MONITORING REPORT FOR 2018

CLARK FORK RIVER OPERABLE UNIT

prepared for

Montana Department of Environmental Quality
Waste Management and Remediation Division
Federal Superfund and Construction Bureau
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Helena, MT 59620-0901

and

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July 2019

RESPEC

MONITORING REPORT FOR 2018

CLARK FORK RIVER OPERABLE UNIT

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July 2019

EXECUTIVE SUMMARY

This performance monitoring program evaluates progress of remedial actions in the Clark Fork River Operable Unit (CFROU) of the Milltown Reservoir/Clark Fork River Superfund site toward meeting performance goals or identified reference values. Environmental media monitored in 2018 included surface water, instream sediment, periphyton, macroinvertebrates, fish, and birds. This report summarizes results of data collected for each of these environmental media and evaluates progress toward attainment of performance goals or in relation to reference values as of 2018.

Environmental damages to the upper Clark Fork River were summarized in the Record of Decision (ROD) for the Clark Fork River Operable Unit. Contamination occurred due to heavy metals originating from historic mining, milling, and smelting processes associated with operations in Butte and Anaconda. Metal contaminants accumulated in the Clark Fork River streambanks and floodplain over a period of at least 100 years. The primary sources of contamination were tailings and contaminated sediments mixed with soils in the streambanks and floodplains, which eroded during high streamflow events and entered the river and other surface waters. In addition to erosion, heavy metals were leached from the contaminated sediments and tailings directly into the groundwater and eventually to surface water. These contaminant transport pathways resulted in impacts to terrestrial and aquatic life along the Clark Fork River.

The Montana Department of Environmental Quality (DEQ), 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. DEQ coordinates with the Natural Resource Damage Program (NRDP) of the Montana Department of Justice regarding implementation and integration of restoration components to supplement the remedial actions. DEQ coordinates with the National Park Service to implement remedial actions on the Grant-Kohrs Ranch.

Data collected in 2018 represents the ninth year of monitoring in the CFROU. Monitoring under this program was first conducted by DEQ 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 for surface water, sediment, and some aquatic biota (macroinvertebrates and periphyton) included seventeen sample sites; seven mainstem sites and ten tributary sites. Not all sites were sampled for each environmental medium or for each analyte

of each medium (e.g., some surface water sites were only sampled for mercury and methylmercury rather than the full suite of analytes). The monitoring network has been largely consistent since 2014. One new site in the Clark Fork River mainstem (Site CFR-34; Clark Fork River at Williams-Tavenner Bridge) was added in 2015, downstream from the Grant-Kohrs Ranch National Park property. Site CFR-34 was added to provide a more detailed assessment of water and instream sediment chemistry and aquatic biota that may be related to upcoming remedial actions in Phases 15 and 16. In addition, one site (Silver Bow Creek at Frontage Road; Site SS-19) is sampled as part of the Streamside Tailings Operable Unit monitoring program during some sample periods and as part of the CFROU monitoring program during other sample periods.

Surface water and instream sediment monitoring is primarily intended to describe concentrations of metal contaminants of concern (COCs; arsenic, cadmium, copper, lead, and zinc). For surface water, additional data was collected including nutrient and common ion concentrations, and other field parameters (e.g., pH). Surface water samples were collected during each calendar quarter with two additional monitoring periods during the spring snowmelt runoff period. Sediment samples were collected during the first (late winter) and third (late summer) quarter sample periods. Macroinvertebrate and periphyton samples were collected during the summer (third quarter). Fisheries and bird monitoring data, collected by Montana Fish, Wildlife & Parks and GoBirdMontana LLC, respectively, was collected during the second and third quarters.

In stark contrast to 2017, when streamflows in the upper Clark Fork River watershed were about normal during the spring runoff period but low during the summer, flows in 2018 were very high throughout the spring runoff period and throughout the remainder of the year due to strong mountain snowpack in the upper Clark Fork River basin. The sustained high flows in the Clark Fork River mainstem almost certainly contributed to the relatively high total recoverable contaminant concentrations observed in the Clark Fork River in 2018.

Surface water COC concentrations in the mainstem exceeded performance goals for all COCs in at least one sample but were most frequent for arsenic. Of 36 samples collected in the Clark Fork River mainstem in 2018 (from six sites during six sample periods), performance goal exceedances occurred, in order of most frequent, for arsenic in 22 samples (61 percent), for lead in eleven samples (31 percent), for copper in five samples (14 percent), and for zinc in three samples (8 percent). Arsenic exceedances were most consistent in Reach A during Q2 and Q3. Silver Bow Creek (below the Warm Springs Ponds) and Mill-Willow Creek were clearly sources of arsenic to the Clark Fork River as 91 percent (21 of 23) of the samples from sites in those stream sections exceeded the arsenic performance goal. Arsenic concentrations in Silver Bow Creek entering the Warm Springs Ponds (at Frontage Road) were generally several times lower than the concentrations leaving the ponds (at Warm Springs) indicating that arsenic is likely remobilized in the ponds. In contrast, concentrations of the cationic contaminants of concern (cadmium, copper, lead, and zinc), were generally much lower in samples collected downstream from the ponds.

Exceedances of the more restrictive reference value for sediment COC concentrations (the "Threshold Effect Concentration"; TEC) occurred in all 2018 CFROU mainstem and tributary samples for all COCs. Exceedances of the more lenient reference value (the "Probable Effect Concentration"; PEC) were also quite common for all COCs. In the mainstem, all samples exceeded the PECs for arsenic, copper, and zinc and at least 75 percent of the samples exceeded the PECs for cadmium and lead. In Silver Bow Creek and Mill-Willow Creek, exceedances of the PECs occurred for each COC in each sample. In Warm Springs Creek, Lost Creek, Racetrack Creek, and the Little Blackfoot River all samples exceeded the TEC for each COC. In the Clark Fork River mainstem since 2014, the highest COC concentrations have tended to occur in the upper-most portion of Reach A (near Galen) and have generally decreased with downstream distance from the near Galen site.

Results of periphyton bioindices as applied to samples collected in the CFROU in 2018 indicated that all sites sampled had either "good" or "excellent" overall biological integrity. In addition to the favorable overall biological integrity results, the Diatom Species Richness metric rated all sites sampled as "unimpaired". However, in contrast, the Siltation Index rated 10 of 14 sites as "impaired". Specific stressors identified by the various periphyton bioindices and metrics at specific sites included nutrients, fine sediment and metals. Based on our interpretation of the nutrient metrics (relative abundances of nitrogen-autotrophs, nitrogen-heterotrophs, high oxygen-demand taxa, abundance of oligosaprobous or ß-mesosaprobous diatoms, and the probability of impairment by nutrients), one Silver Bow Creek site (above the Warm Springs Ponds) and the Racetrack Creek site were impaired for nutrients. Based on our interpretation of the diatom metrics associated with fine sediment (the Siltation Index, relative abundance of motile taxa, and probability of impairment as a result of fine sediment), most sites were mildly or severely impaired from sediment, particularly the mainstem sites. Suggestion of impairment by metals (metrics included relative abundance of metals-tolerant taxa, abnormal cell valves, and probability of impairment by metals) were widespread but inconsistent.

Macroinvertebrate samples collected in CFROU 2018 were evaluated in relation to a suite of bioindices. The Montana Valley and Foothill Prairies bioindex results indicated that all but two sites (Warm Spring Creek and Racetrack Creek) were either slightly or moderately impaired. The Observed/Expected (O/E) bioindex scored all sites as impaired, although the O/E may not be an appropriate evaluation tool for these sites because the 2012 model did not recognize the combination of predictor variables for any site. The Hillsenhoff Biotic Index indicated that organic pollution was a potential cause of impairment at 8 of 13 sites. The Metals Tolerance Index indicated that contamination by metals occurred at 9 of 13 sites.

Trout population estimates were conducted in spring 2018 at four established sections of the Clark Fork River located in Reach A of the CFROU. These sections have also been sampled in prior years. Brown Trout abundance estimates in these four sections ranged from 60 to 187 fish per kilometer. Other trout species observed (Westslope Cutthroat Trout, Brook Trout, and Rainbow Trout) were rare in Reach A sample sections. In the upstream-most section, known as the "pH Shack Section", Brown Trout abundance in 2018 was at or near a historic low. Abundance estimates in this section have decreased significantly since 2014, and have been highly variable

since 2008. One potential explanation for the low abundance of Brown Trout in the upper portion of the Clark Fork River were the low summer flows during the summers from 2014-2016 which may have resulted in low survival of catchable sized fish in 2017 and 2018.

Bird monitoring has been conducted annually in the CFROU since 2015. Results indicate that the CFROU provides habitat for a large number of bird species including multiple Montana Species of Concern. Bird monitoring has focused on the Reach A section from Phase 1 to Phase 16. Perching birds, waterfowl, and shorebirds and waders were the most abundant and diverse taxonomic orders in the CFROU in 2018. Birds of prey were also relatively abundant and diverse throughout the CFROU in 2018. Birds of prey are at the top trophic levels in these habitats and their abundance is directly dependent on the abundance of prey species (e.g., small mammals, fish, amphibians, and birds). Therefore, the apparent abundance of birds of prey in the CFROU suggests that these habitats have robust populations of prey species. Sensitive bird species were observed in all phases except Phase 1 in 2018. Sensitive species were particularly common in Phase 2. All phases, other than Phase 1, hosted at least two distinct bird species with some level of conservation designation. The richness and relative abundance of Species of Concern, Potential Species of Concern, and Special Status Species within the CFROU suggest these habitats are extremely important for conservation of vulnerable Montana bird populations.

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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). The CFROU was divided into three reaches based on physical features of the landscape, proximity to historic mining, and intensity of impacts in order to evaluate the best application of remedy solutions. Figure 1-1 shows the extent of the CFROU (highlighted in yellow) and its three remedial reaches as defined by the ROD, along with surrounding operable units on the Clark Fork River and National Priorities List sites.

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. Sources of metal contaminants of concern (COCs) in the CFROU are tailings mixed with soil within the historic 100-year floodplain (the 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 (DEQ), would serve as lead agency to develop and implement the remedial design, remedial actions, and operation and maintenance of the remedy for the CFROU [Montana v. AR, 2008; U.S.A. v. AR, 2008].

Specific remediation standards were establishend 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 DEQ for instream sediment, geomorphology, periphyton, macroinvertebrates, and fish. DEQ 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 2018 represents the eighth year of data collected for this monitoring program, which began in 2010.

Remedial work has focused on Reach A, the most upstream section of the CFROU, which is closest to and most impacted by the contamination sources. This reach has been subdivided into several phases that encompass approximately one to two mile sections of the Clark Fork River and its adjacent floodplain. The following paragraphs provide a summary of remedial work conducted in the CFROU to date.

Remediation activities in Phase 1 (Figure 1-2) of the CFROU began in 2013 and project construction was completed in spring 2014. Revegetation in Phase 1 was completed in fall 2014. Phase 1 consists of the upstream-most 1.6 river miles of the Clark Fork River, immediately downstream from the Warm Springs Creek and Silver Bow Creek confluence. In total, approximately 330,000 cubic yards of contaminated material was removed from a 60-acre project area.

Remediation of Phase 2 (Figure 1-3) began in the summer of 2015 and construction was in progress throughout the remainder of the year. Phase 2 consists of the river banks and floodplain along a 1.9 river mile section (88 acres) of the Clark Fork River, immediately downstream from Phase 1. Construction activities in Phase 2 were completed in 2016. Revegetation activities were also completed in fall 2016. The volume of contaminated material removed from Phase 2 was approximately 403,000 cubic yards.

Remedial plans for Phases 3A, 3B, and 4 (Figure 1-4) are currently in the design phase. These phases together consist of a 4.5-mile river length and an accompanying floodplain area of 261 acres. Construction activities for Phase 3A are anticipated to begin within five years.

Remediation of Phases 5 and 6 (Figure 1-5) began in the summer of 2014 and construction was in progress throughout 2015. Phases 5 and 6 consist of the river banks and floodplain along a 4.3 river mile section (125 acres) of the Clark Fork River, immediately downstream from Phase 4. Construction and revegetation activities were completed in Phases 5 and 6 in 2016.

Remedial plans for Phase 7 (Figure 1-6) are currently in the design phase. Phase 7 consists of a 1.9-mile river length and an accompanying floodplain area of approximately 84 acres.

Remedial plans for Phases 8 and 9 (Figure 1-7) are currently in the sampling and site characterization phase. Phases 8 and 9 consist of a 5.1-mile river length and accompanying floodplain area.

Remediation occurred in 2012 and 2015 in the "Eastside Road" pasture areas adjacent to Phases 12 and 13 (Figure 1-8). This work consisted of removal of contaminated material from pastures in an area of approximately 100 acres that had been flood irrigated with contaminated water from the Clark Fork River. This project area is located outside the Clark Fork River floodplain. Ongoing monitoring of vegetation establishment and weed control is being conducted in the Eastside Road and pastures. That monitoring work is not described within this report.

Remedial plans for the "Arrowstone Park" area (Figure 1-9) in the town of Deer Lodge, Montana are currently in the sampling and site characterization phase. The Arrowstone Park project area consists of a 1.2-mile river length and accompanying floodplain area. The start date for construction activities in the Arrowstone Park area is yet to be determined.

Remediation occurred in residential yards and the "Trestle" area of Deer Lodge, Montana in a portion of Phase14 (Figure 1-10). This work consisted of removal of contaminated material from residential yards and a recreational area along the Clark Fork River in the City of Deer Lodge.

The work was completed in 2011 and approximately 10,000 cubic yards of contaminated soils were removed.

Remedial work in Phases 15 and 16 was in the design phase in 2018 (Figure 1-11). These phases together consist of a 2.6-mile river length and an accompanying floodplain area of approximately 120 acres, which lie within the boundary of the Grant-Kohrs Ranch National Historic Site. Construction activities began in these phases in 2019. A total estimated volume of 400,000 cubic yards of contaminated material will be removed.

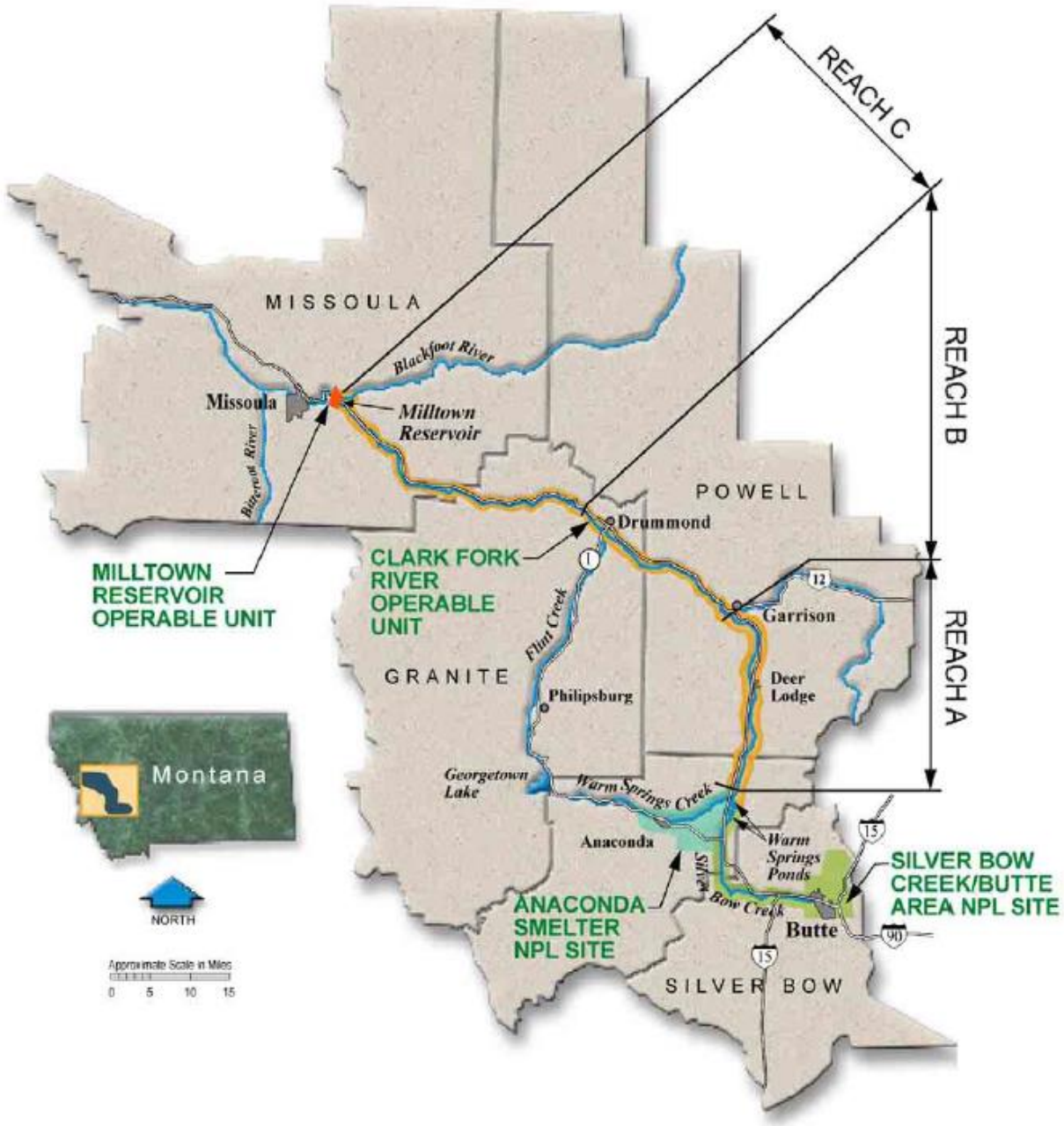

Figure 1-1. Remedial reaches of the Clark Fork River Operable Unit [USEPA, 2004].

