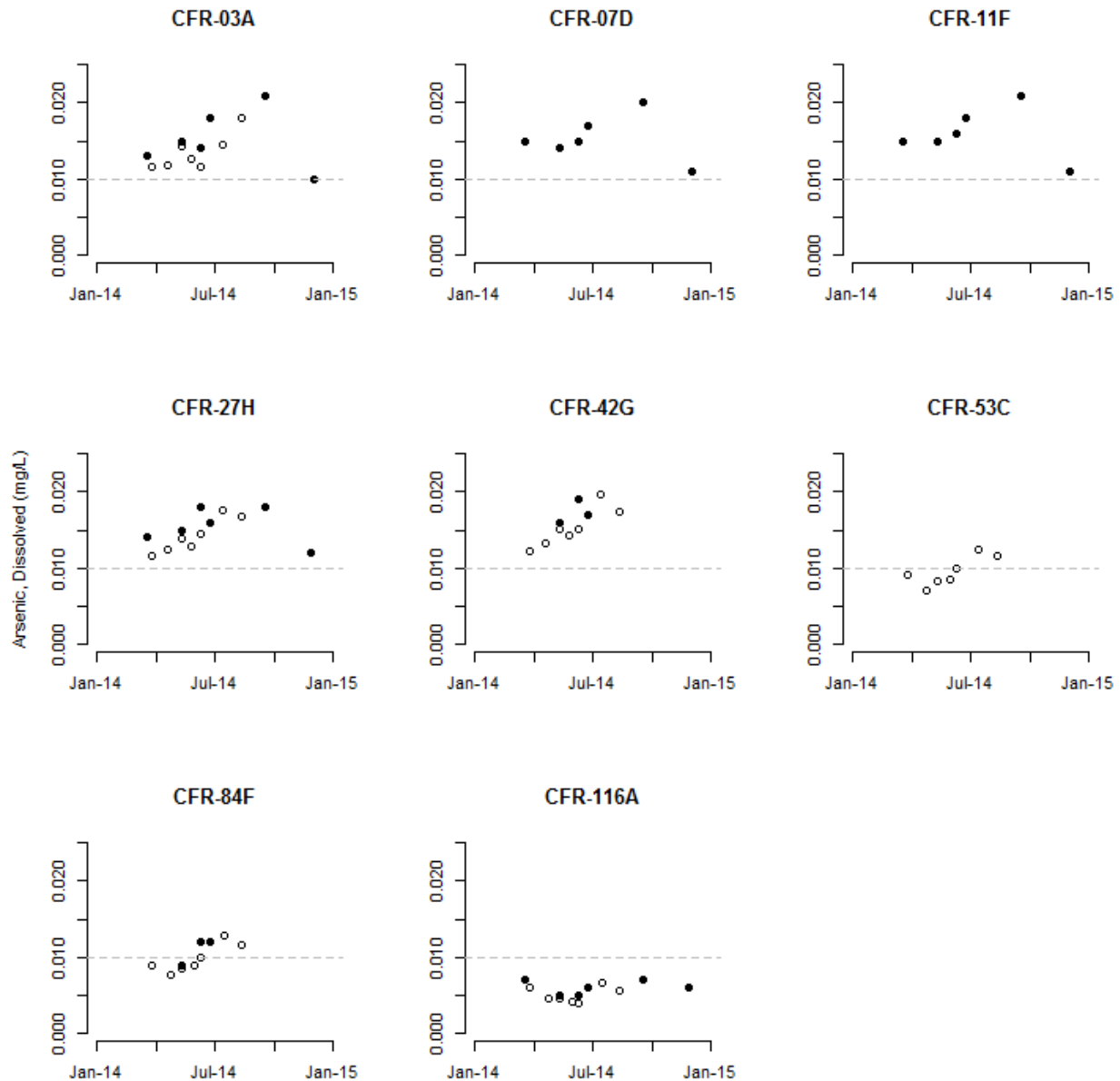
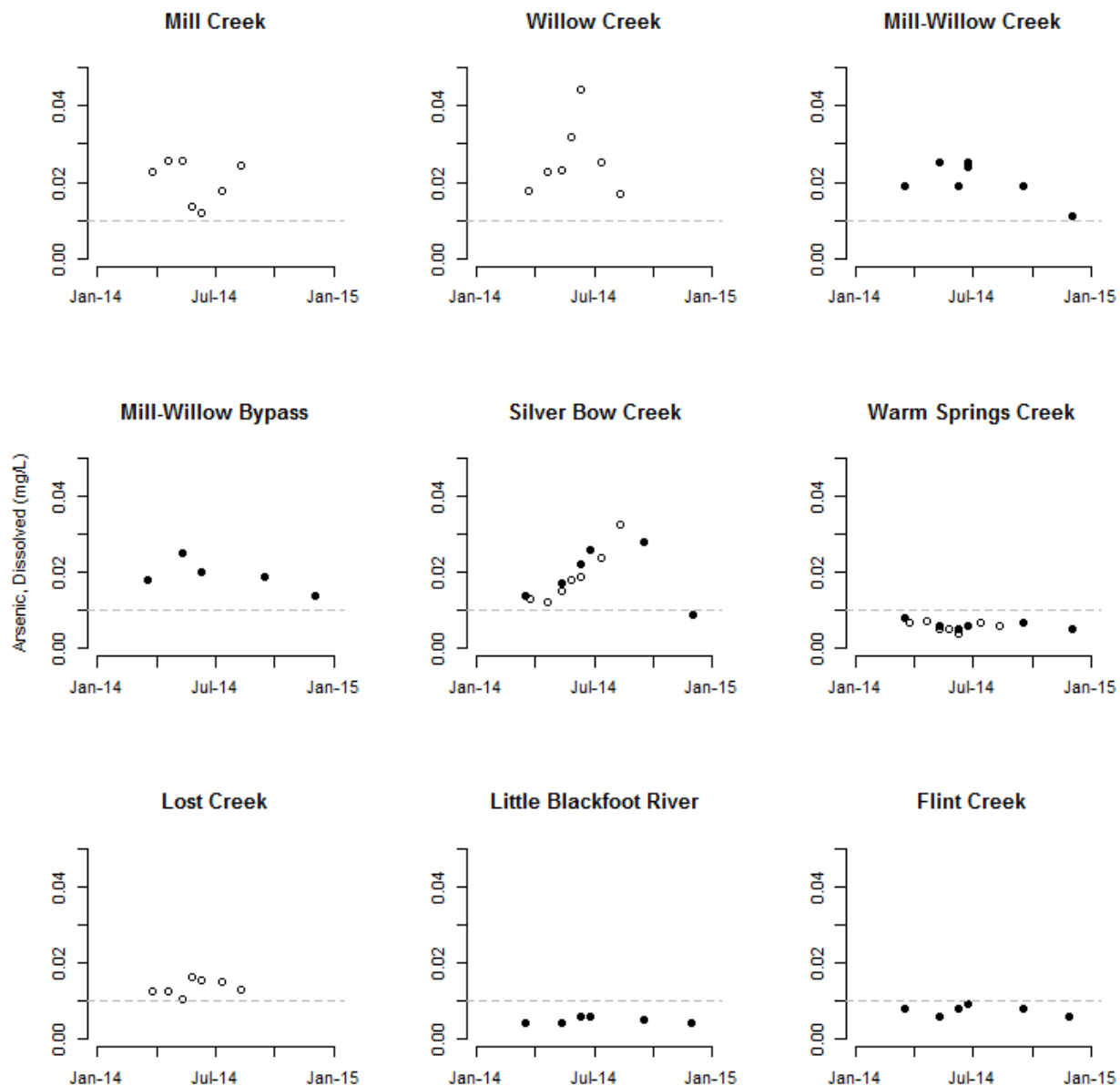
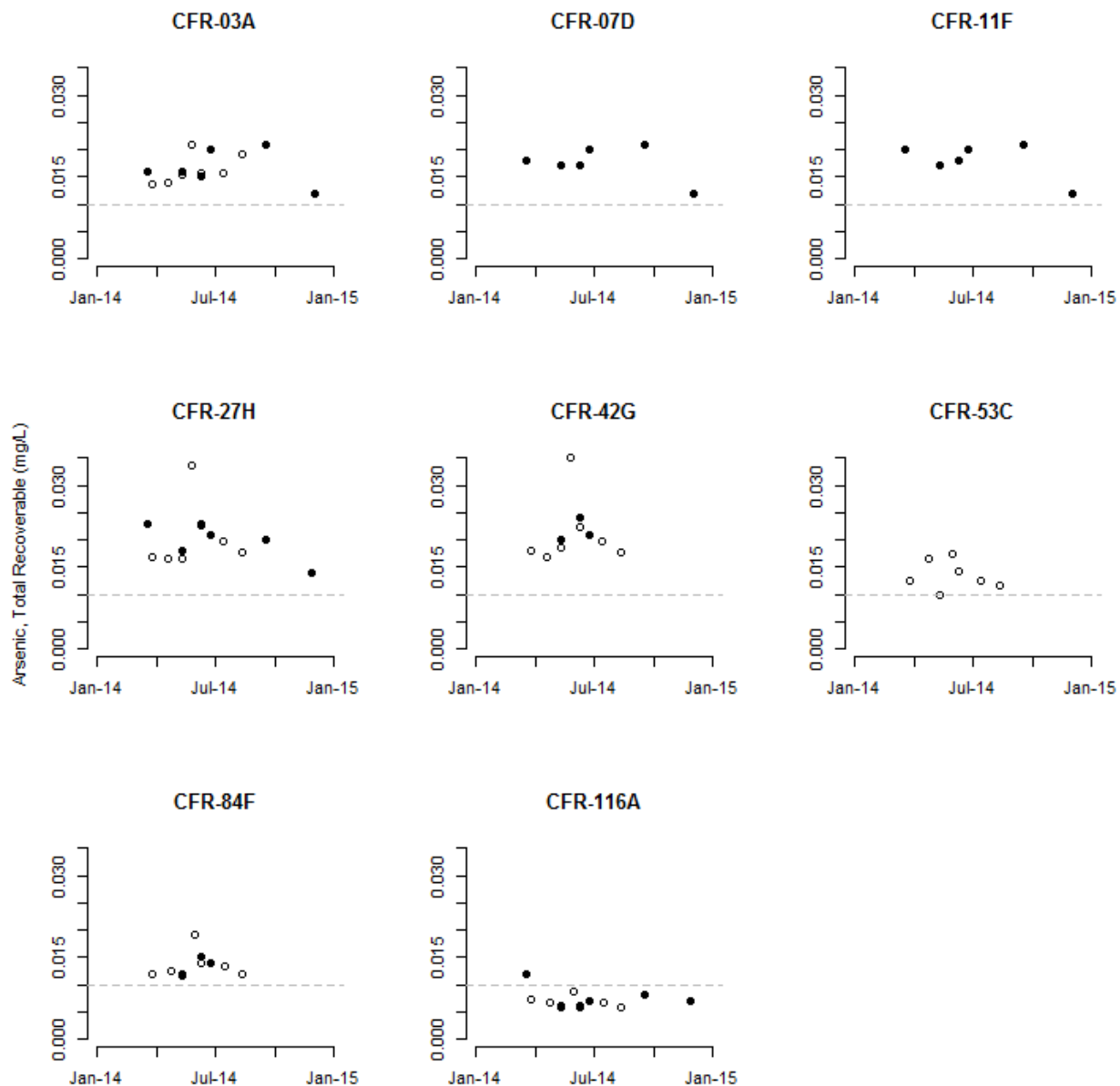


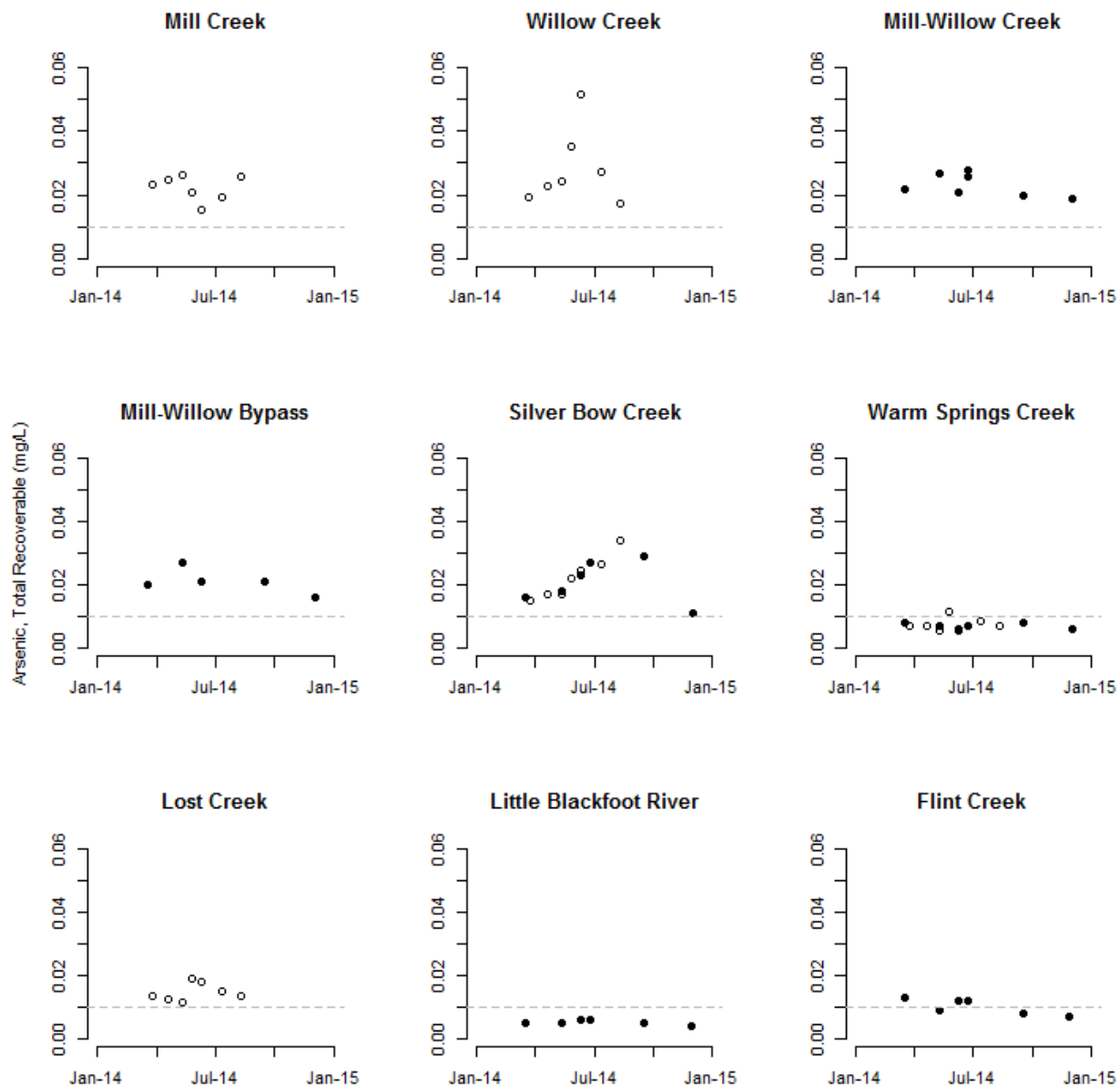
Figure L1. Dissolved arsenic concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents human health surface water standard [MDEQ, 2012].



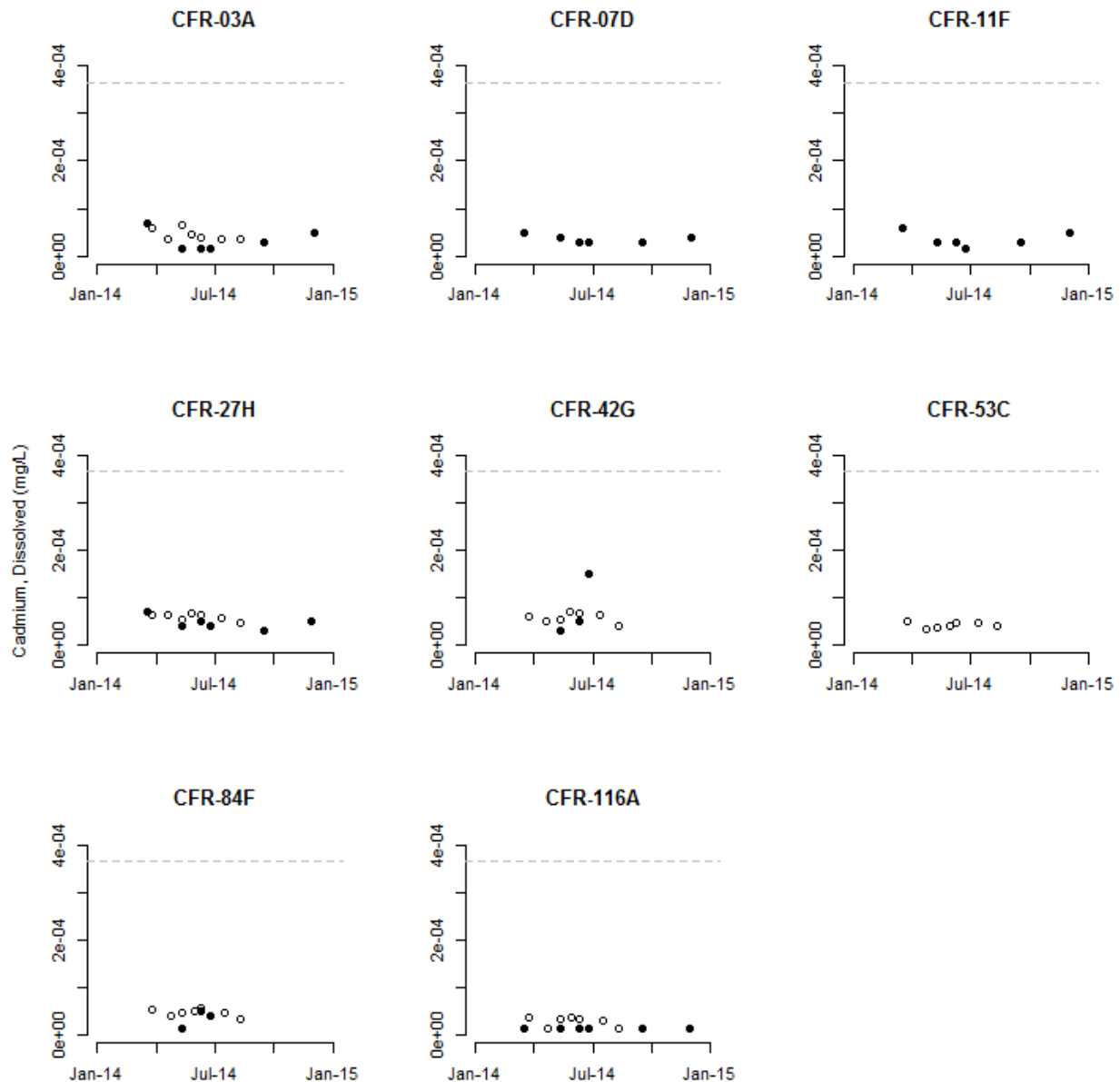
**Figure L2. Dissolved arsenic concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents human health surface water standard [MDEQ, 2012].**



**Figure L3. Total recoverable arsenic concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents human health surface water standard [MDEQ, 2012].**



**Figure L4. Total recoverable arsenic concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents human health surface water standard [MDEQ, 2012].**