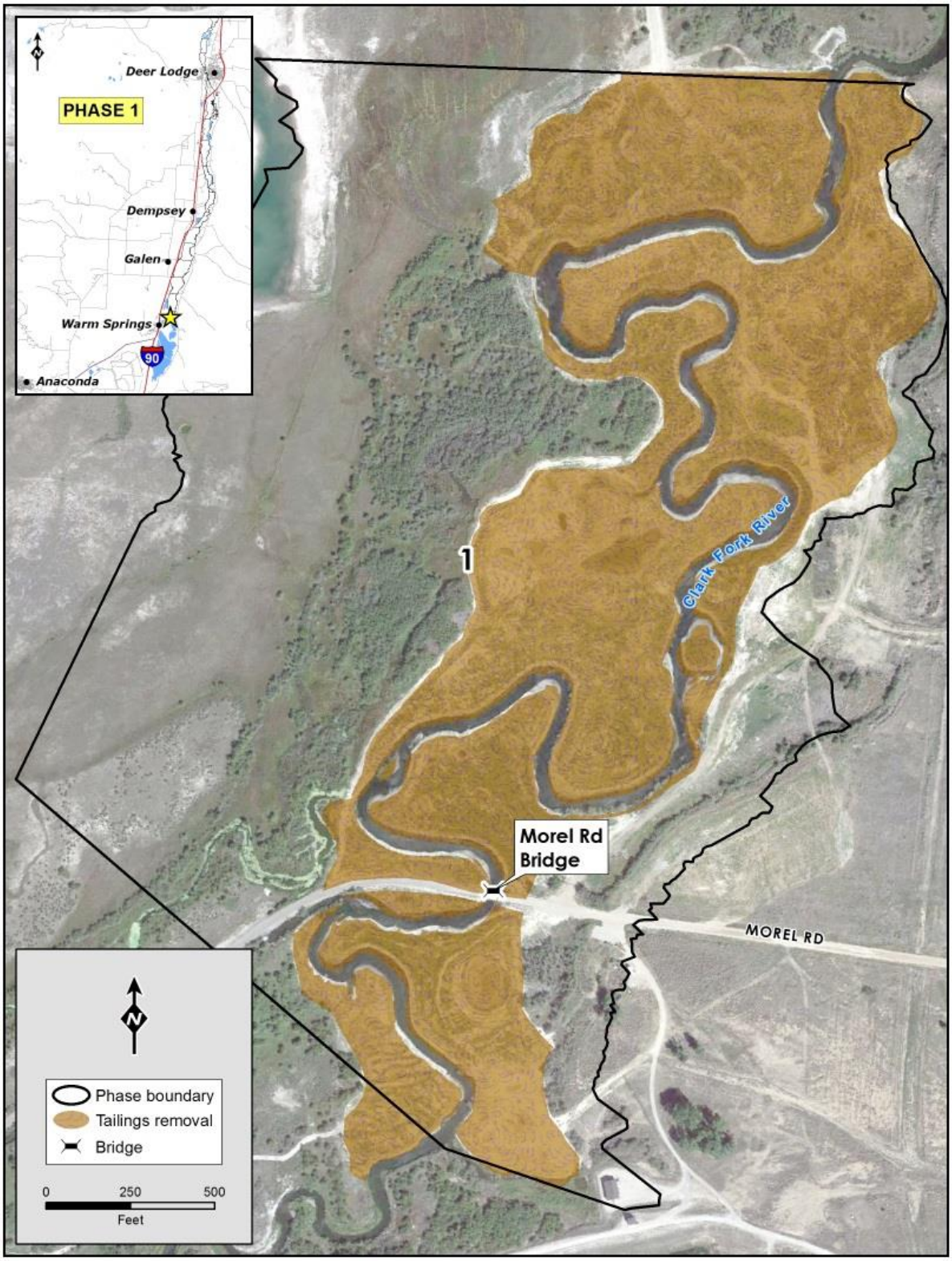

Figure 1-2. Phase 1 project area in the Clark Fork River Operable Unit.

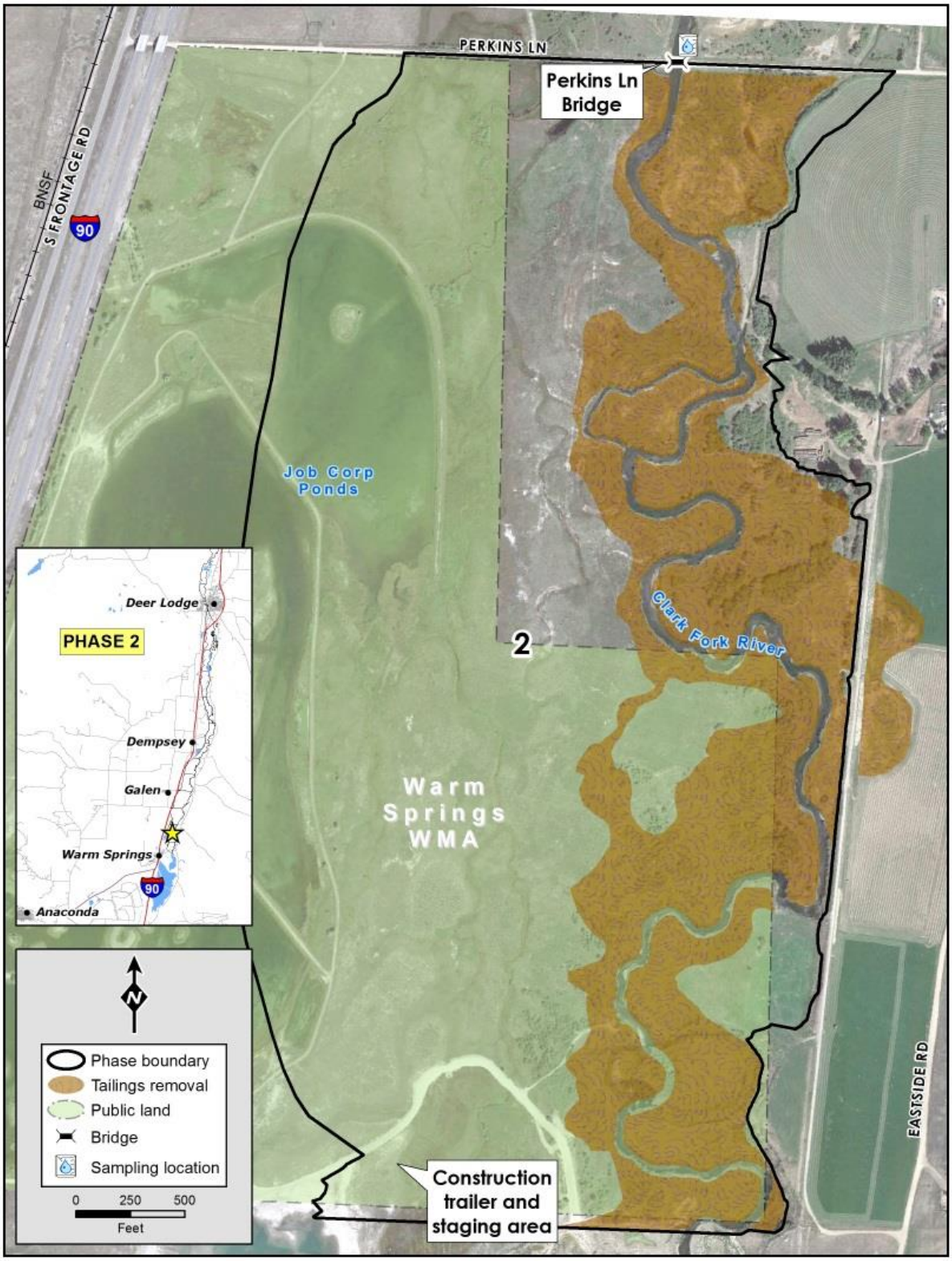

Figure 1-3. Phase 2 project area in the Clark Fork River Operable Unit.

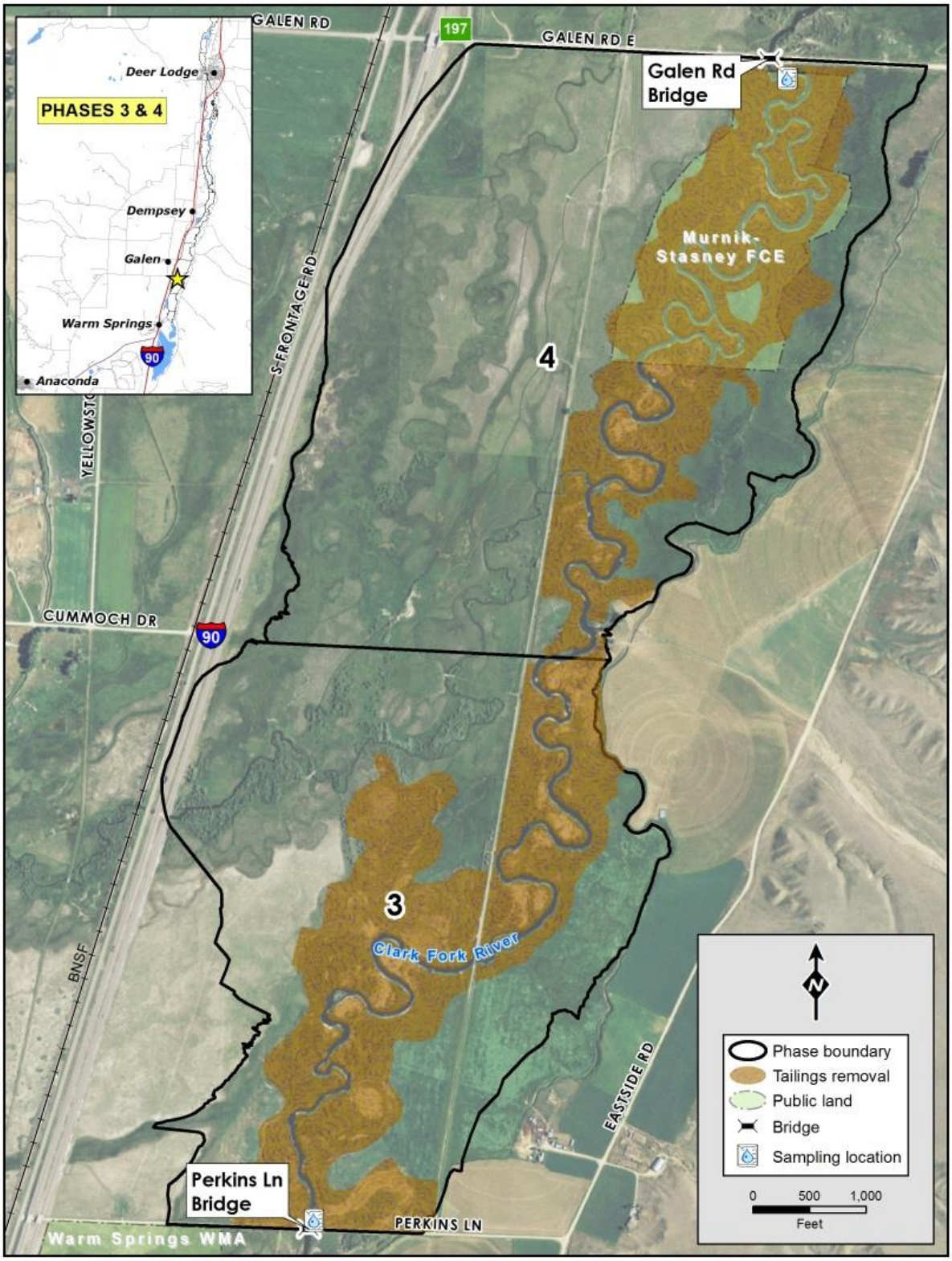

Figure 1-4. Phase 3 and 4 project areas in the Clark Fork River Operable Unit.

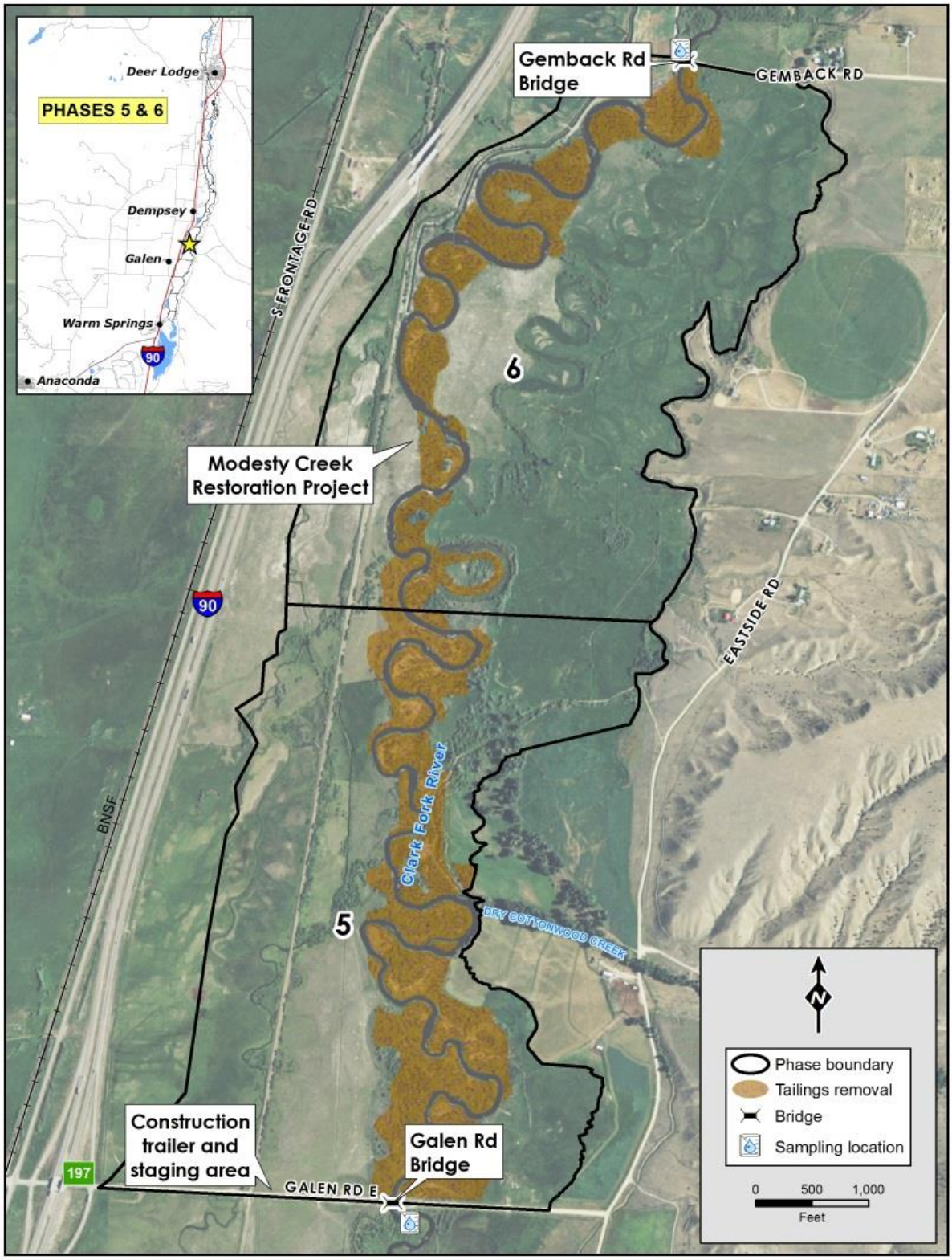

Figure 1-5. Phase 5 and 6 project areas in the Clark Fork River Operable Unit.