**Figure L5. Dissolved cadmium concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as CaCO<sub>3</sub>.**



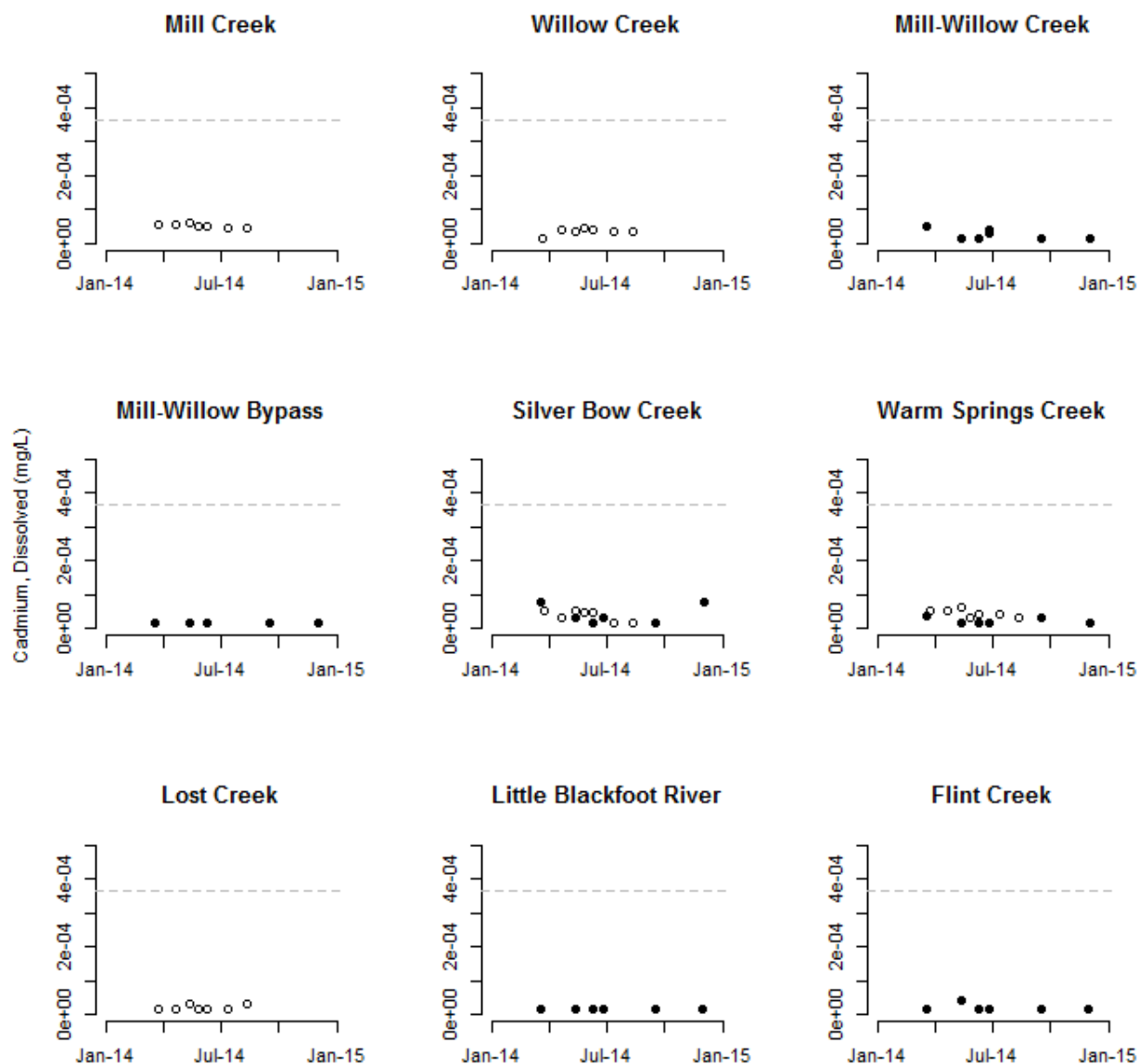
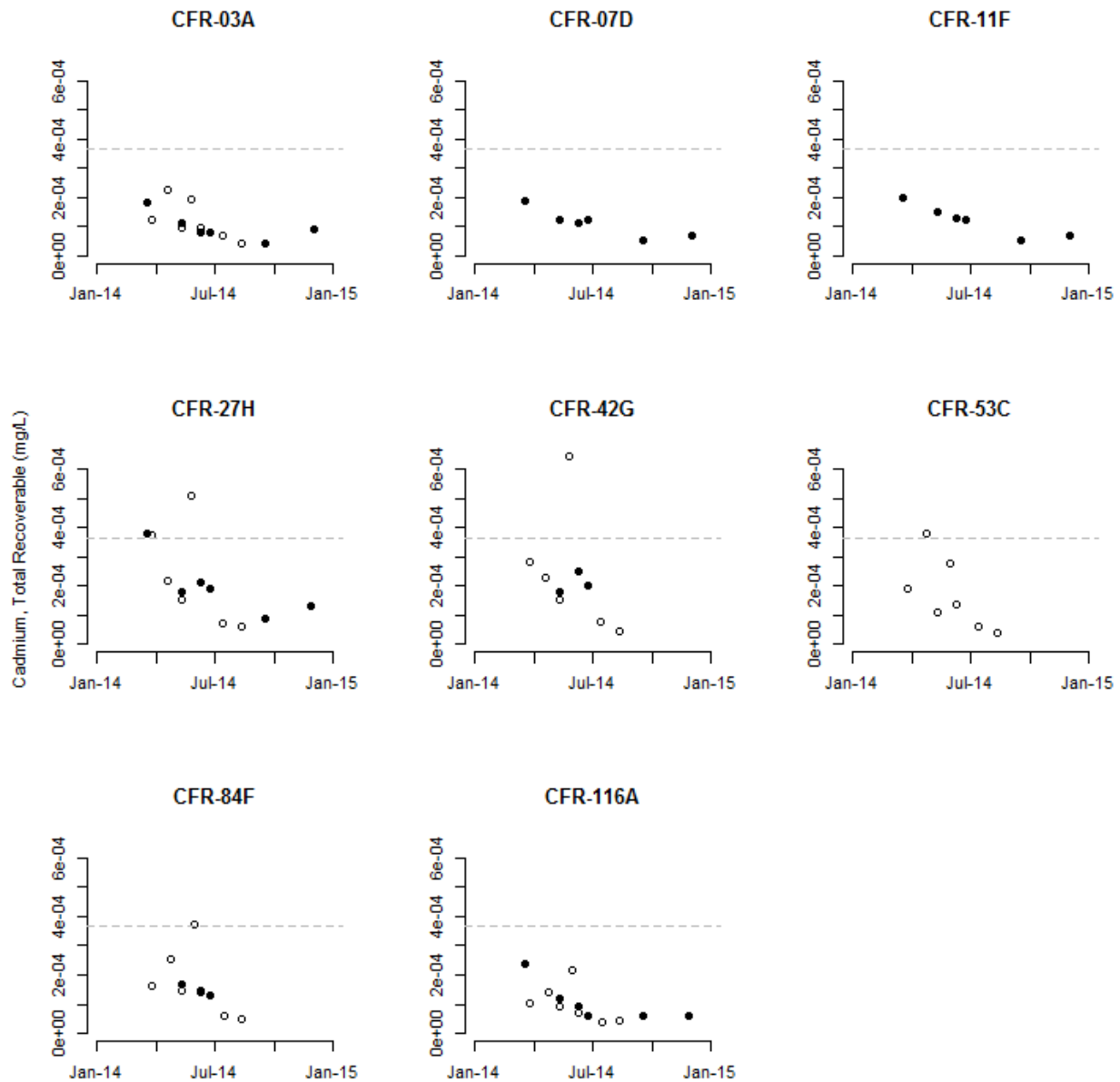
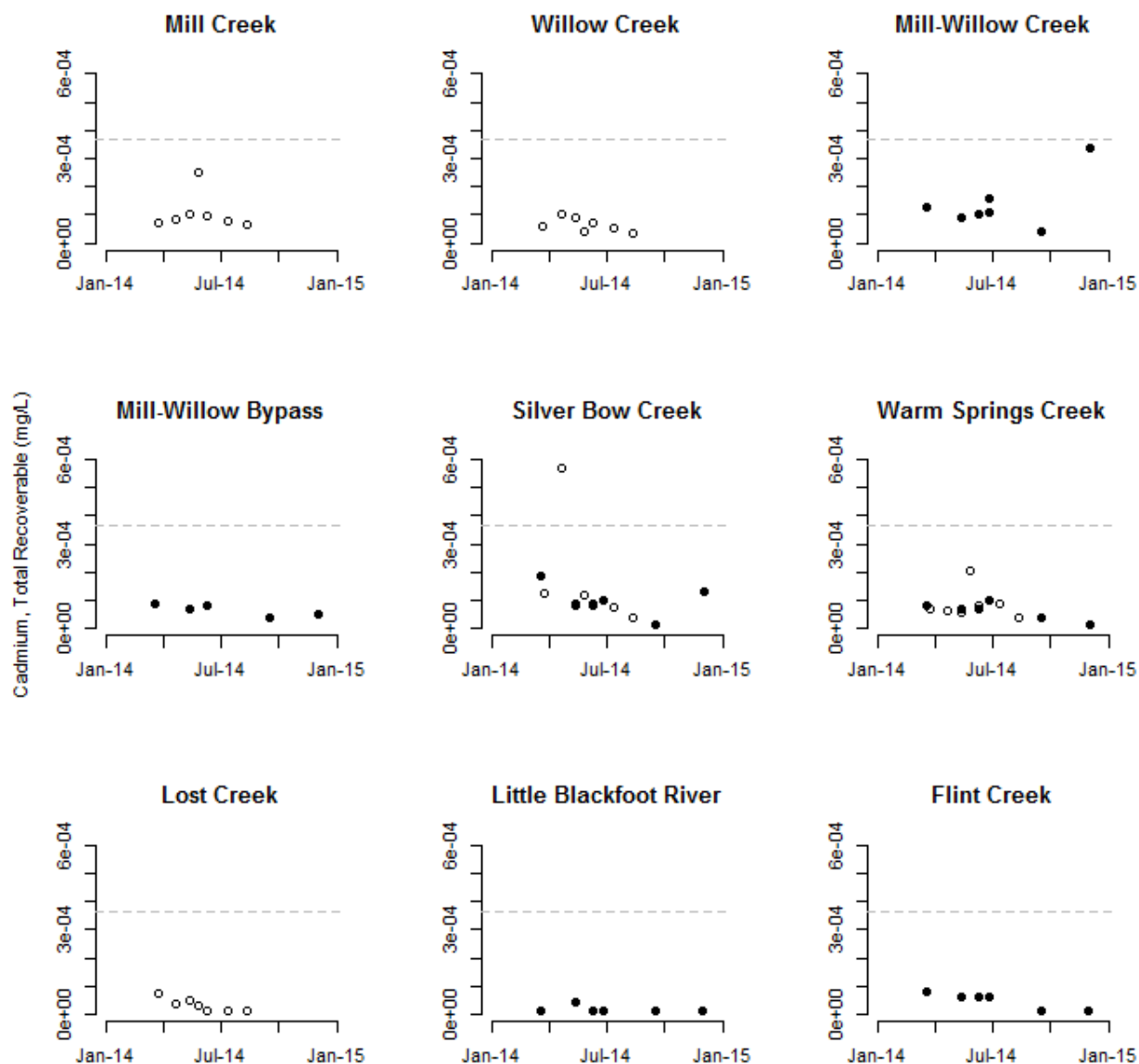


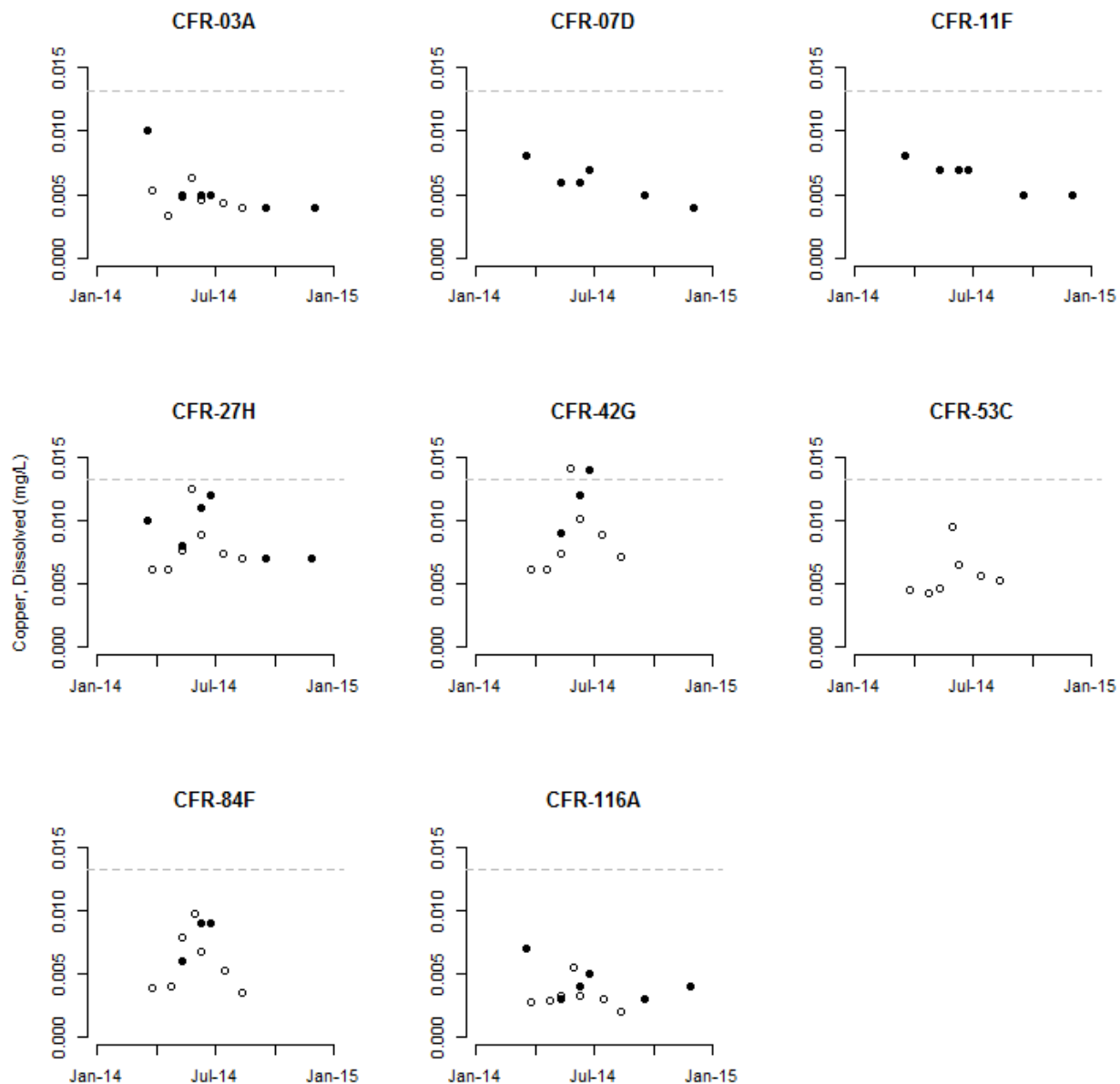
Figure L6. Dissolved cadmium concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .



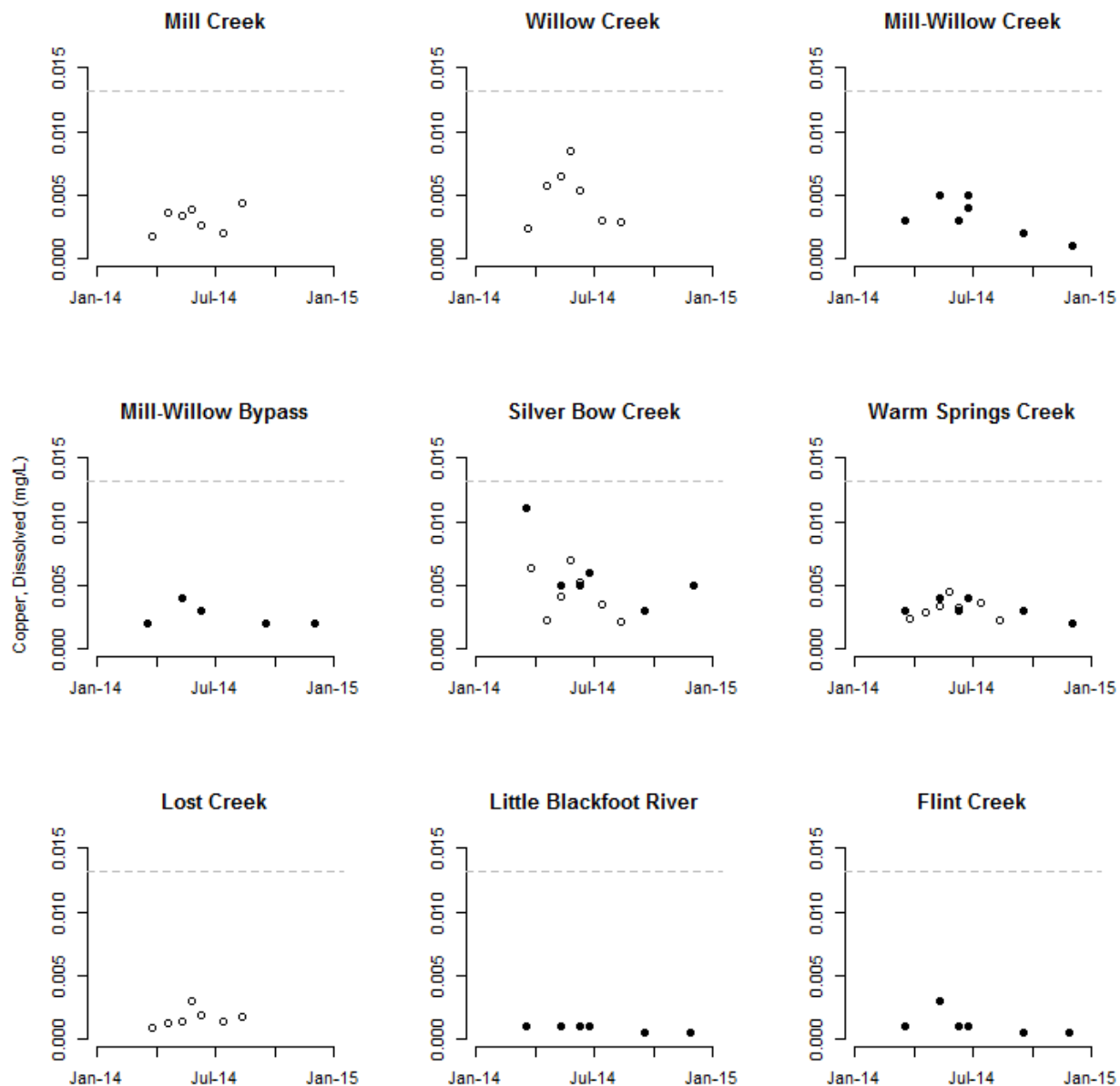
**Figure L7. Total recoverable cadmium concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as CaCO<sub>3</sub>.**