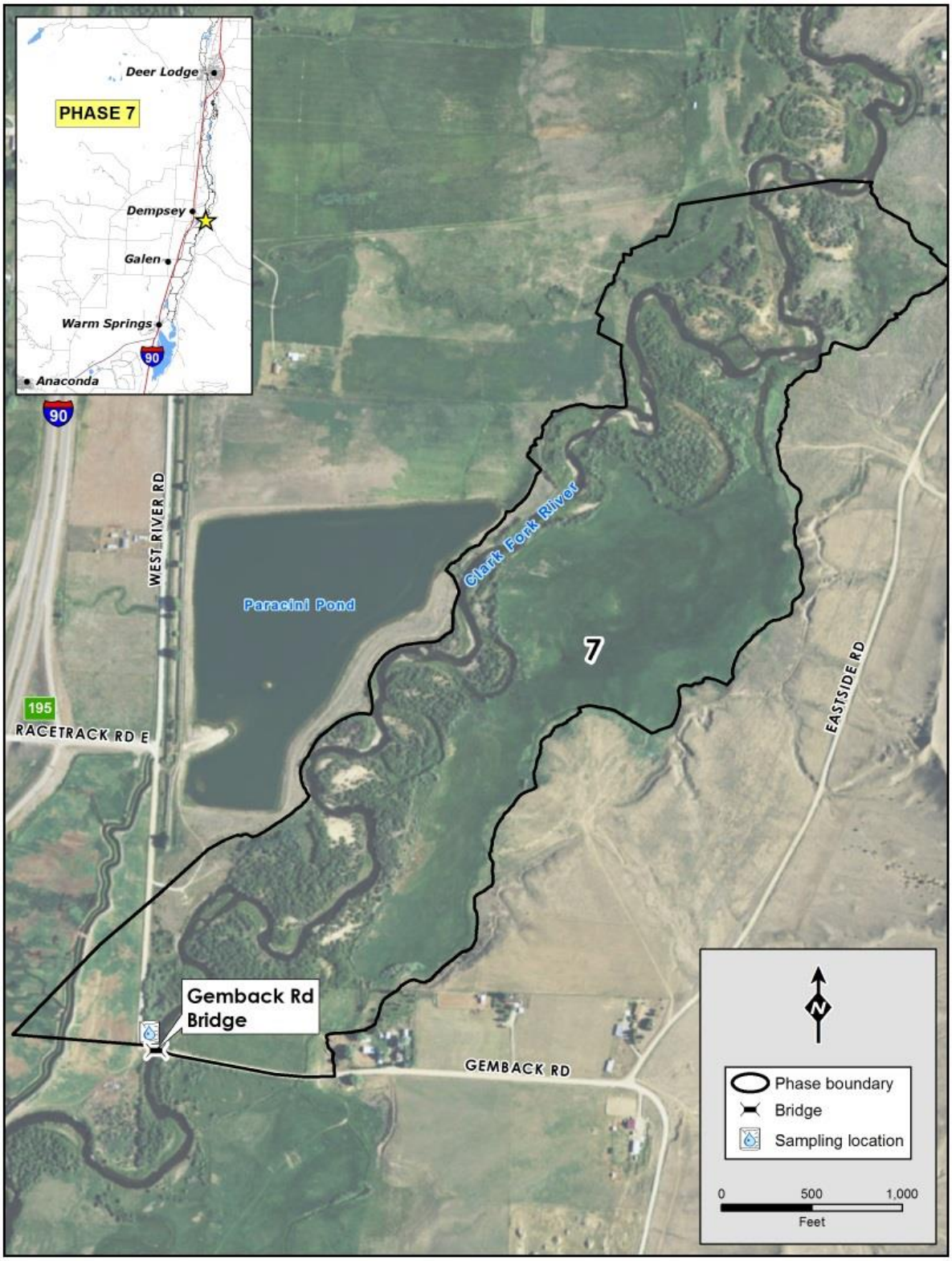

Figure 1-6. Phase 7 project area in the Clark Fork River Operable Unit.

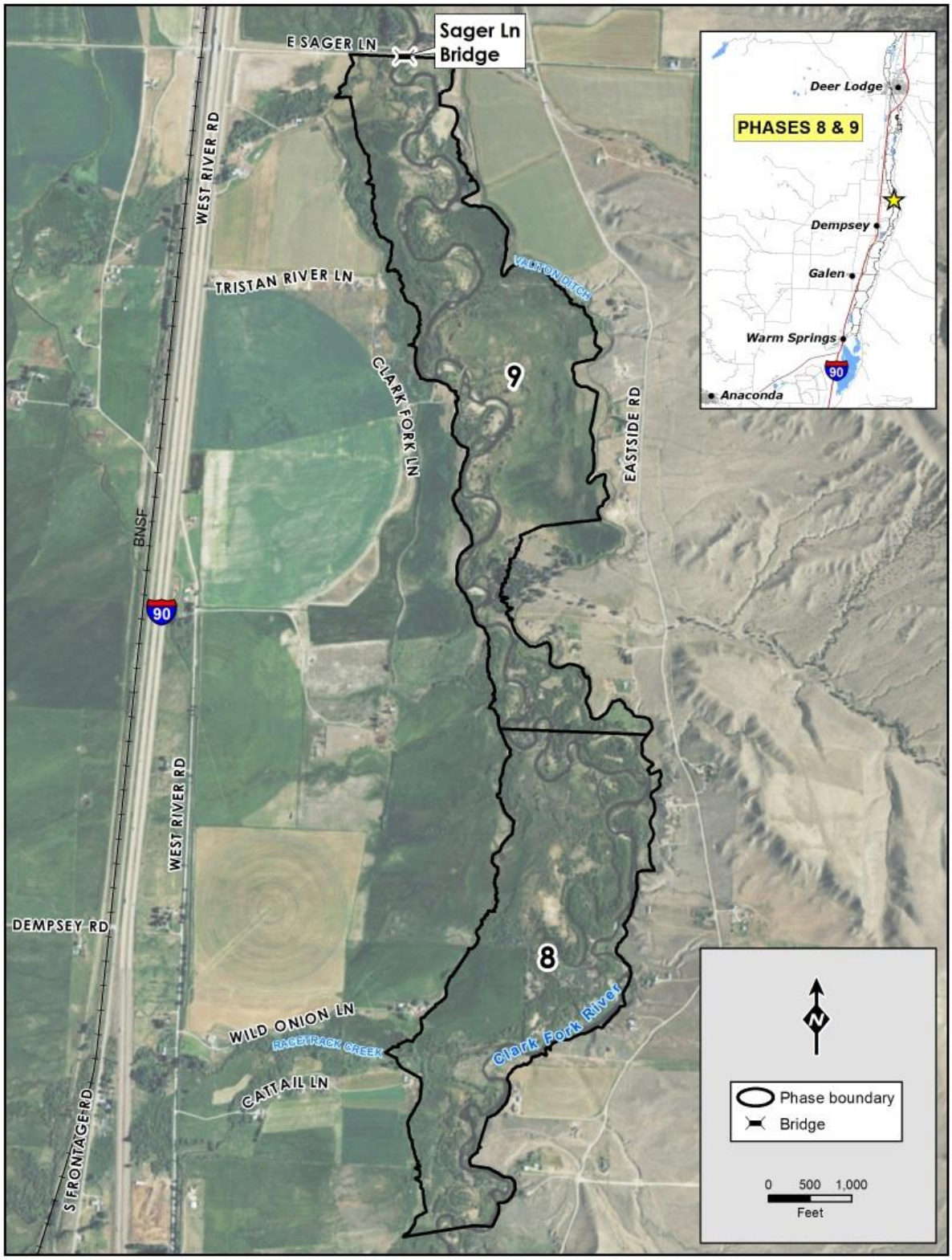

Figure 1-7. Phases 8 and 9 project areas in the Clark Fork River Operable Unit.

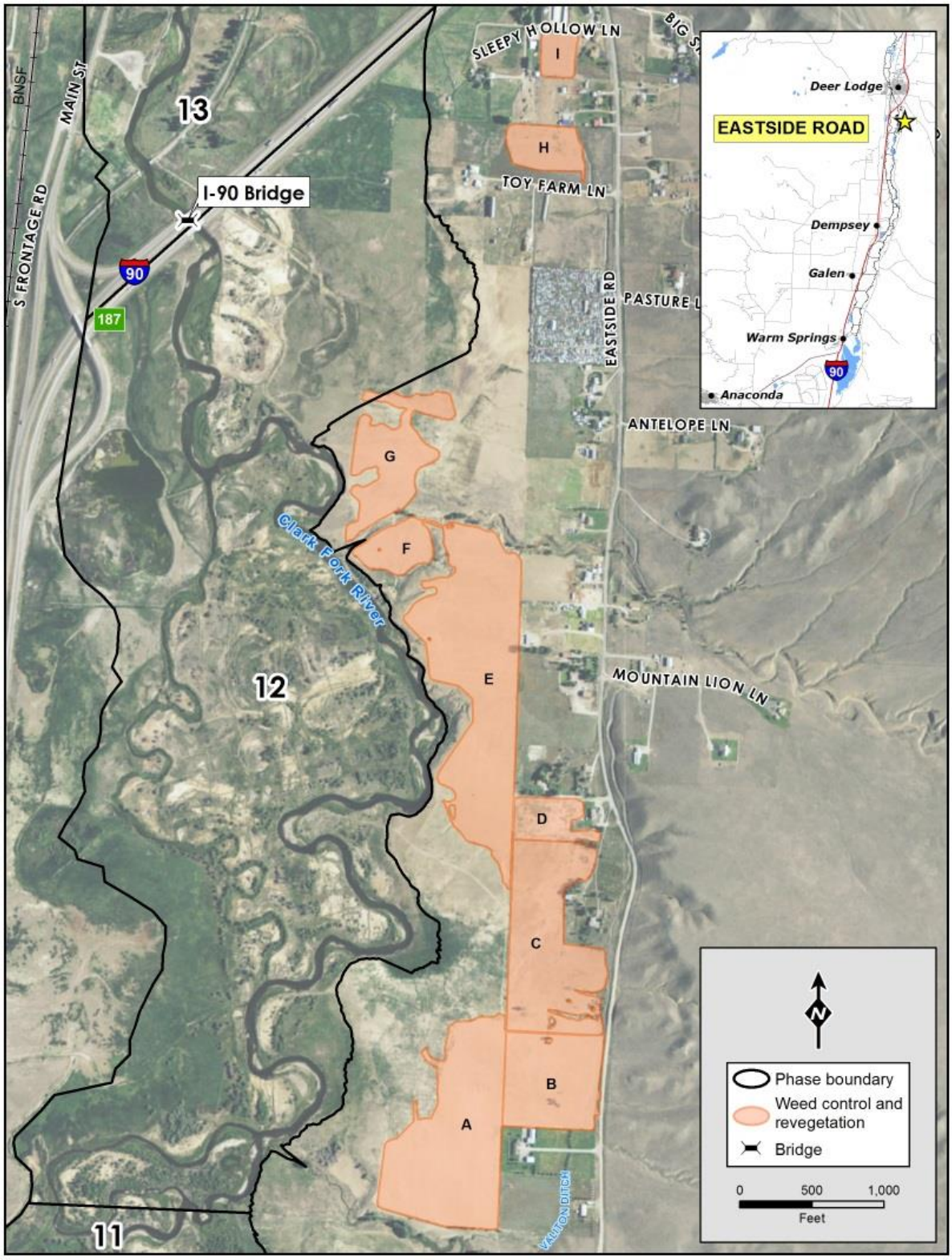

Figure 1-8. Eastside Road project area in the Clark Fork River Operable Unit.

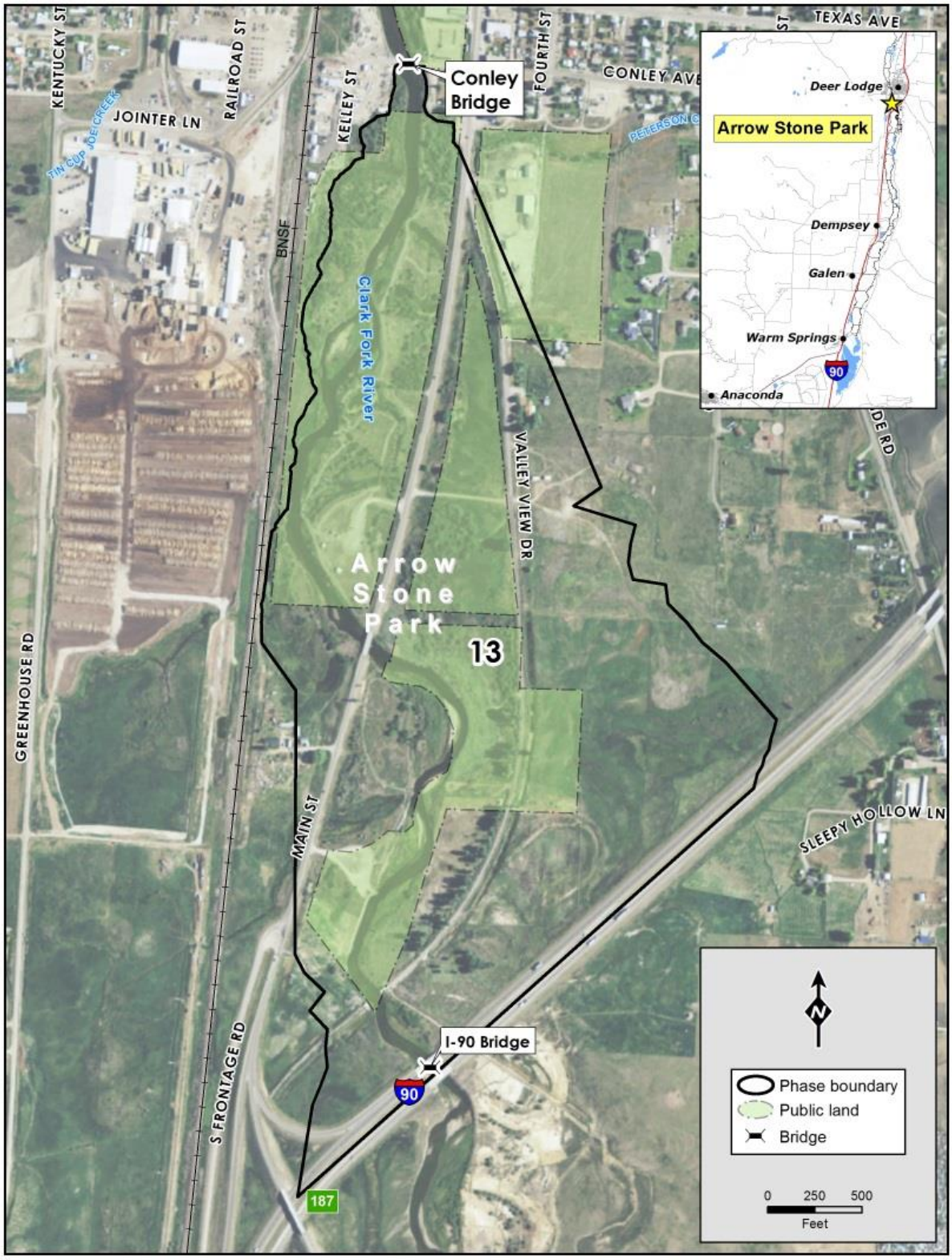

Figure 1-9. Arrowstone Park project area in the Clark Fork River Operable.