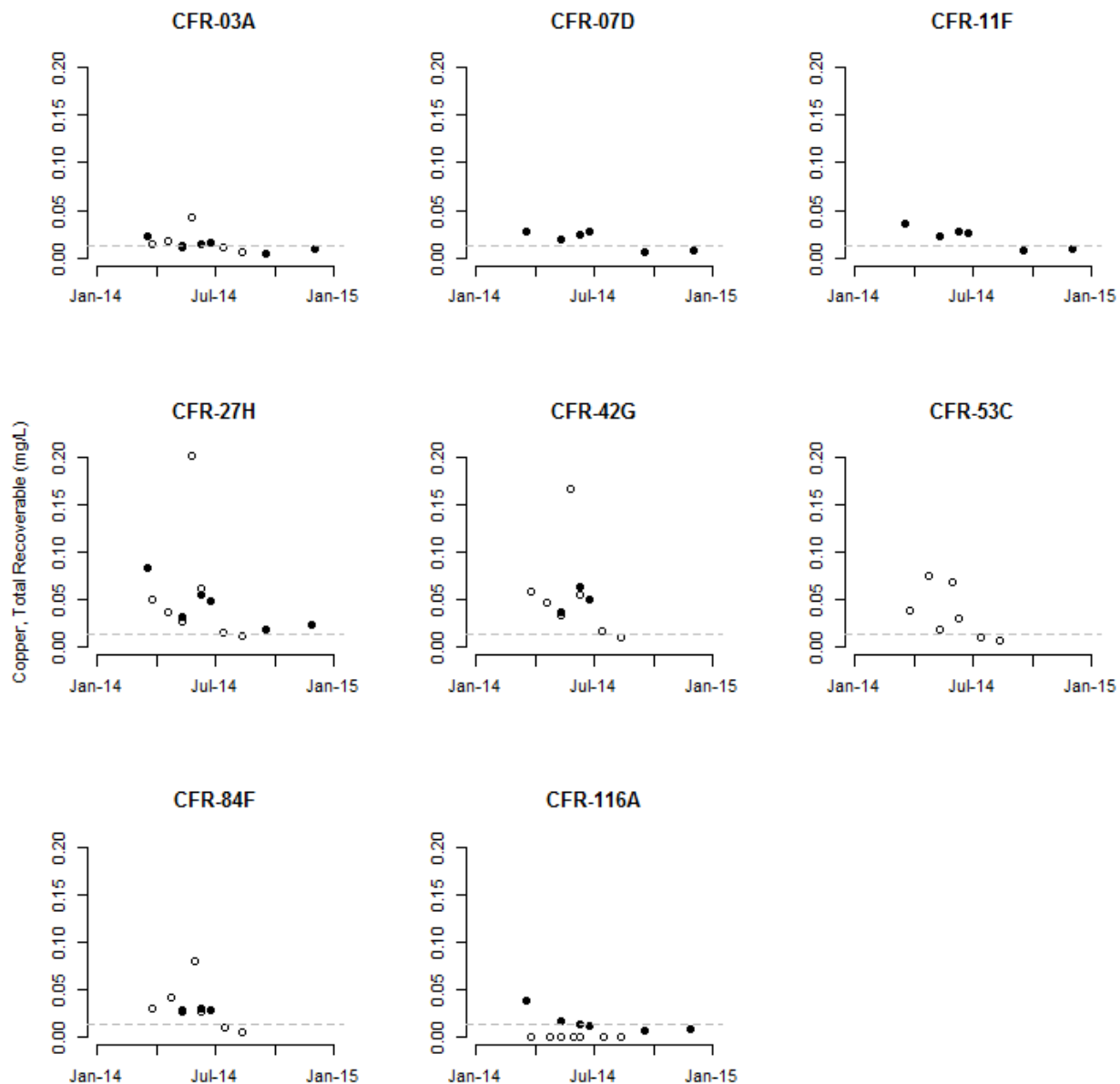
**Figure L8. Total recoverable cadmium concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



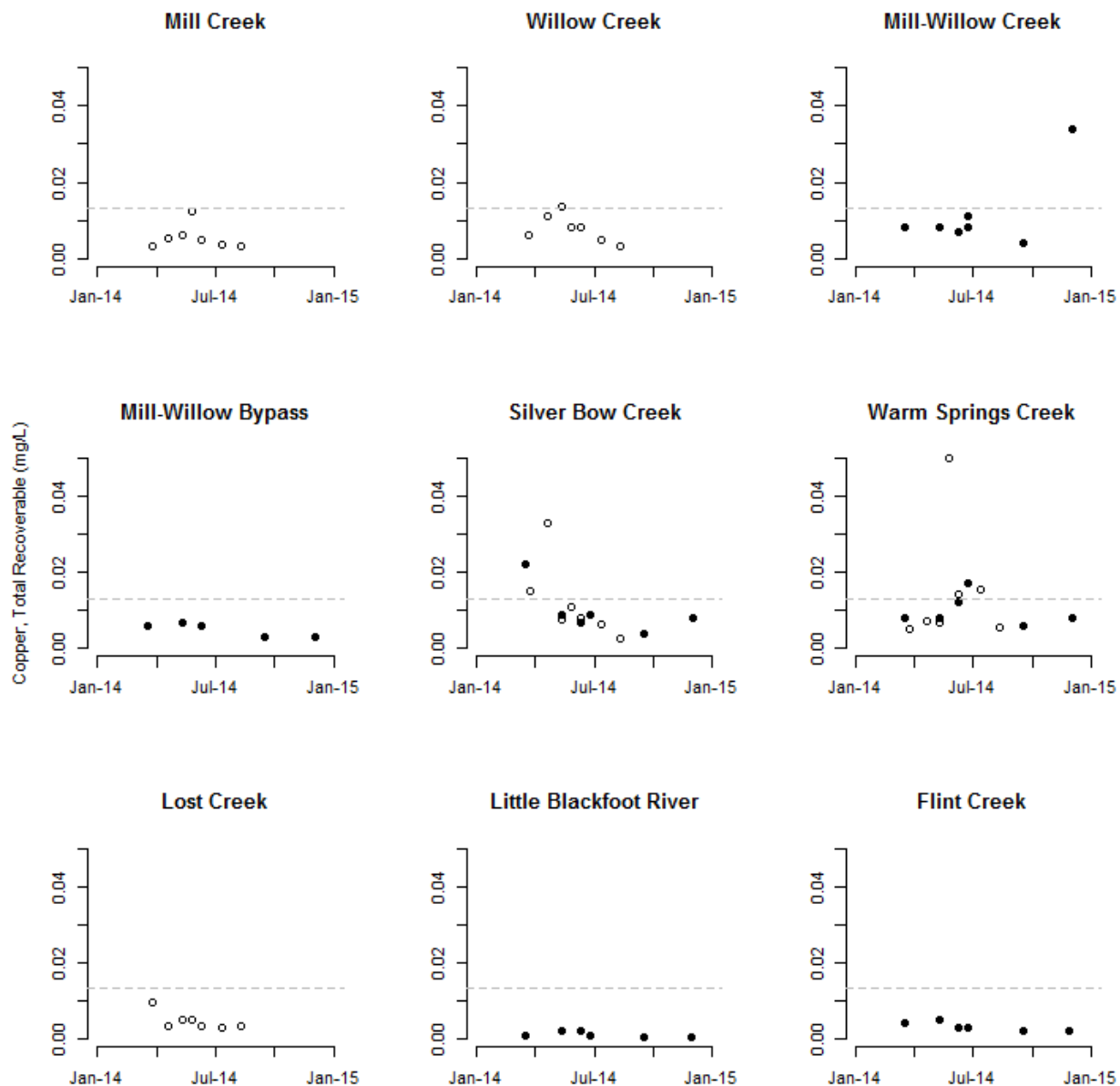
**Figure L9. Dissolved copper concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



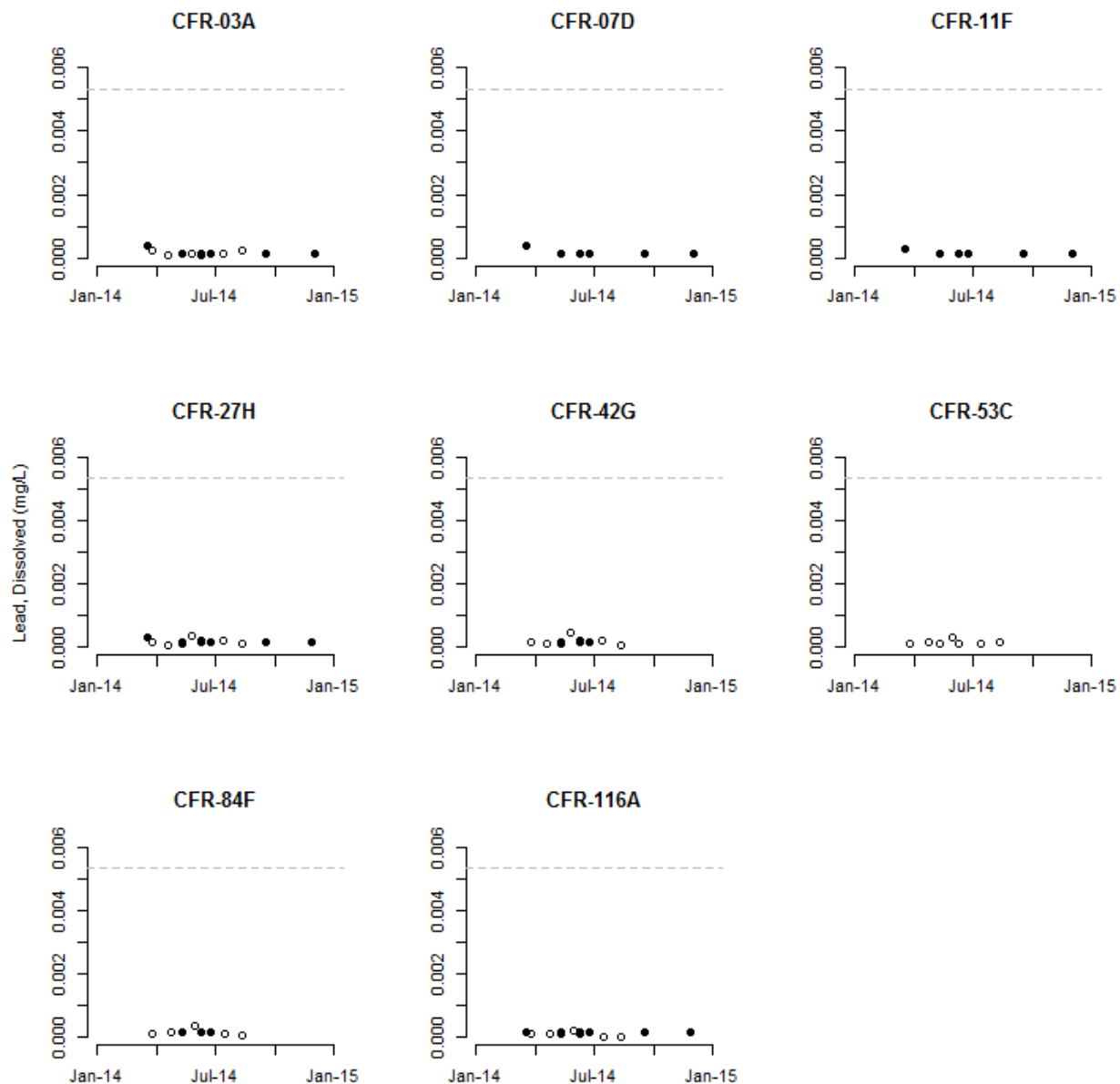
**Figure L10. Dissolved copper concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



**Figure L11. Total recoverable copper concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



**Figure L12. Total recoverable copper concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



**Figure L13. Dissolved lead concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as CaCO<sub>3</sub>.**



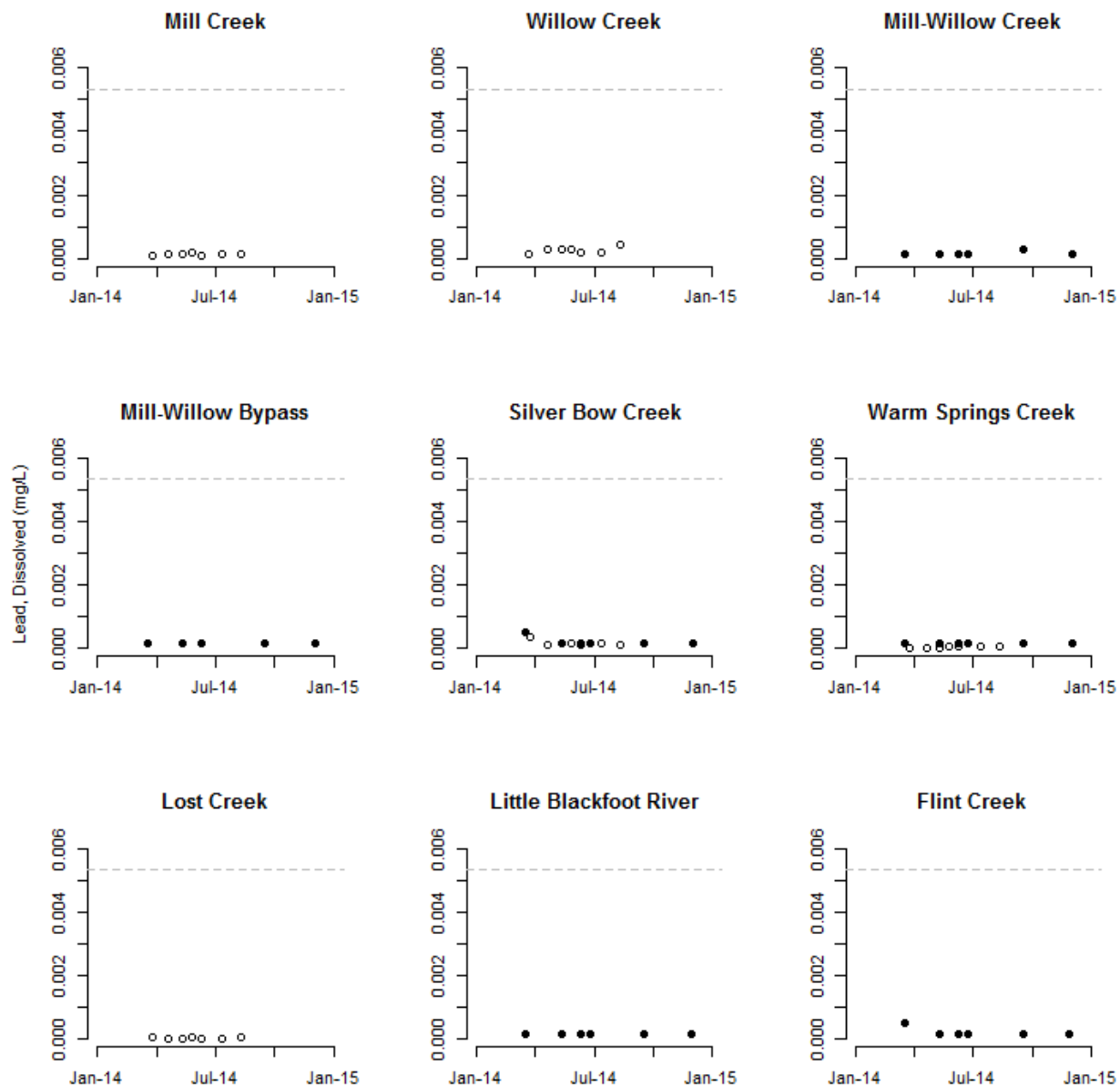
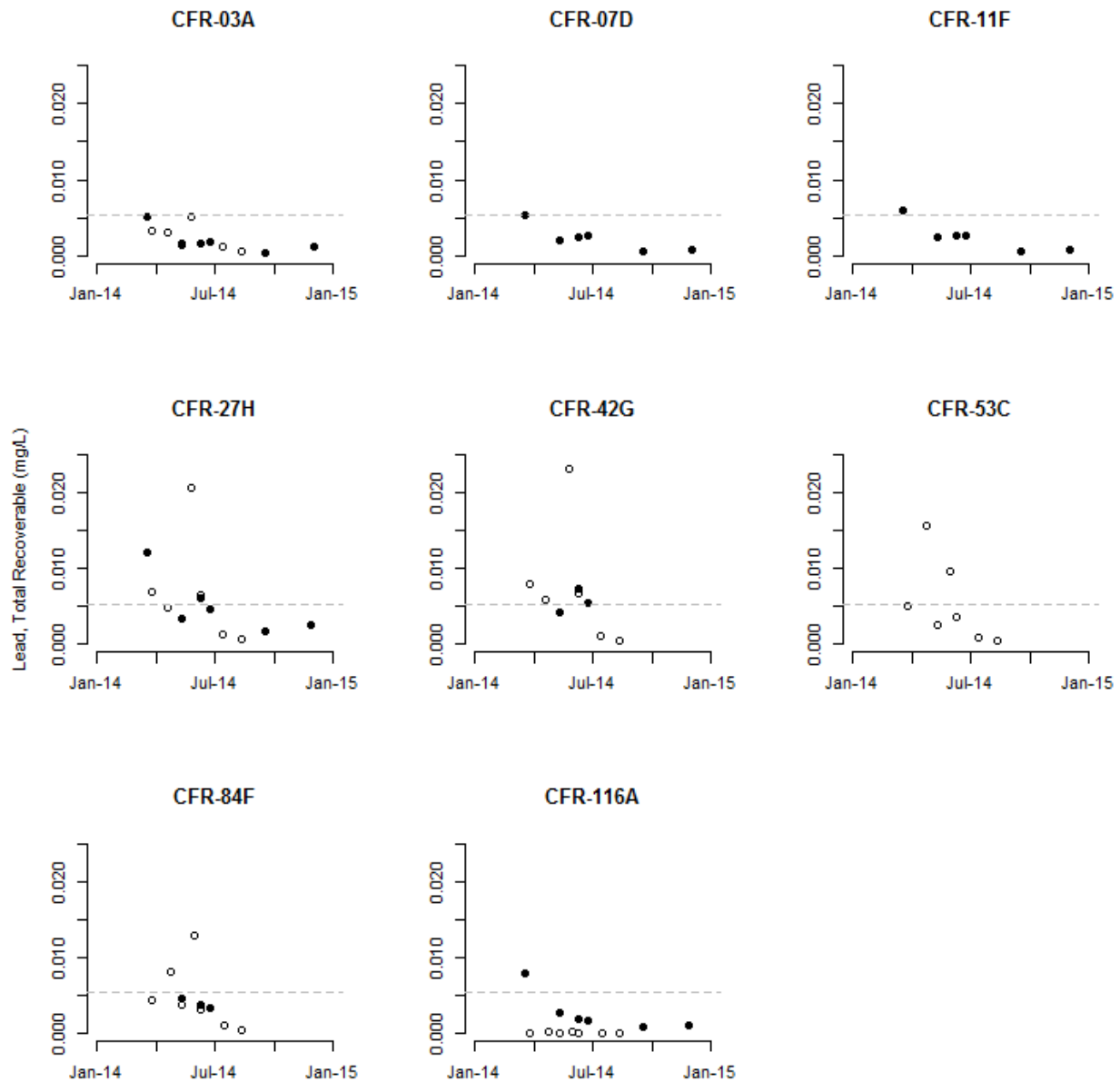
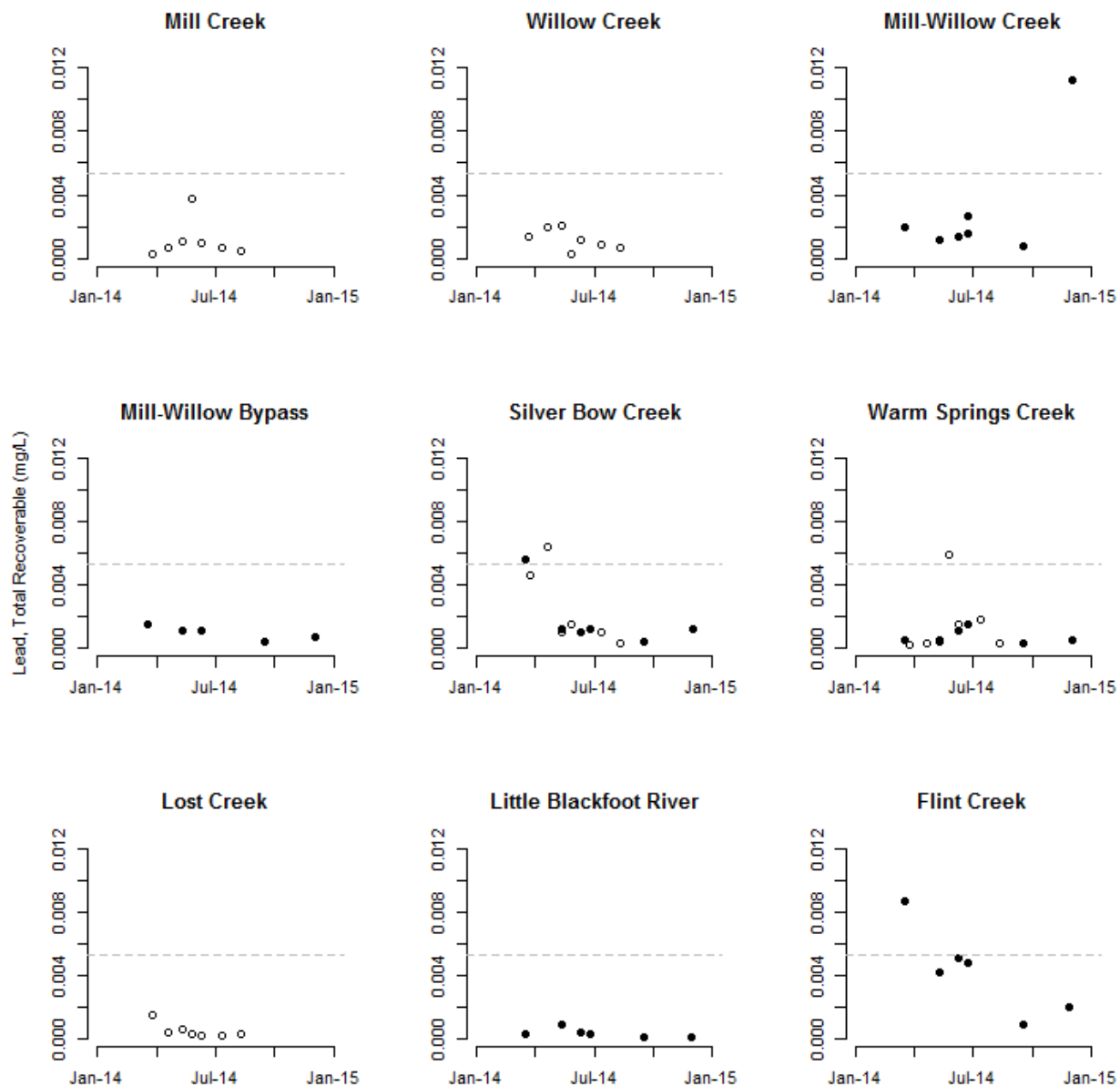