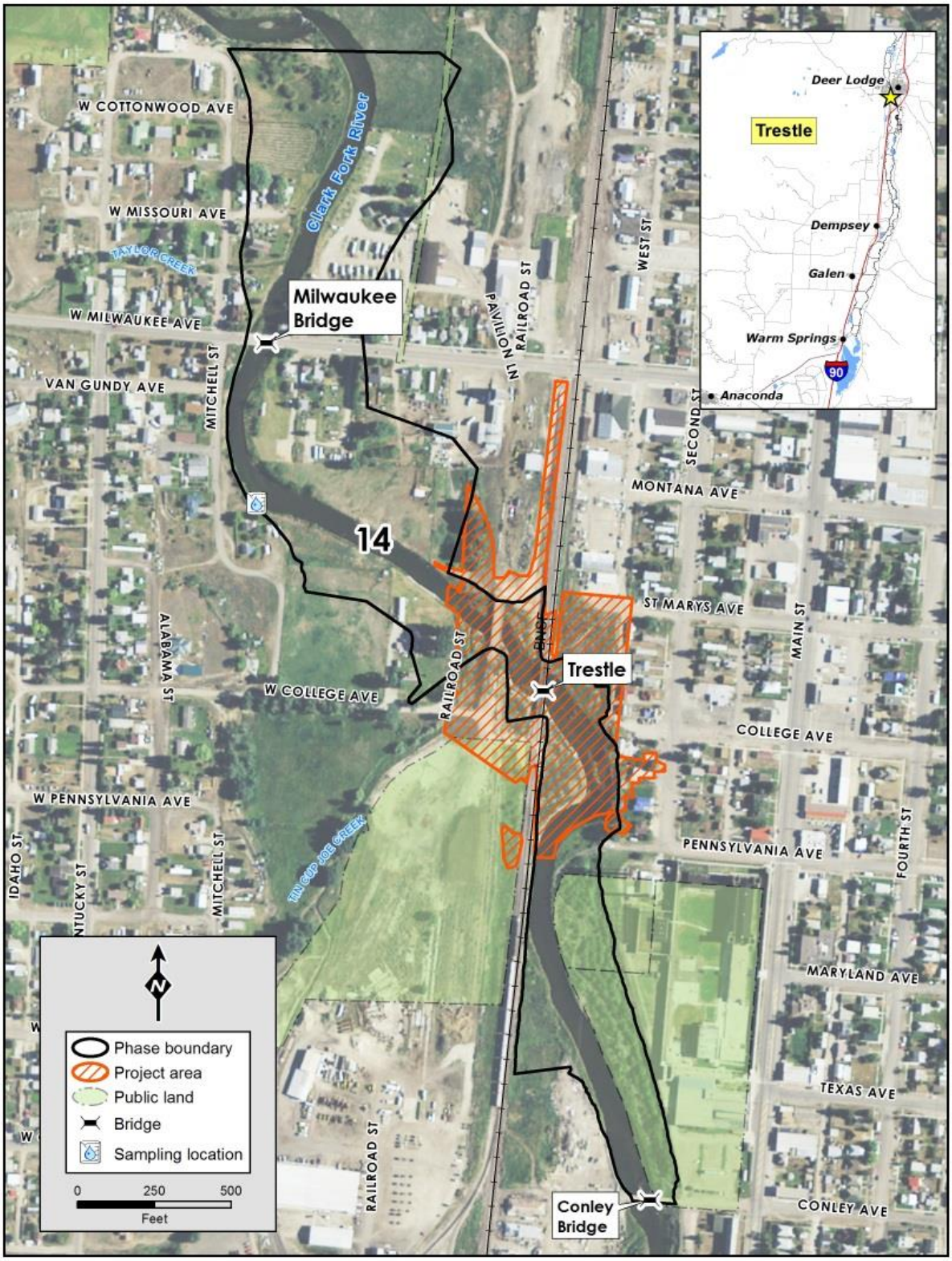

Figure 1-10. Trestle project area in the Clark Fork River Operable Unit.

Figure 1-11. Phases 15 and 16 project areas in the Clark Fork River Operable Unit.

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 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 2018 to evaluate COC concentrations to make direct comparisons to relevant performance standards. In addition to COC concentrations, data are collected to describe other water quality constituents which influence the toxicity of metal contaminants or otherwise influence the ecology of the Clark Fork River. Other water quality constituents described include total suspended sediment, 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 Goal		
	Aquatic Life Standard[1]		Human Health or Drinking Water Standard (µg/L)
	Chronic (µg/L)	Acute (µg/L)	
Arsenic	150	340	10/18[2]
Cadmium	0.25	2	5
Copper[3]	9	13	1,300
Lead	3.2	81	15
Zinc	119	119	2,100

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 2018, nine years of CFROU surface water data (2010-2018) 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) [RESPEC, 2018a].

2.2.1 Monitoring Locations

Surface water was monitored at 15 CFROU sites in 2018 (Figure 2-1). The monitoring network included seven sites in the Clark Fork mainstem[4] and eight sites on tributary streams (Figure 2-1; Table 2-2).

[1] 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.

[2] 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).

[3] Based on the federal ambient water quality criteria (USEPA [1986]; dissolved concentration).

[4] One mainstem site (Clark Fork River near Drummond; CFR-84F) was only monitored for a small set of analytes (i.e., field parameters, mercury, and methylmercury).

2.2.1.1 Clark Fork River Mainstem

Each of the mainstem sample site locations were selected for a specific monitoring objective. The five mainstem Clark Fork River monitoring sites in Reach A (Sites CFR-03A, CFR-07D, CFR-11F, CFR-27H, and CFR-34) were included to provide a detailed spatial representation of conditions in Reach A where the remedial work is occurring (Figure 2-1). Site CFR-34 was added to the monitoring network in 2015 to monitor upcoming remedial work planned in Phases 15 and 16 (Figure 1-11). The Reach C site (Site CFR-116A) represents conditions in Reach C at the downstream end of the Clark Fork River mainstem 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 (Site CFR-84F) (Figure 2-1). Site CFR-84F is intended to assess the influence of the Flint Creek inflow which typically has elevated mercury concentrations [Langer et al., 2012; RESPEC, 2018b] 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. Mill-Willow Creek and Silver Bow Creek also have additional sites located further upstream in each tributary (Figure 2-1).

2.2.1.2.1 Silver Bow Creek

Silver Bow Creek is the upstream-most tributary of the Clark Fork River. Silver Bow Creek historically was the primary source of COCs to the Clark Fork River [DEQ and USEPA, 1995] but it has undergone extensive remediation since 1998 and COC concentrations are reduced compared to historic levels [Sando et al., 2014; RESPEC, 2018c]. All streamflow from Silver Bow Creek is captured by the Warm Springs Ponds and treated to reduce metal loading to the Clark Fork River (see: www.cfrtac.org).

Three sample sites are included on Silver Bow Creek; Silver Bow Creek at Frontage Road (Site SS-19) located immediately above the Warm Springs Ponds; Silver Bow Creek at the Pond 2 outfall (Site SBC-P2) located immediately below the primary spillway of the Warm Springs Ponds, and Silver Bow Creek at Warm Springs (Site SS-25) located immediately below the confluence of Silver Bow Creek and Mill-Willow Creek (Figure 2-1).

During some sample periods, Site SS-19 was sampled as part of the Streamside Tailings Operable Unit monitoring program. Sample collection methods for Site SS-19 are described in the SSTOU sampling and analysis plan [RESPEC, 2018a].

2.2.1.2.2 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). Historically, Mill and Willow Creeks joined 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).

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

2.2.1.2.3 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).

2.2.1.2.4 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; DEQ and USEPA, 2011; 2014]. Monitoring in the Little Blackfoot River occurred at Site LBR-CFR-02 (Figure 2-1).

2.2.1.2.5 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 [Langner et al., 2012; RESPEC, 2018b]. Site FC-CFR monitors water chemistry in Flint Creek (Figure 2-1).

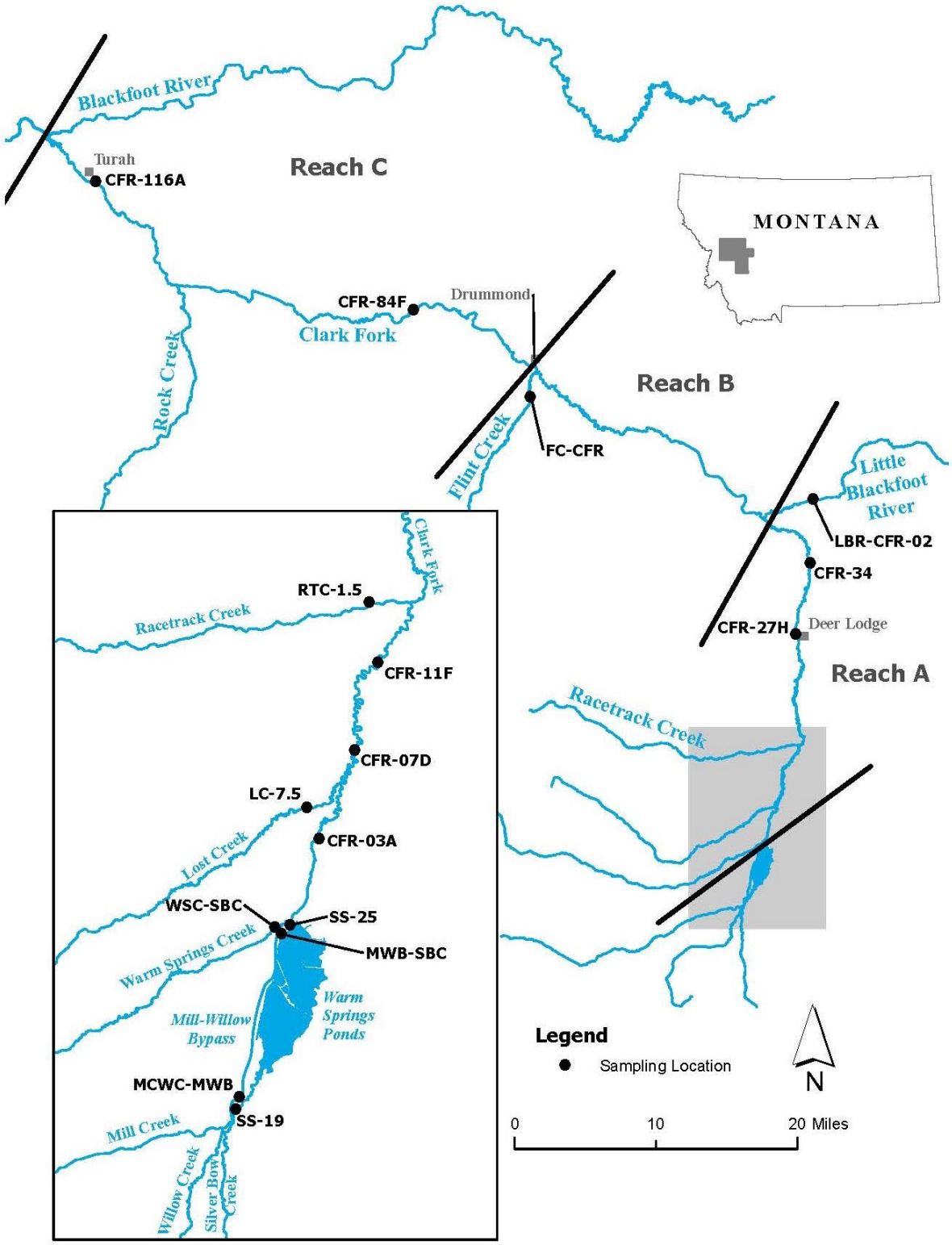

Figure 2-1. Surface water sampling locations in the Clark Fork River Operable Unit.

Table 2-2. Surface water sampling locations in the Clark Fork River Operable Unit. Streamflows were measured at all sites which did not a have co-located U.S. Geological Survey (USGS) streamflow gage.

Site ID	Site Location	Co-located USGS Streamflow Gage	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-34	Clark Fork River at Williams-Tavenner Bridge	none	46.47119	-112.72492
CFR-84F	Clark Fork near Drummond	12331800	46.71204	-113.33137
CFR-116A	Clark Fork at Turah	12334550	46.82646	-113.81424
Tributary sites				
SS-19[5]	Silver Bow Creek at Frontage Road	none	46.12247	-112.80032
SBC-P2	Silver Bow Creek at Pond 2 outfall	none	46.17840	-112.78190
SS-25	Silver Bow Creek at Warm 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	Warm Springs Creek near mouth	12323770	46.18041	-112.78592
LBR-CFR-02[6]	Little Blackfoot River at Beck Hill Road	none	46.53710	-112.72443
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 2018. Each quarterly monitoring event occurred near the end of each quarter. The first monitoring event (Q1) occurred in the late winter from March 19-20. Three monitoring events were conducted in the second quarter (Q2) to approximate 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 9-10 (Q2-Rising), June 4-5 (Q2-Peak), and July 5-6 (Q2-Falling). The late summer (Q3) monitoring event occurred from September 10-11. The late fall (Q4) monitoring event occurred from November 26-27. During some monitoring periods, Site SS-19 was sampled on the following day after sampling in the other CFROU sites was completed.

[5] In 2018, site SS-19 was sampled under the Streamside Tailings Operable Unit (SSTOU) monitoring program four times per year.

[6] Site LBR-CFR (GPS Location: 46.51964, -112.79312; co-located USGS gage: 12324590) was replaced by Site LBR-CFR-02 in 2014.

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 except for Sites FC-CFR and CFR-84F. 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. All parameters listed in Table 2-3 were monitored as well as some additional parameters as described in RESPEC [2018a]. Specific conductivity was not measured in Q4 due to instrument malfunction.

Eight monitoring stations in the DEQ Clark Fork River monitoring network were co-located with active U.S. Geological Survey (USGS) streamflow gauging stations (Table 2-2). U.S. Geological Survey streamflow records were accessed and included in this report. Streamflows at monitoring stations without co-located U.S. Geological Survey gages were measured manually.

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

Parameter	Analytes
Metal concentrations (total recoverable and dissolved)[7]	Arsenic, cadmium, copper, lead, zinc, mercury, methylmercury
Nutrient concentrations	Nitrogen (total nitrogen, nitrate plus nitrite, ammonia[8]), and phosphorus (total)
Common ion concentrations (total)	Sulfate, chloride, alkalinity, bicarbonate, magnesium, potassium, sodium
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 [Atkins, 2013]. Methods generally followed standard operating procedures (SOPs) developed for the Clark Fork River [AR, 1992]. Field sampling procedures were in accordance with DEQ [2012a] and followed "clean hands/dirty hands" procedures to minimize sample contamination as described in USGS [2006][9]. Composited surface water samples were

[7] At CFR-84F, no nutrient or metal concentrations were measured except mercury and methylmercury. At Site FC-CFR, mercury and methylmercury were measured in addition to all other analytes.

[8] Ammonia concentrations were only measured in the Silver Bow Creek sites in 2018.

[9] 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.

collected using width-depth integration according to methods described in USGS [2006]. When streamflows were high and samples could not be safely 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 measured during each monitoring event with a field multimeter (YSI Professional Plus or YSI 556). Turbidity was measured with a field turbidity meter (Hach Model 2100P Portable Turbidimeter). Streamflows were measured using either a portable electromagnetic streamflow meter (Marsh-McBirney Flo-Mate 2000) or an acoustic doppler current profiler (Teledyne StreamPro). 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 [Atkins, 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, methods, and reporting limits for surface water samples in the Clark Fork River Operable Unit. All samples were analyzed by Energy Laboratories in Helena, Montana.

Analyte	Requested Method	Requested Reporting Limit (mg/L)[10]	Holding Time (days)	Bottle	Preservative
Water Samples - Physical Properties and Inorganics					
Solids, Total Suspended (at 105C)	A 2540 D	1	7	1 L HDPE	4 ± 2 C
Alkalinity, Total (as CaCO3)	A 2320 B	4	14	500 mL HDPE	
Alkalinity, Bicarbonate (as HCO3)	A 2320 B	4	14		
Chloride	EPA 300.0	1	28		
Sulfate	EPA 300.0	1	28		
Hardness (as CaCO3)	A 2340 B	1	180		
Water Samples – Nutrients					
Nitrogen, Ammonia (as N)	EPA 350.1	0.05	28	250 mL HDPE	4 ± 2 C
Nitrogen, Nitrate-Nitrite (as N)	EPA 353.2	0.02			H2SO4 to pH<2, 4 ± 2 C
Nitrogen, Total	A 4500 N-C	0.05	30		4 ± 2 C
Phosphorus, Total	EPA 365.1	0.003	28		H2SO4 to pH<2, 4 ± 2 C
Water Samples - Dissolved Metals (0.45 µm filtered)					
Arsenic	EPA 200.8	0.001	180	250 mL HDPE	HNO3 to pH <2
Cadmium	EPA 200.8	0.00003			
Copper	EPA 200.8	0.001			
Lead	EPA 200.8	0.0003			
Zinc	EPA 200.8	0.008			
Water Samples - Total Recoverable Metals					
Total Recoverable Metals Digestion	EPA 200.2	-	-	-	-
Arsenic	EPA 200.8	0.001	180		HNO3 to pH <2
Cadmium	EPA 200.8	0.00003			

[10] Requested reporting limits are either the required reporting limit of DEQ [2012a] or DEQ [2014], or the lowest reporting limit previously provided by the analytical laboratory, whichever is lower.

Analyte	Requested Method	Requested Reporting Limit (mg/L)[10]	Holding Time (days)	Bottle	Preservative
Calcium	EPA 200.7	1		250 mL HDPE	
Copper	EPA 200.8	0.001			
Lead	EPA 200.8	0.0003			
Magnesium	EPA 200.7	1			
Potassium	EPA 200.7	1			
Sodium	EPA 200.7	1			
Zinc	EPA 200.8	0.008			
Mercury	EPA 245.1	0.000005	28	250 mL HDPE	HNO3 to pH <2,
Methylmercury	EPA 1630	0.05 ng/L	28	250 mL FLPE	HCl to pH <2,

2.2.5 Data Analysis

Data analysis approaches included evaluation of remedial performance goal exceedances (for COCs) or relevant regulatory standards (for non-COC constituents) and evaluation of spatial and temporal trends.

Exceedances were assessed by comparing constituent concentrations to the relevant performance goal or regulatory standard. For some COCs and for ammonia concentrations, the relevant goal or standard is based on site- and time-specific conditions (e.g., hardness-based standards; DEQ [2017] which were measured concomitantly with each sample collected. Some performance goals and regulatory standards assume that the measured constituent concentration will be consistent over a specific period. For example, the chronic aquatic life standard is typically based on 96-hour mean concentrations [DEQ, 2017]. However, in this monitoring program analyte concentrations were measured at a specific point in time and mean concentrations over time are unknown. Therefore, assessments of performance goal or regulatory standard exceedances assume that the measured concentration was representative of the required period as it relates to each specific goal or standard. Boxplots were created to summarize data collected in this monitoring year and to evaluate spatial trends. Statistics summarized in each boxplot include the median (midline of each box), quartiles (ends of each box), outlier extent (whiskers which extend 1.5 times the interquartile range or to the most extreme observation if no observations extend beyond 1.5 times the interquartile range), and outliers (circles above or below the whiskers which are any observations more than 1.5 times the interquartile range). Boxplots were only generated for data with more than five observations. Temporal trends were also evaluated (for COCs) plotting all observations in scatterplots at each site for the period of record.

Scatterplots were created to summarize all data collected at each monitoring site since monitoring began in 2010, and to evaluate evidence of monotonic (increasing or decreasing) trends. Some constituent concentrations were below the method detection limits and therefore the precise concentration was unknown. In those cases, values were substituted at half the method detection limit to generate scatterplots and boxplots and to calculate summary statistics (e.g., medians).

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" [Atkins, 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 2018 are depicted for each CFROU site with a co-located USGS streamflow gage: Silver Bow Creek at Warm Springs (USGS 12323750) (Figure 2-2), Warm Springs Creek at Warm Springs (USGS 12323770) (Figure 2-3), Clark Fork River near Galen (USGS 12323800) (Figure 2-4), Clark Fork River at Deer Lodge (USGS 12324200) (Figure 2-5), Flint Creek (USGS 12331500) (Figure 2-6), Clark Fork River near Drummond (USGS 12331800) (Figure 2-7), and Clark Fork River at Turah (USGS 12334550) (Figure 2-8).

Streamflows during the spring of 2018 were approximately normal (compared to the long-term medians) at most sites, however the spring runoff was substantial and the large runoff subsidized streamflows throughout the remainder of the season. At most sites, the spring runoff period was substantially longer in duration and had a substantially higher overall magnitude compared to the long-term trend. Nearly all sites had peak, or near peak, streamflows between mid-May and early June followed by a brief drop in flows in mid-June and then a second major increase to peak or near-peak levels in late-June. Streamflows during the summer and fall were also generally well above normal levels throughout the remainder of 2018. However, streamflows in Silver Bow Creek at Warm Springs dipped below the long-term median several times from August to October (Figure 2-2).

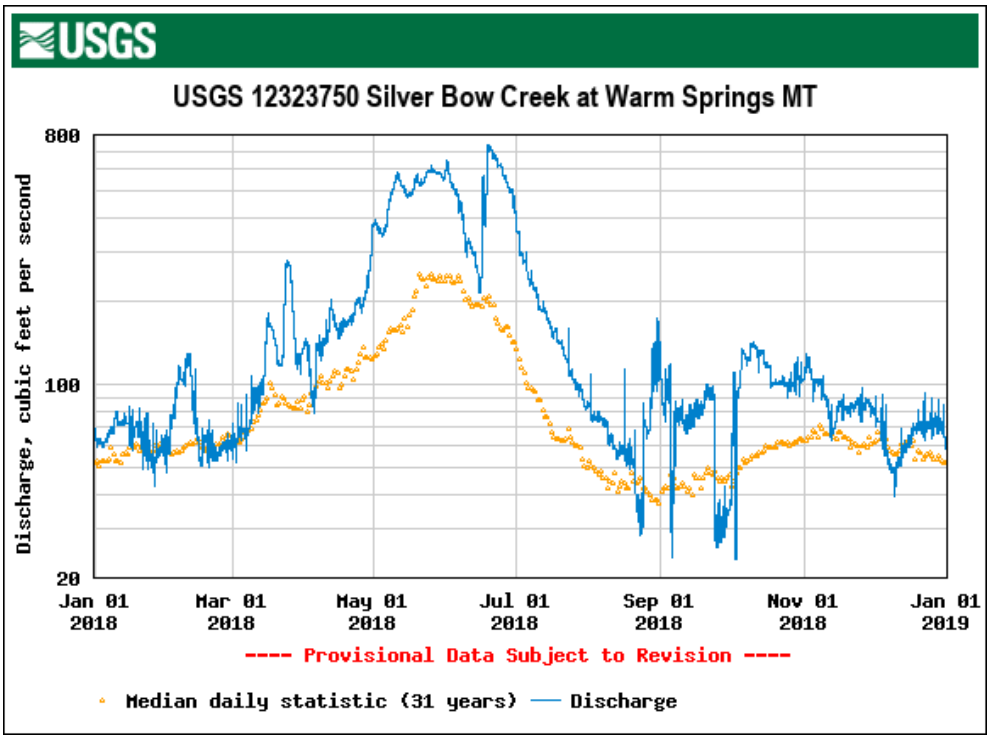

Figure 2-2. Hydrograph for Silver Bow Creek at Warm Springs, 2018.

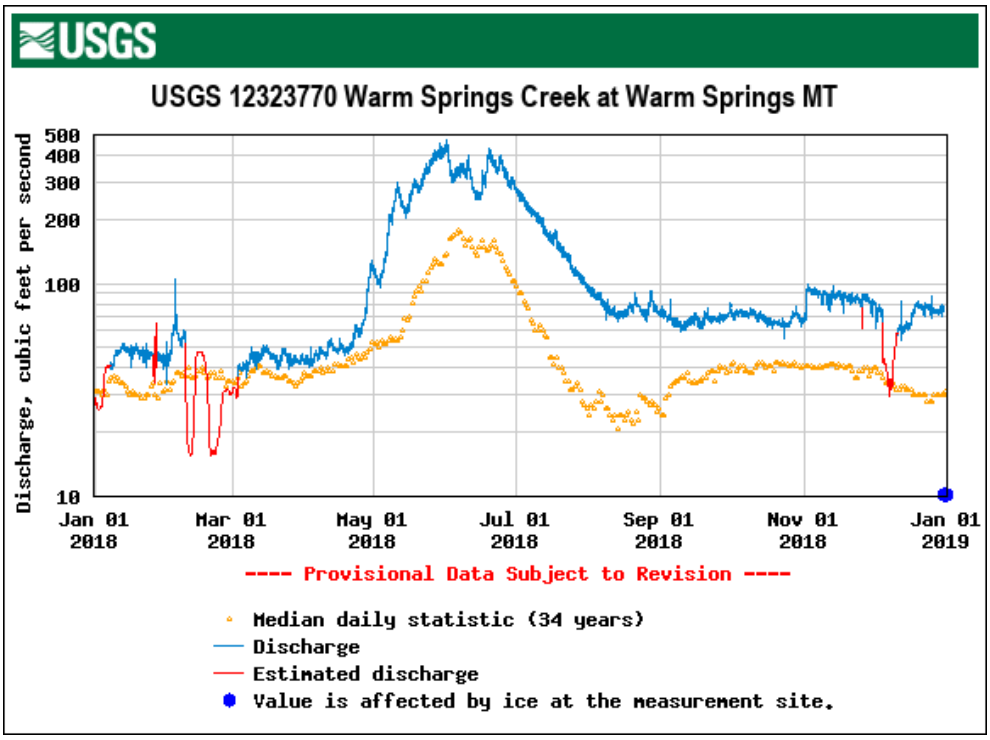

Figure 2-3. Hydrograph for Warm Springs Creek at Warm Springs, 2018.

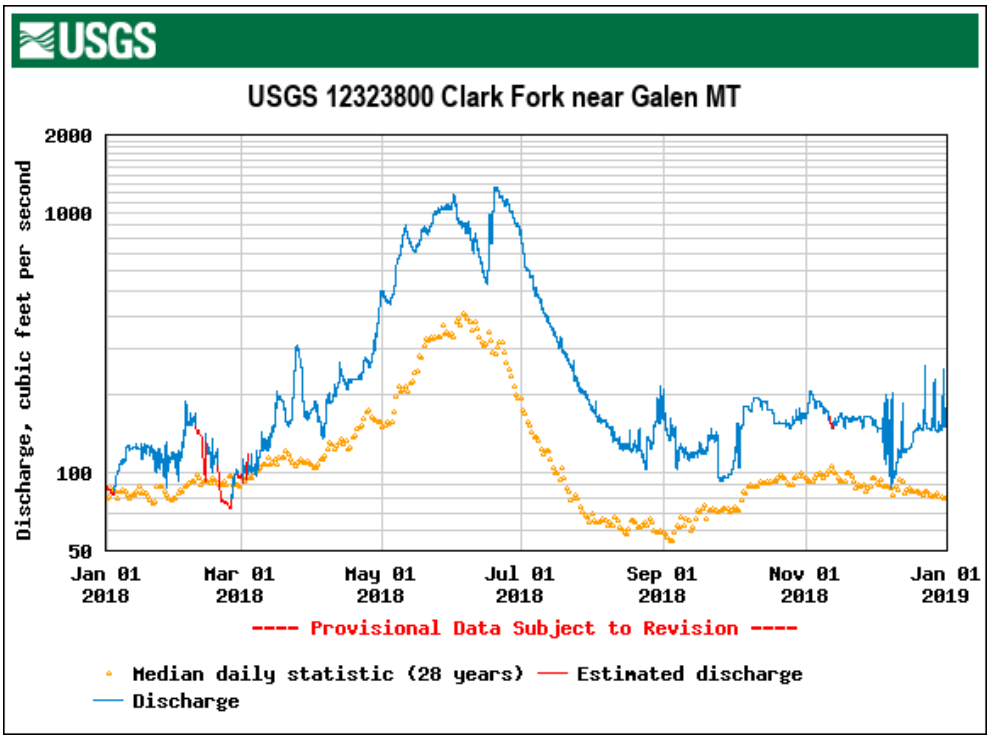

Figure 2-4. Hydrograph for Clark Fork River near Galen, 2018.

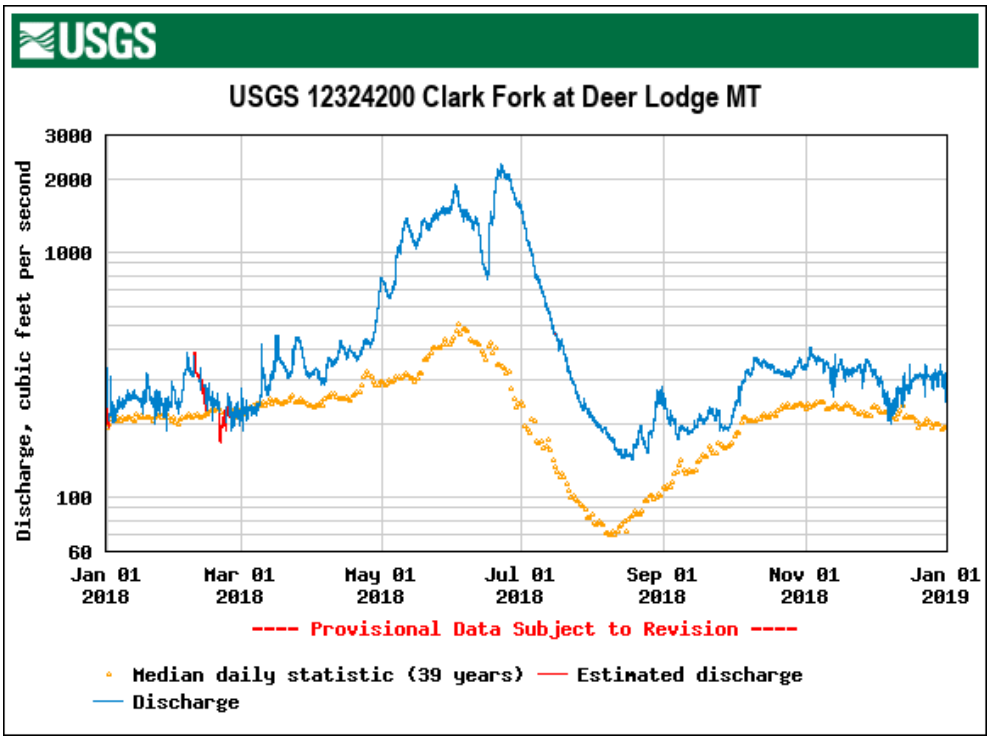

Figure 2-5. Hydrograph for Clark Fork River at Deer Lodge, 2018.

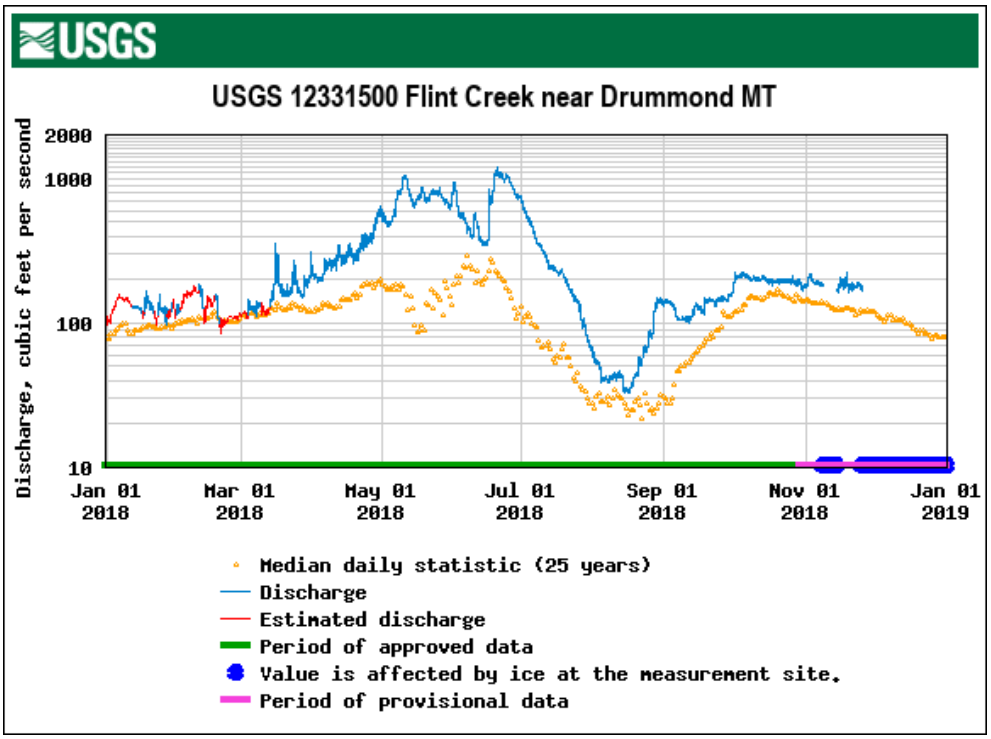

Figure 2-6. Hydrograph for Flint Creek, 2018.

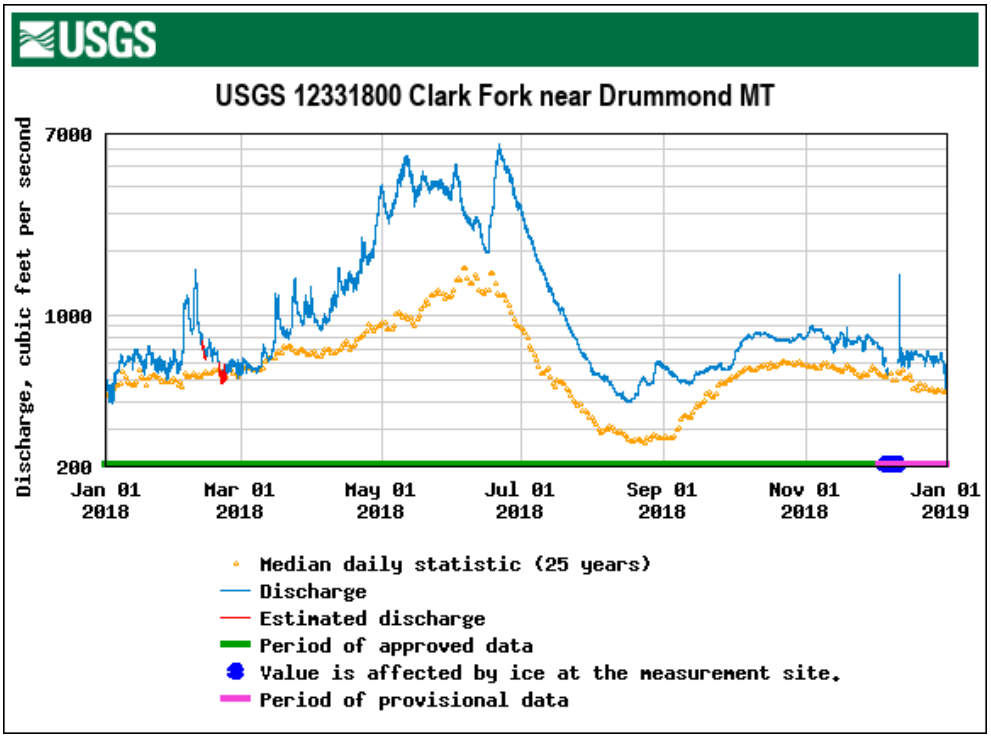

Figure 2-7. Hydrograph for Clark Fork River near Drummond, 2018.