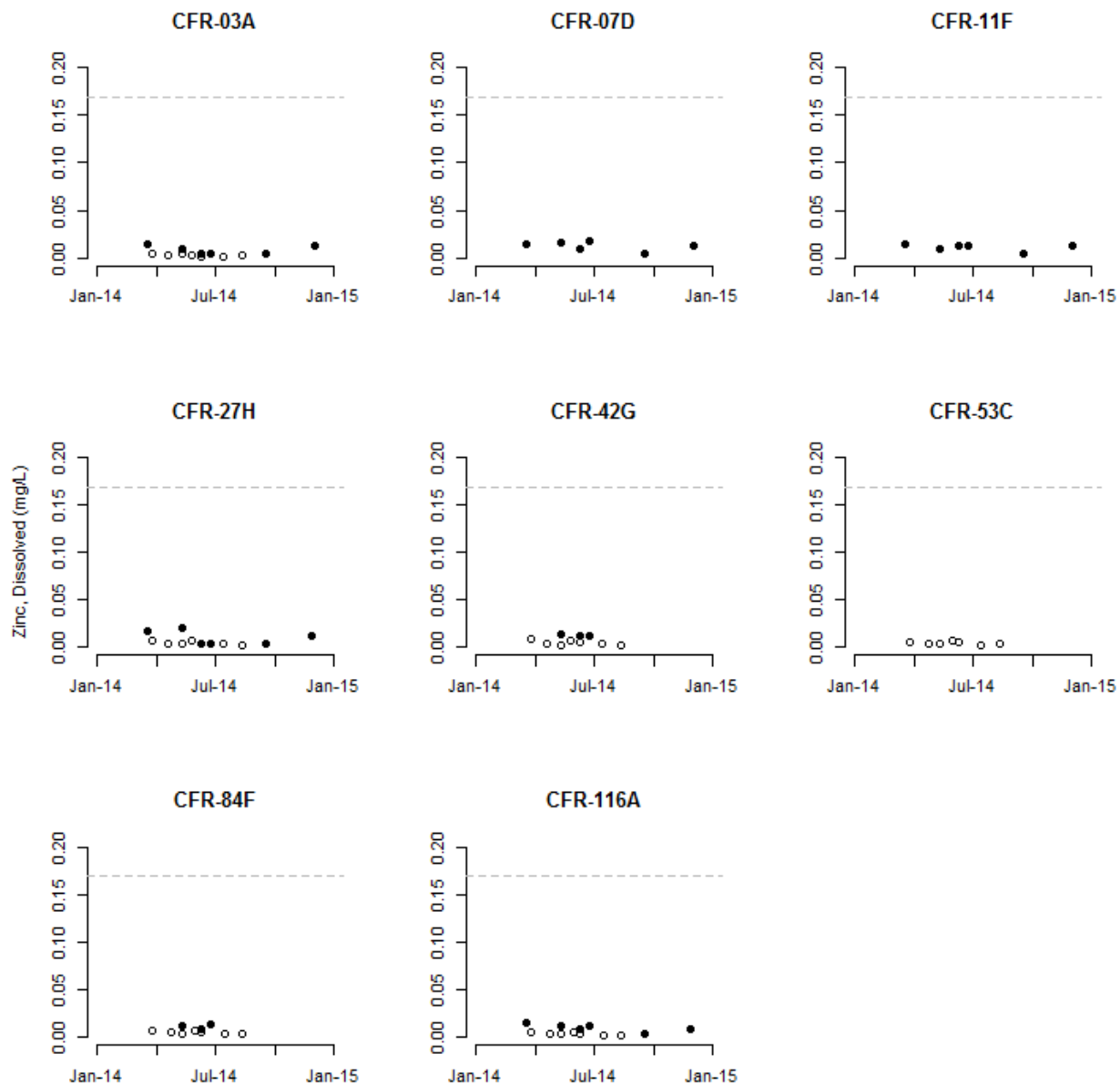
Figure L14. Dissolved lead concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .



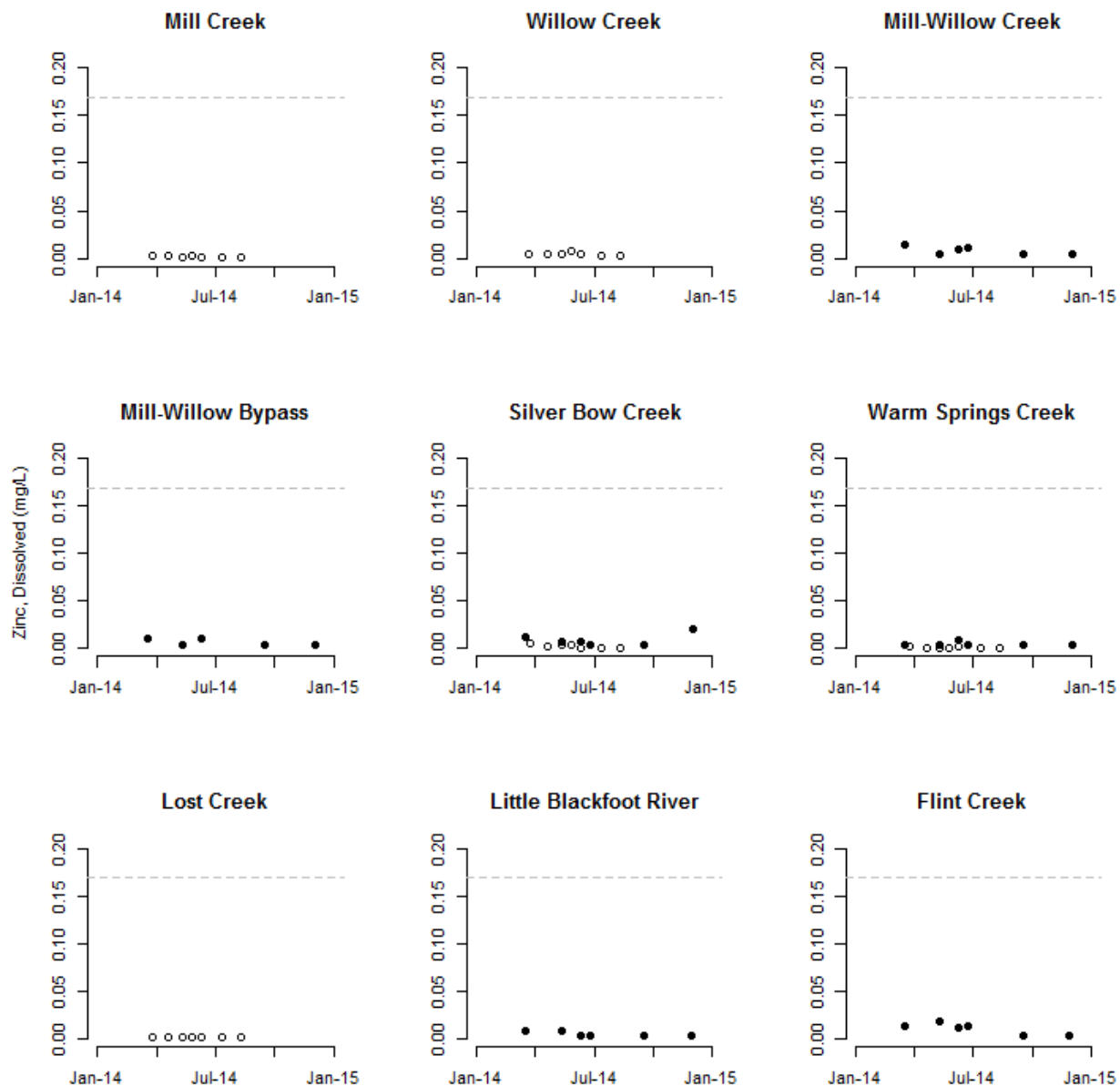
**Figure L15. Total recoverable lead concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