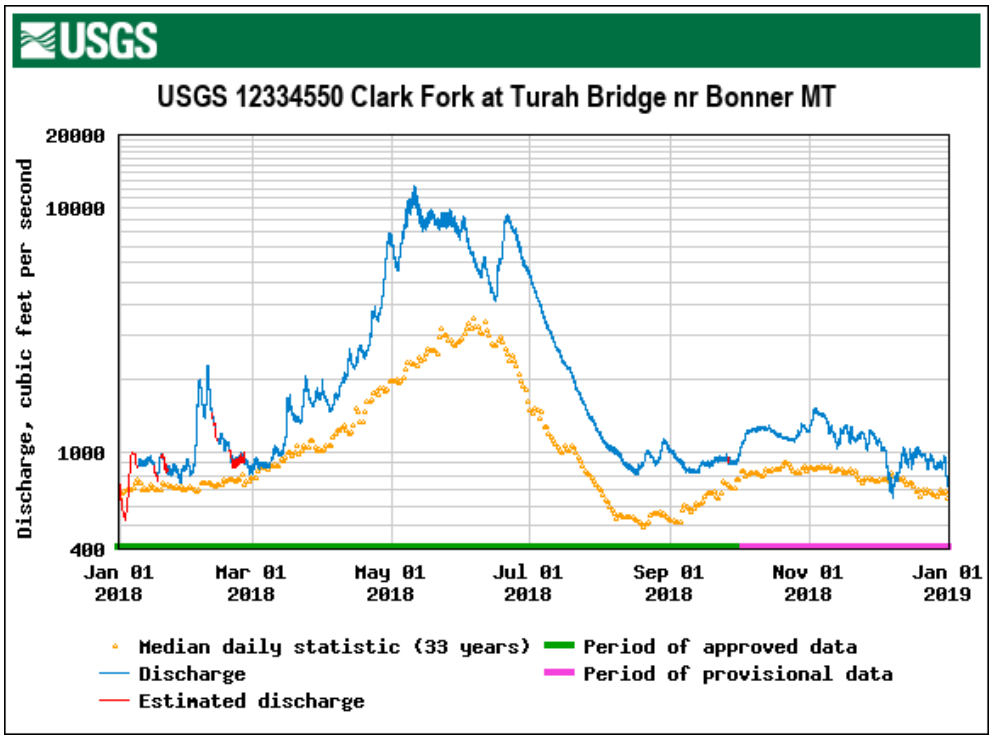

Figure 2-8. Hydrograph for Clark Fork at Turah Bridge, 2018.

2.3.2 Field Parameters

2.3.2.1 Water Temperature

At the time samples were collected in 2018, Clark Fork River mainstem water temperatures ranged from 0-17.8 C (Figure 2-9). The highest maximum water temperatures occurred in Reach A during the Q2-Falling or Q3 sample periods.

Water temperatures in the Clark Fork River tributaries ranged from 0-19.7 C(Figure 2-10). Comparisons of water temperatures among tributaries are confounded by variation in sample timing during the day, particularly during warm periods when diel temperature swings may be substantial (at least 10 C).

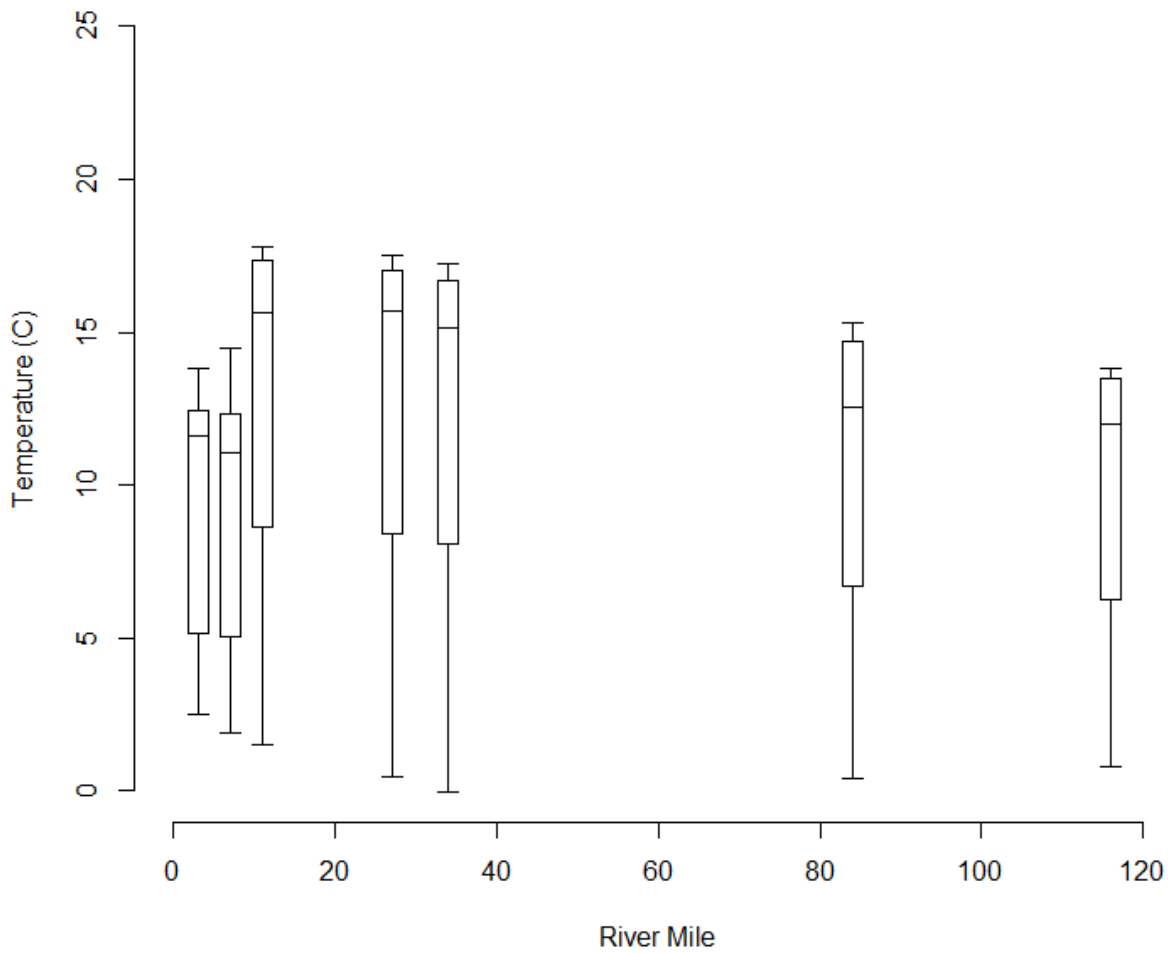

Figure 2-9. Boxplots of surface water temperatures in the Clark Fork River mainstem by river mile, 2018.

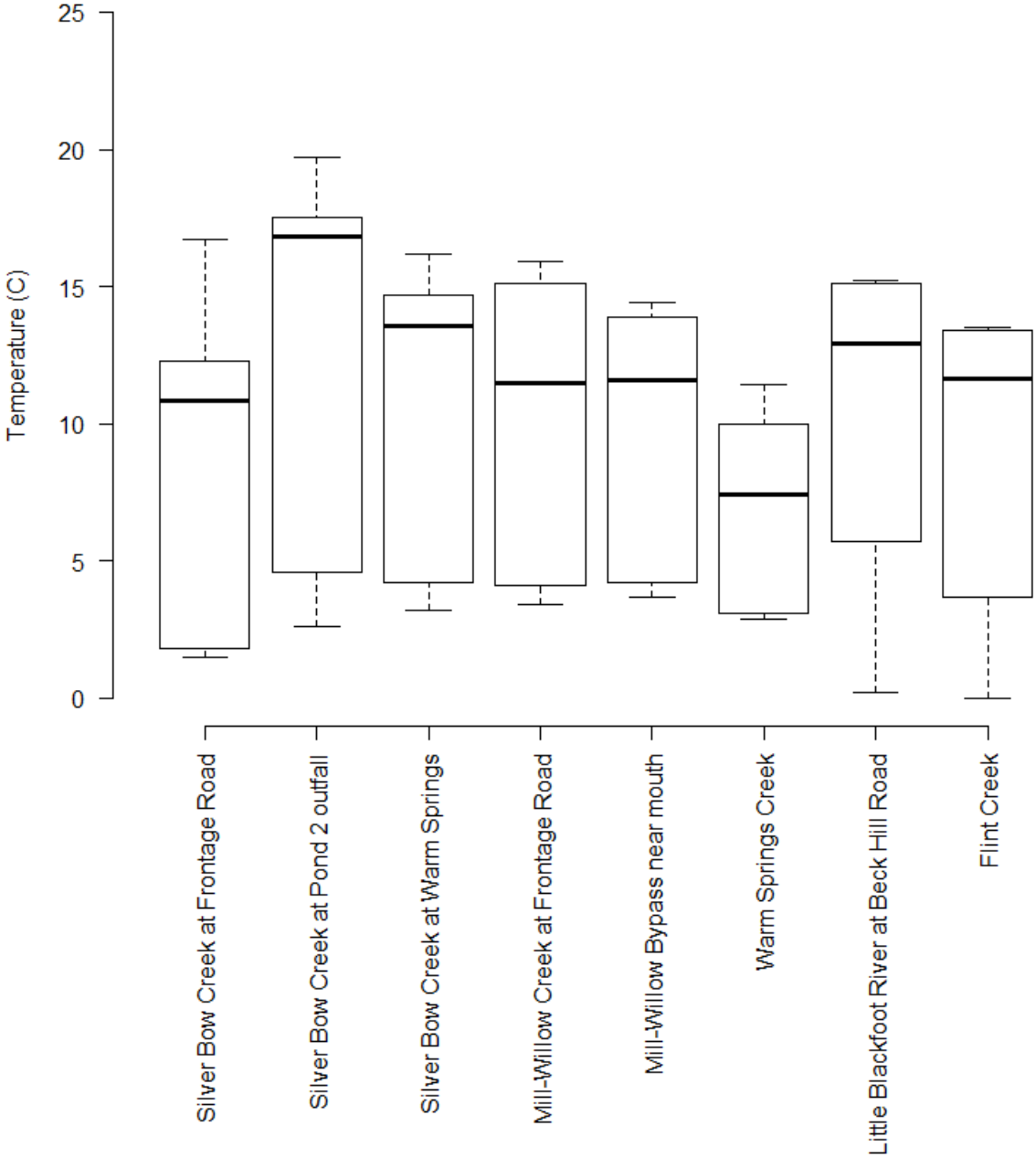

Figure 2-10. Boxplots of surface water temperatures in tributaries of the Clark Fork River, 2018.

2.3.2.2 pH

Clark Fork River mainstem pH ranged from 6.47-8.99 in 2018 (Figure 2-11). Potential water discharge restrictions could occur in the mainstem Clark Fork River between the Cottonwood Creek confluence (at Deer Lodge) and Little Blackfoot River confluence when pH exceeds 8.5 as this stream reach is designated as C-1 for water-use classification stream. One site is sampled in that reach (Site CFR-34; Clark Fork River at Williams-Tavenner Bridge) and pH at Site CFR-34 ranged from 7.74-8.59 in 2018.

In the Clark Fork River tributaries, pH ranged from 7.41-10.53 in 2018 (Figure 2-12). Potential water discharge restrictions could occur in the Mill-Willow Creek drainage (designated as a B-1 water-use classification stream; ARM 17.30.607) when pH exceeds 8.5. In the Mill-Willow Creek sites, pH was below 8.5 during all sample periods except Q3 when Site MWB-SBC had a pH of 8.76. Potential water discharge restrictions could occur in Silver Bow Creek (designated as an I water-use classification stream; ARM 17.30.607) when pH exceeds 9.5. In Silver Bow Creek at the pond 2 outfall (Site SBC-P2), pH exceeded 9.5 during the Q3 sample period.

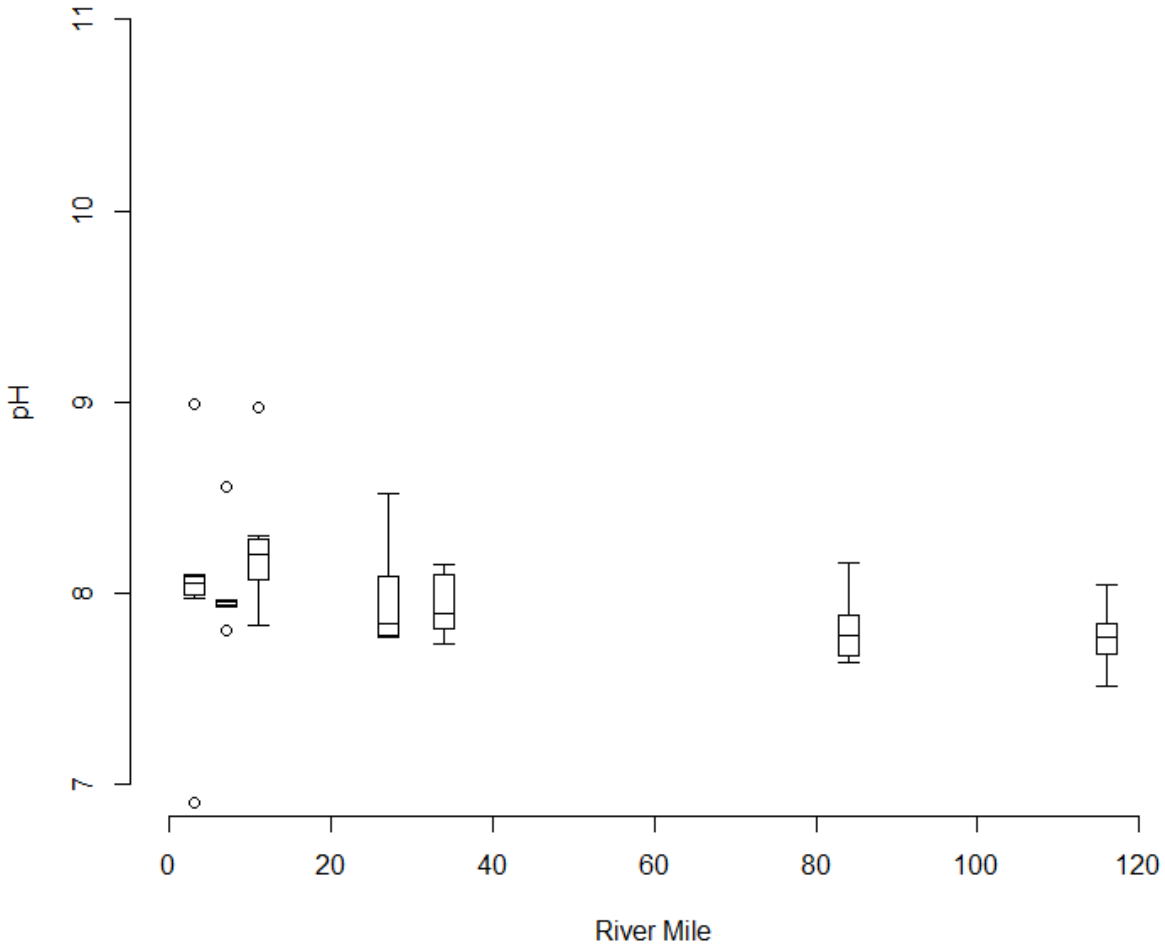

Figure 2-11. Boxplots of pH in the Clark Fork River mainstem by river mile, 2018.

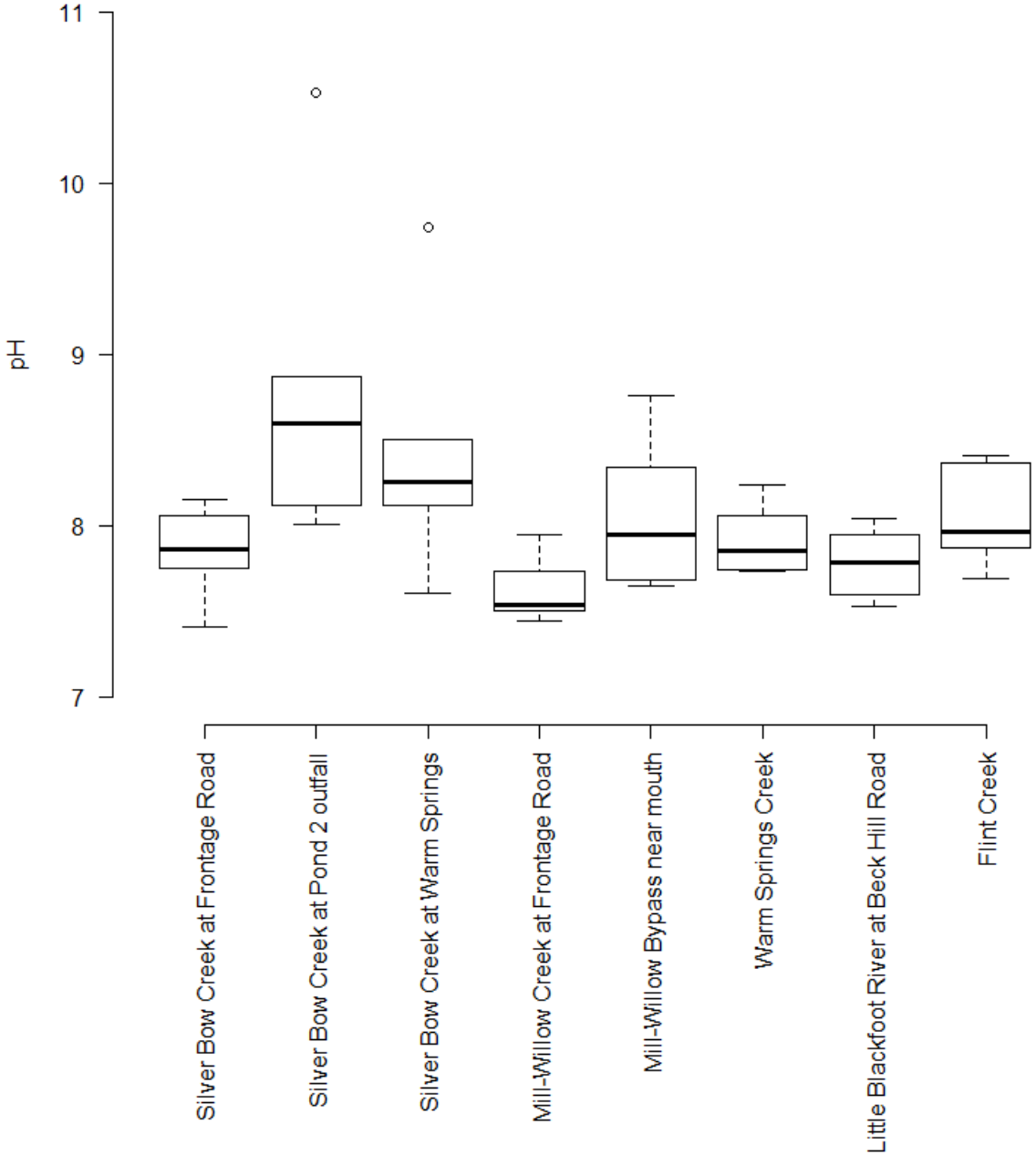

Figure 2-12. Boxplots of pH in tributaries of the Clark Fork River, 2018.

2.3.2.3 Conductivity

Conductivity in the Clark Fork River mainstem ranged from 160-521 microsiemens per centimeter (µS/cm) in 2018 (Figure 2-13). Annually, conductivity varied by 200 µS/cm or more at each site and was generally highest during Q1 (Figure 2-13). Longitudinally, median conductivity increased at each mainstem site from near Galen (Site CFR-03A) to Gemback Road (Site CFR-11F) and then gradually decreased downstream to Turah (Site CFR-116A) (Figure 2-13).

In the Clark Fork River tributaries, conductivity ranged from 109-568 µS/cm in 2018 (Figure 2-14). In Silver Bow Creek, median conductivity was similar between sites above (at Frontage Road; Site SS-19) and below (at Pond 2 outfall; Site SBC-P2) the Warm Springs Ponds (Figure 2-14). However, mean conductivity increased sharply (from 174 µS/cm to 299 µS/cm) in Mill-Willow Creek between sites above (at Frontage Road; Site MCWC-MWB) and below (near mouth; Site MWB-SBC) the Mill-Willow Bypass.

Conductivity was not measured at any sites in Q4 due to instrument malfunction.

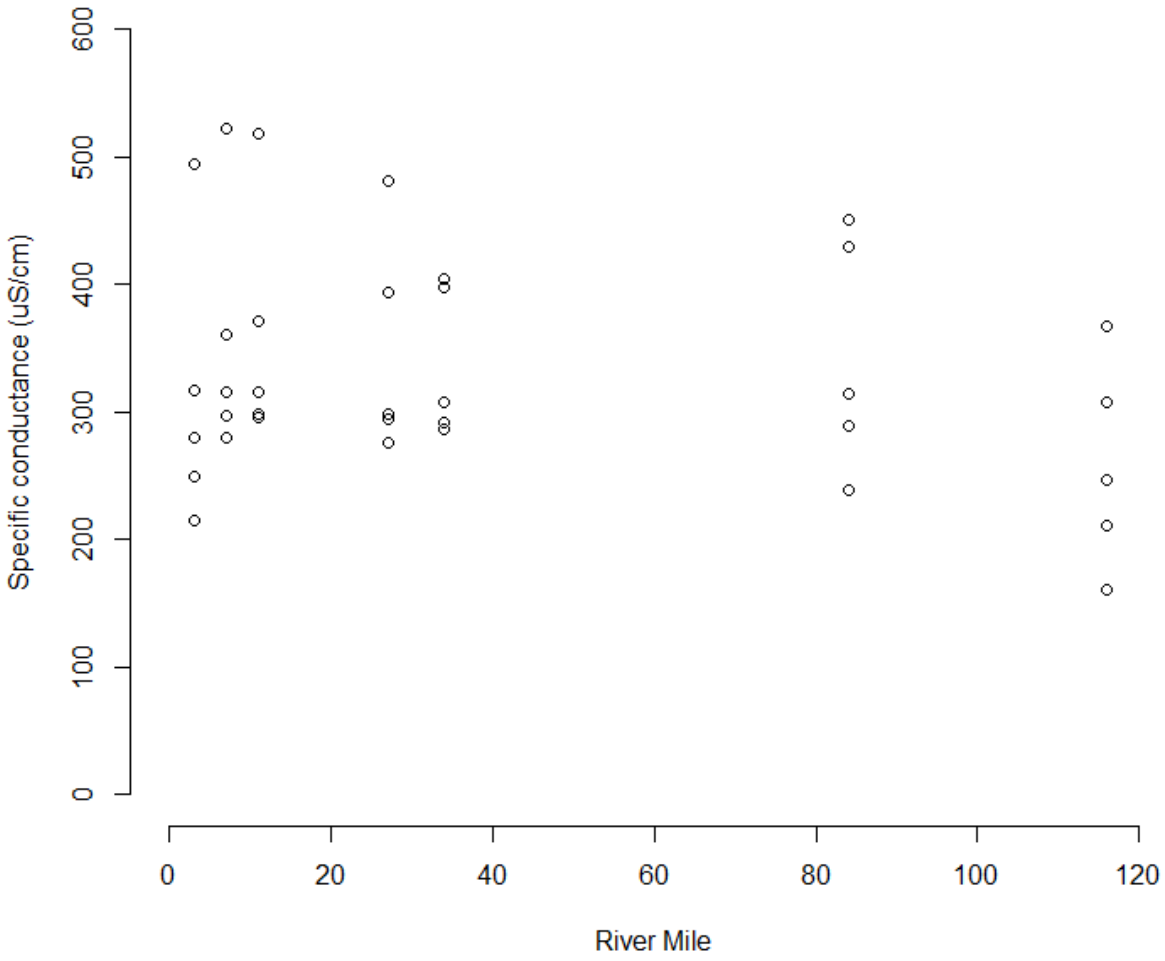

Figure 2-13. Boxplots[11] of conductivity in the Clark Fork River mainstem by river mile, 2018.

[11] Boxplots were not generated at each site in this figure because there were fewer than six observations per site. These boxplots were generated using the R statistical software package 'ggplot2' [Wickham et al., 2019] with the "bplot" function. The bplot function does not create box and whiskers for any sample groups with less than six observations. In lieu of boxplots, each individual observation is depicted. The reason that there were fewer than six observation is because specific conductance was not measured in Q4 2018 due to instrument malfunction.

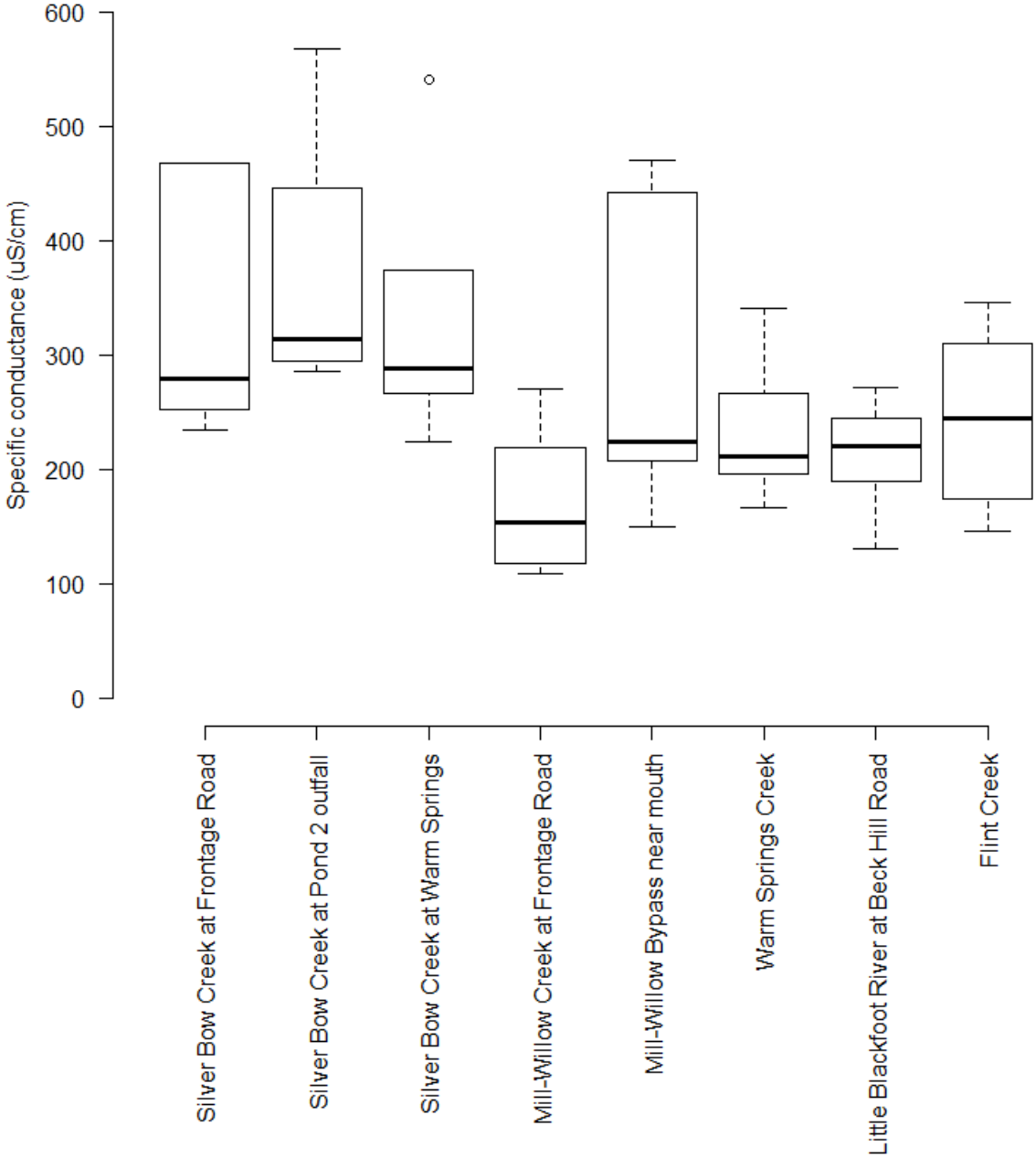

Figure 2-14. Boxplots of conductivity in tributaries of the Clark Fork River, 2018.

2.3.2.4 Dissolved Oxygen

Dissolved oxygen concentrations in the Clark Fork River mainstem ranged from 8.4-16.6 mg/L in 2018 (Figure 2-15). Most sites had annual variance of 5 mg/L or more (Figure 2-15).

In the Clark Fork River tributaries, dissolved oxygen concentrations ranged from 8.2-16.7 mg/L in 2018 (Figure 2-16). All dissolved oxygen concentrations measured in the CFROU in 2018 were compliant with the most restrictive freshwater aquatic life standard for dissolved oxygen DEQ [2017][12].

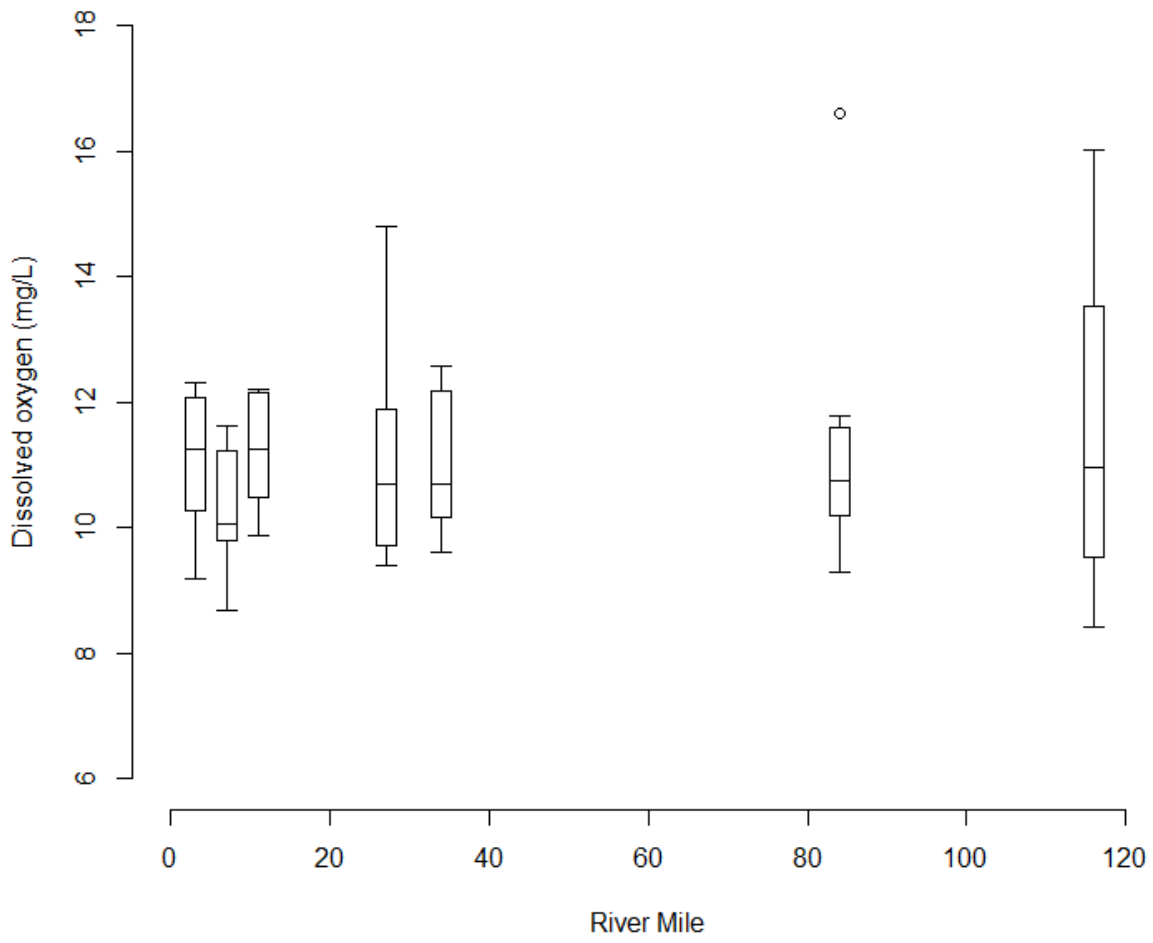

Figure 2-15. Boxplots of dissolved oxygen concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2018.