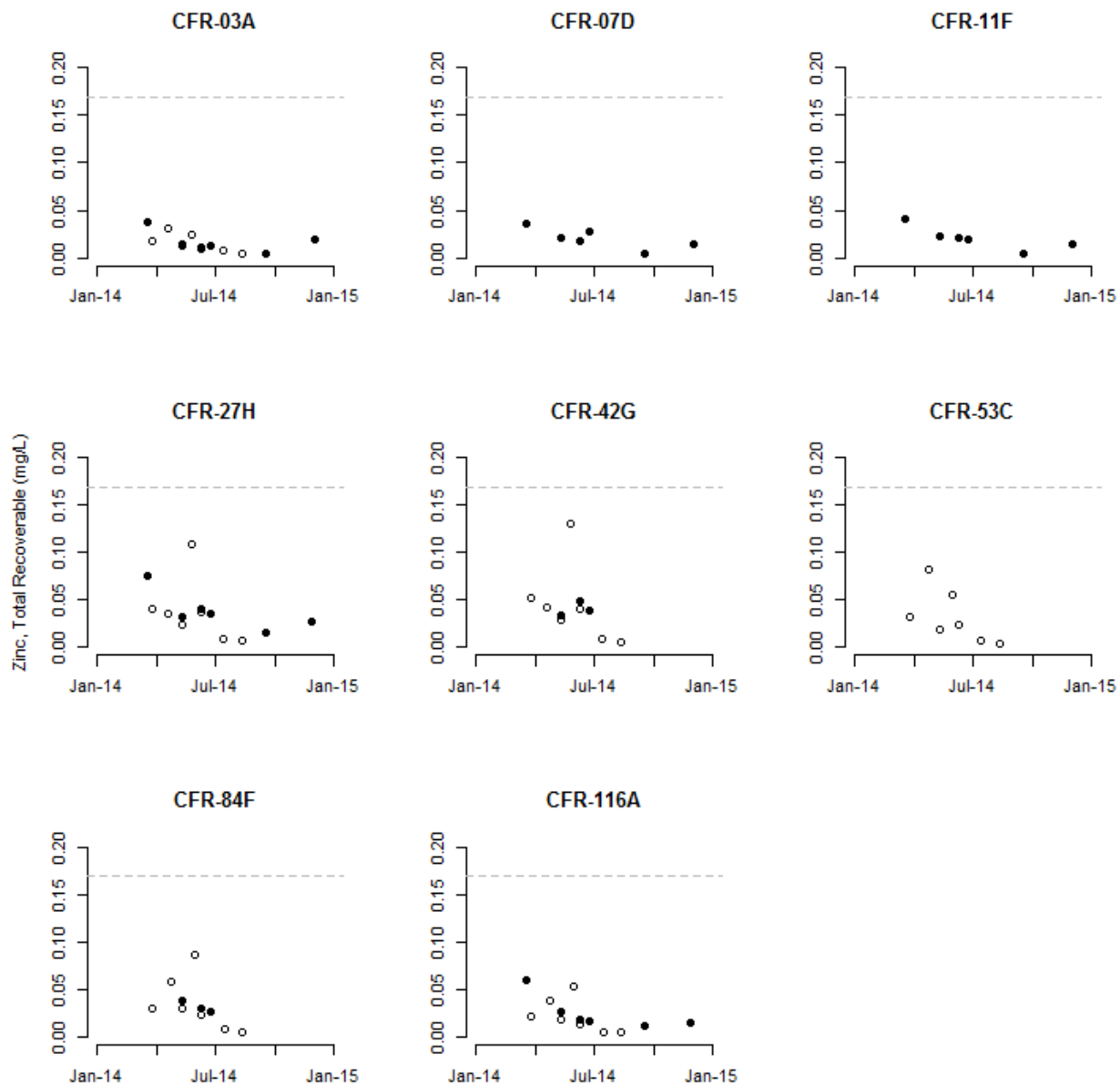
**Figure L16. Total recoverable lead concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



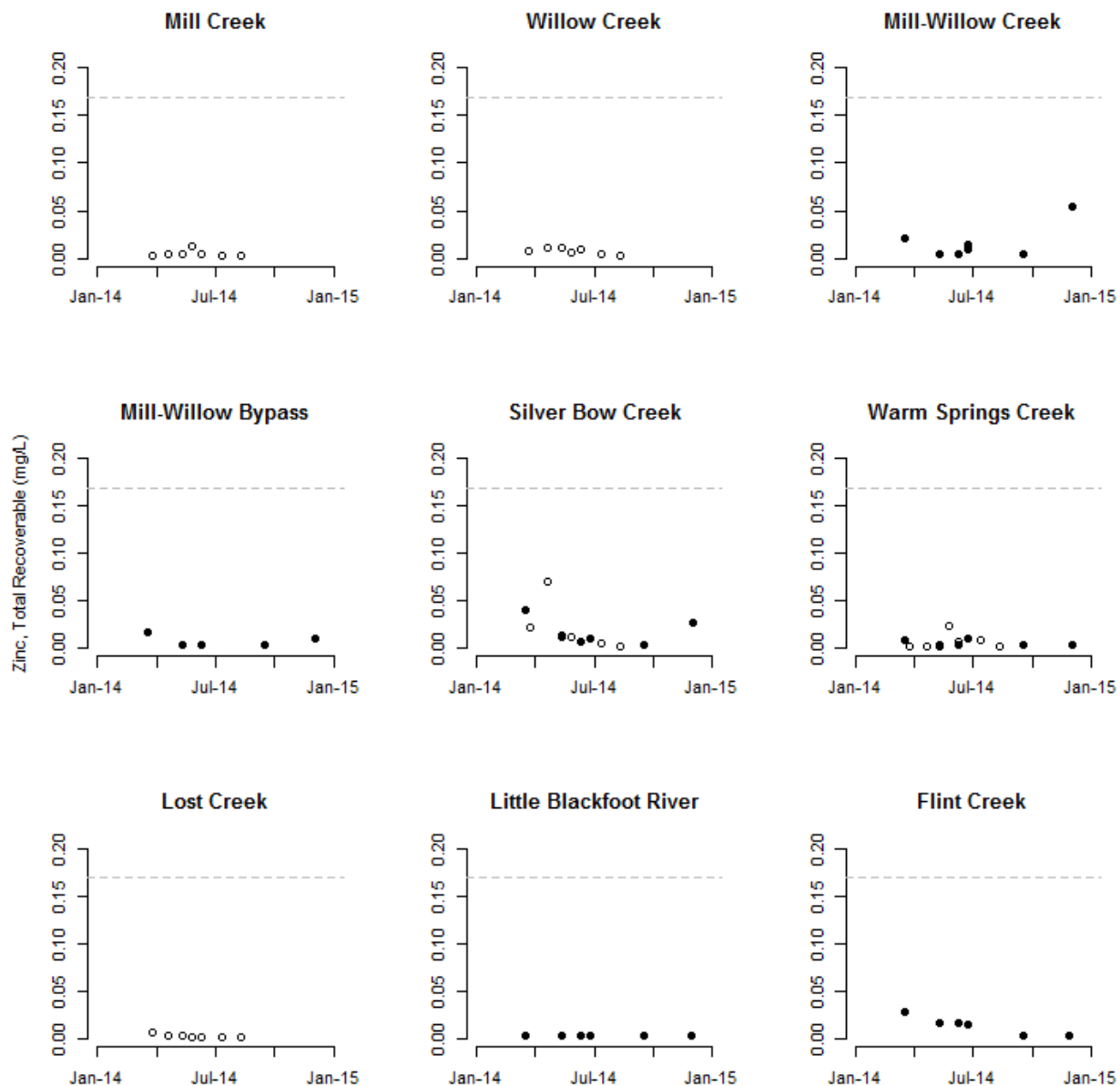
**Figure L17. Dissolved zinc concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



**Figure L18. Dissolved zinc concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



**Figure L19. Total recoverable zinc concentrations in the upper Clark Fork River mainstem, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**



**Figure L20. Total recoverable zinc concentrations in tributaries of the upper Clark Fork River, 2014. Data from the U.S. Geological Survey (white dots) and Montana Department of Environmental Quality (black dots) monitoring programs. Gray dashed line represents chronic aquatic life standard [MDEQ, 2012] assuming hardness of 150 mg/L as  $\text{CaCO}_3$ .**

### I.3 REFERENCES

---

**Dodge, K. A., M. I. Hornberger, M.I., and J. L. Dyke, 2014.** *Water-quality, bed-sediment, and biological data (October 2012 through September 2013) and statistical summaries of data for streams in the Clark Fork Basin, Montana: U.S. Geological Survey Open-File Report 2014–1244*, prepared by U.S. Geological Survey in cooperation with U.S. Environmental Protection Agency. Available: <http://pubs.usgs.gov/of/2014/1244/>. (July 22, 2015).

**MDEQ (Montana Department of Environmental Quality), 2012.** *Circular DEQ-7, Montana numeric water standards, Version 6.8*, prepared by MDEQ. Available: <http://www.deq.mt.gov/wqinfo/Standards/default.mcp.x>. (February 11, 2014).

**USGS (U.S. Geological Survey), 2006.** *Chapter A4. Collection of water samples, Revised 2006*, prepared by USGS. Available: [http://water.usgs.gov/owq/FieldManual/chapter4/pdf/Chap4\\_v2.pdf](http://water.usgs.gov/owq/FieldManual/chapter4/pdf/Chap4_v2.pdf). (February 20, 2014).

**USGS (U.S. Geological Survey), 2015.** *USGS water data for the nation*. Available: <http://waterdata.usgs.gov/nwis>. (March 12, 2015).