[12] The most restrictive dissolved oxygen standard is the 1-day minimum for waters classified as A-1, B-1, B-2, C-1, or C-2 where early life stages of fish are present (8.0 mg/L).

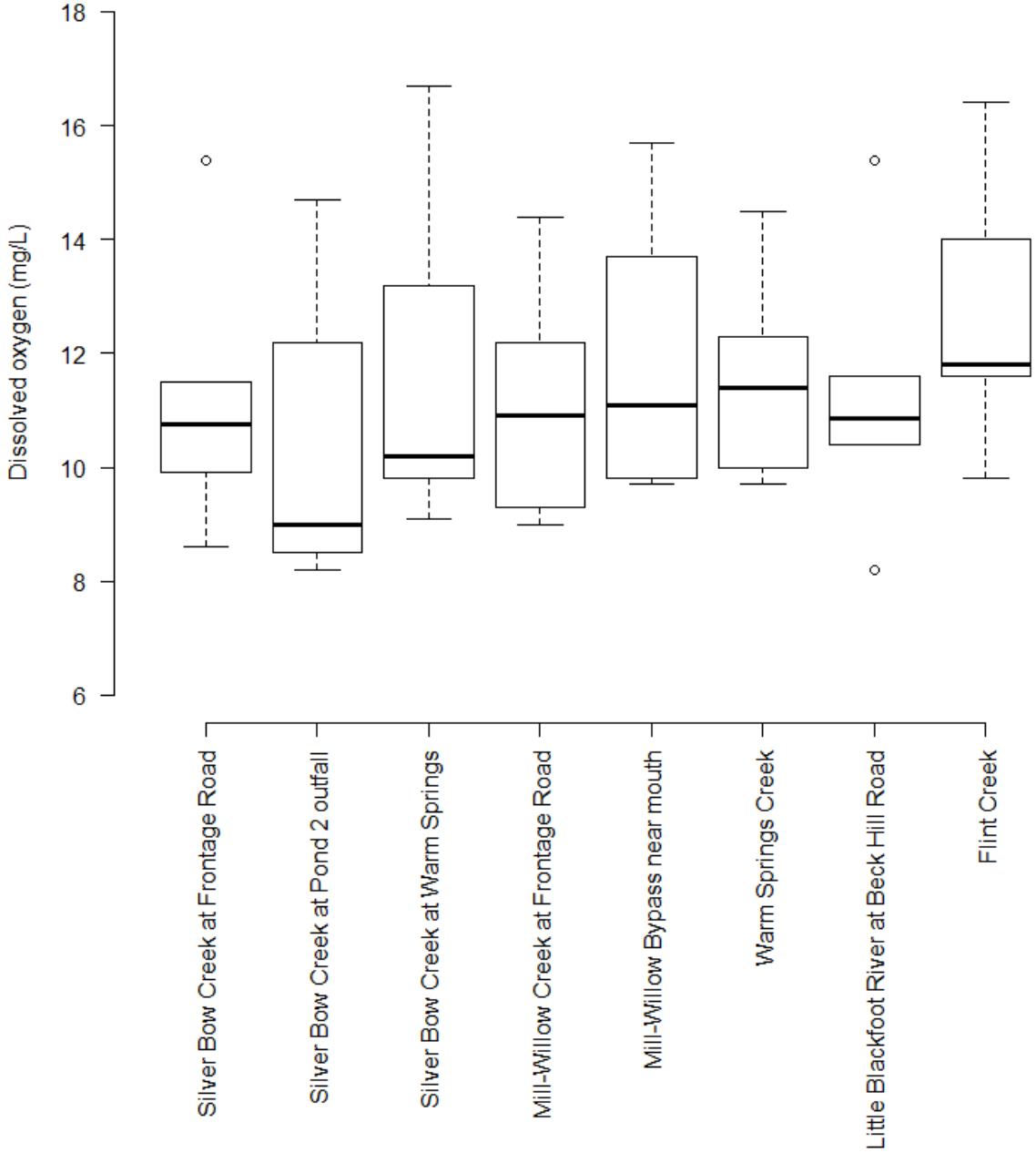

Figure 2-16. Boxplots of dissolved oxygen concentration at tributary sampling sites in the Clark Fork River Operable Unit, 2018.

2.3.2.5 Turbidity

Turbidity in the Clark Fork River mainstem ranged from 1.2-75 nephelometric turbidity units (NTU) in 2018 (Figure 2-17). Turbidity generally increased sequentially at each downstream mainstem site (Figure 2-17). Turbidity throughout the CFROU was generally highest in Q2.

In the Clark Fork River tributaries, turbidity ranged from 1.0-51 mg/L in 2018 (Figure 2-18). The highest tributary turbidity measurement occurred in the Little Blackfoot River during the Q2-Rising sample event.

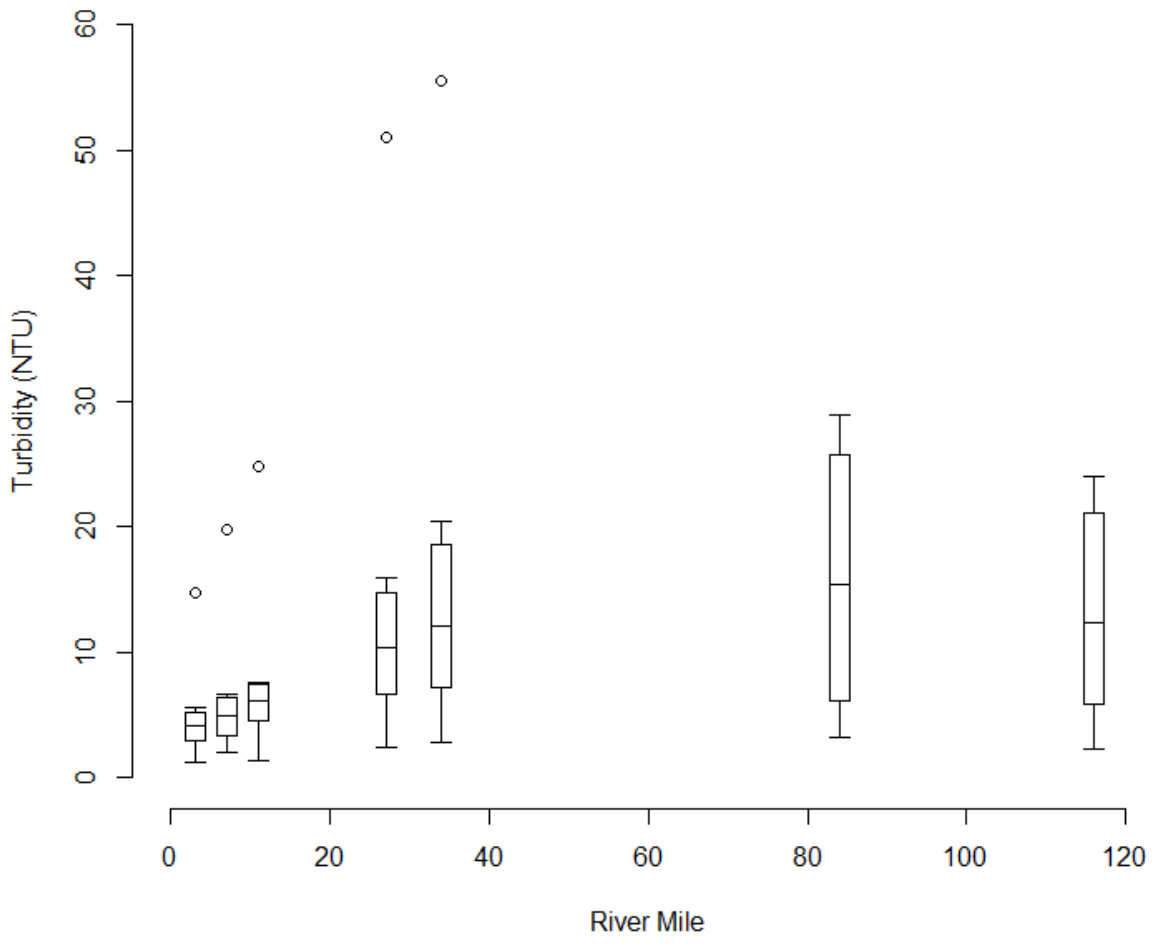

Figure 2-17. Boxplots of turbidity at mainstem sampling sites in the Clark Fork River Operable Unit, 2018.[13]

[13] One sample collected from CFR-116A on May 9, 2018 with a turbidity of 75.4 NTU is not depicted in this figure.

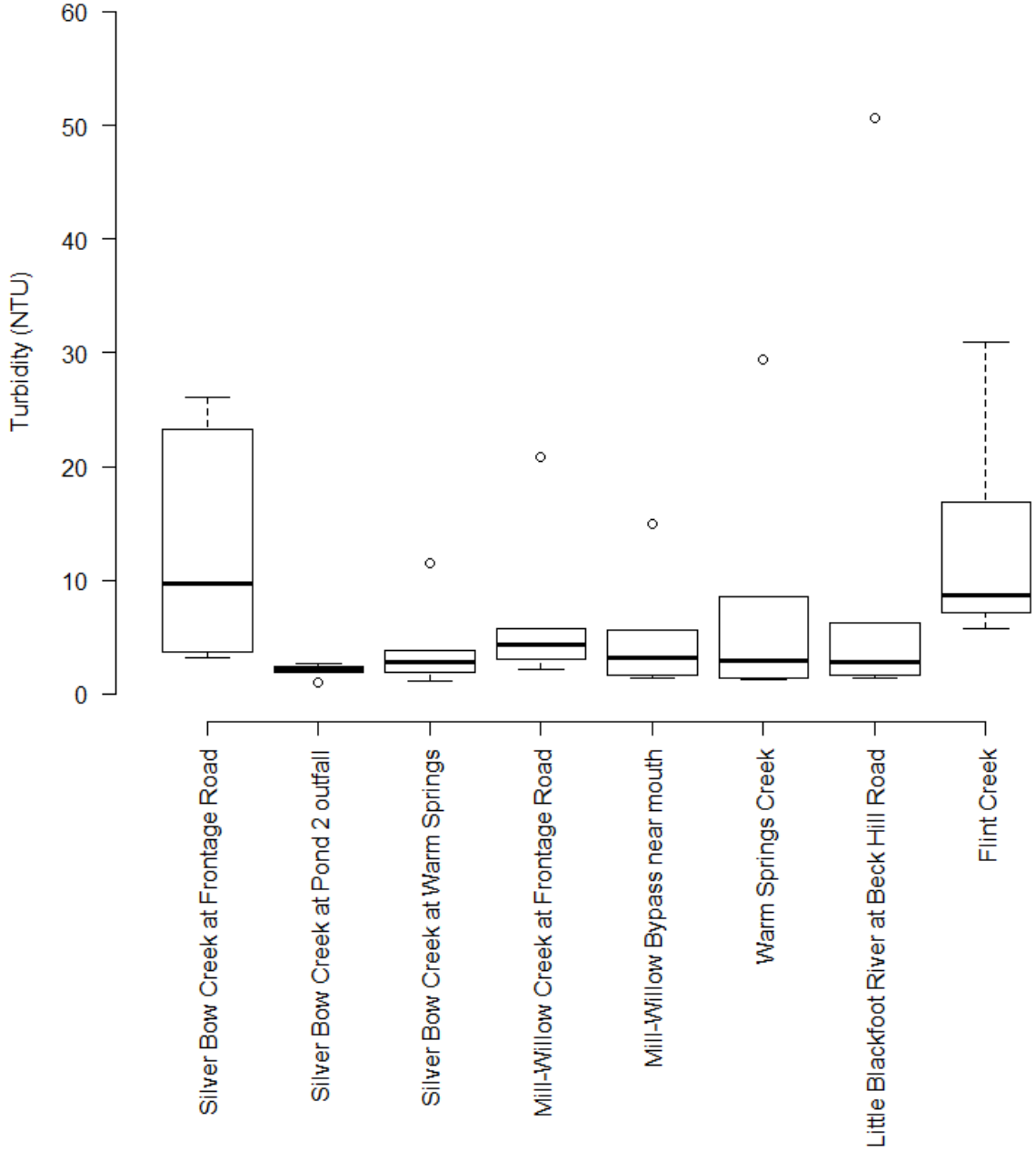

Figure 2-18. Boxplots of turbidity at tributary sampling sites in the Clark Fork River Operable Unit, 2018.

2.3.3 Total Suspended Sediment

Total suspended sediment concentrations in the Clark Fork River mainstem in 2018 ranged from 2-163 mg/L (Figure 2-19). Median concentrations increased progressively at each downstream site in the mainstem through Reach A and decreased slightly at Turah in Reach C (Figure 2-19).

Total suspended sediment concentrations in the Clark Fork River tributaries ranged from 1-71 mg/L in 2018 (Figure 2-20). The highest concentration occurred in the Little Blackfoot River during the Q2-Rising sample event.

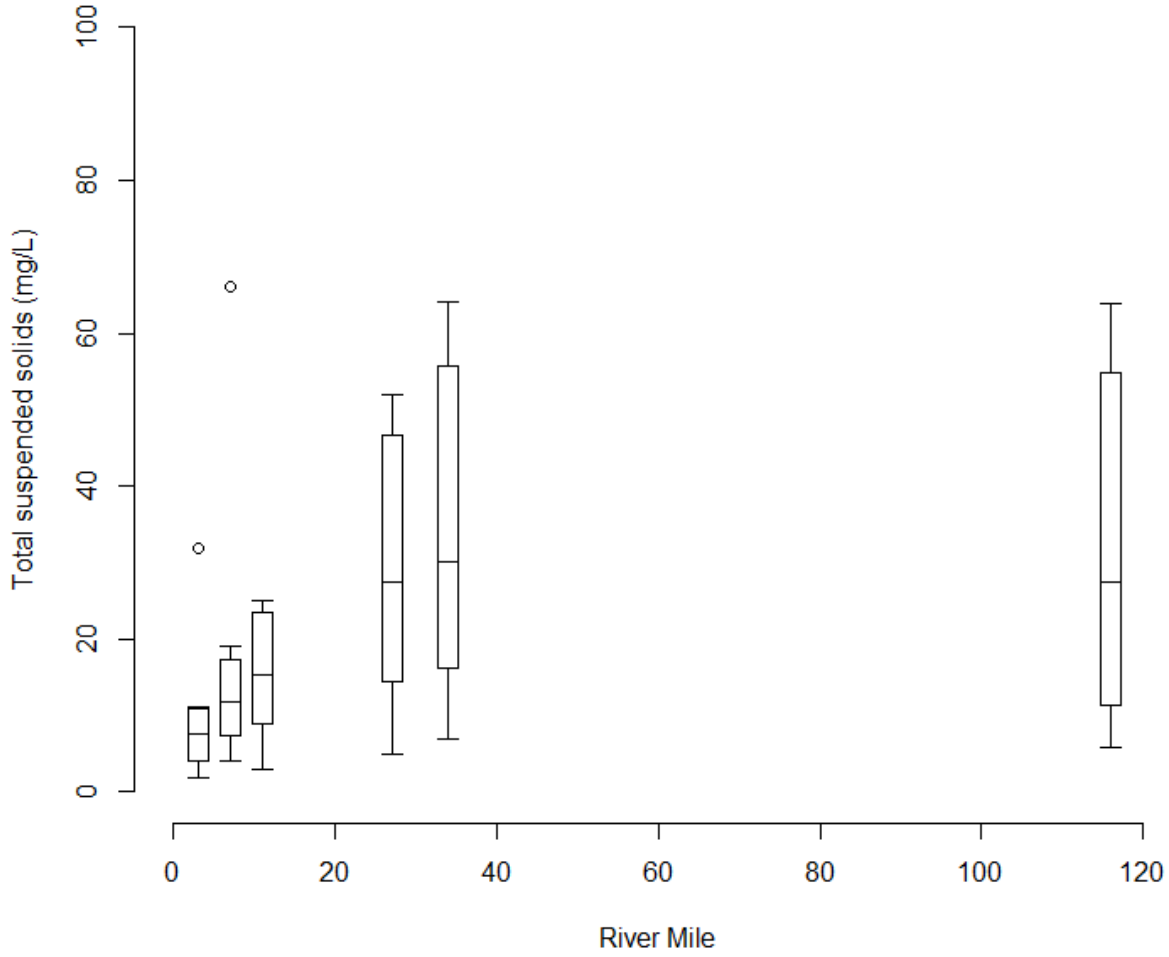

Figure 2-19. Boxplots of total suspended sediment concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2018.

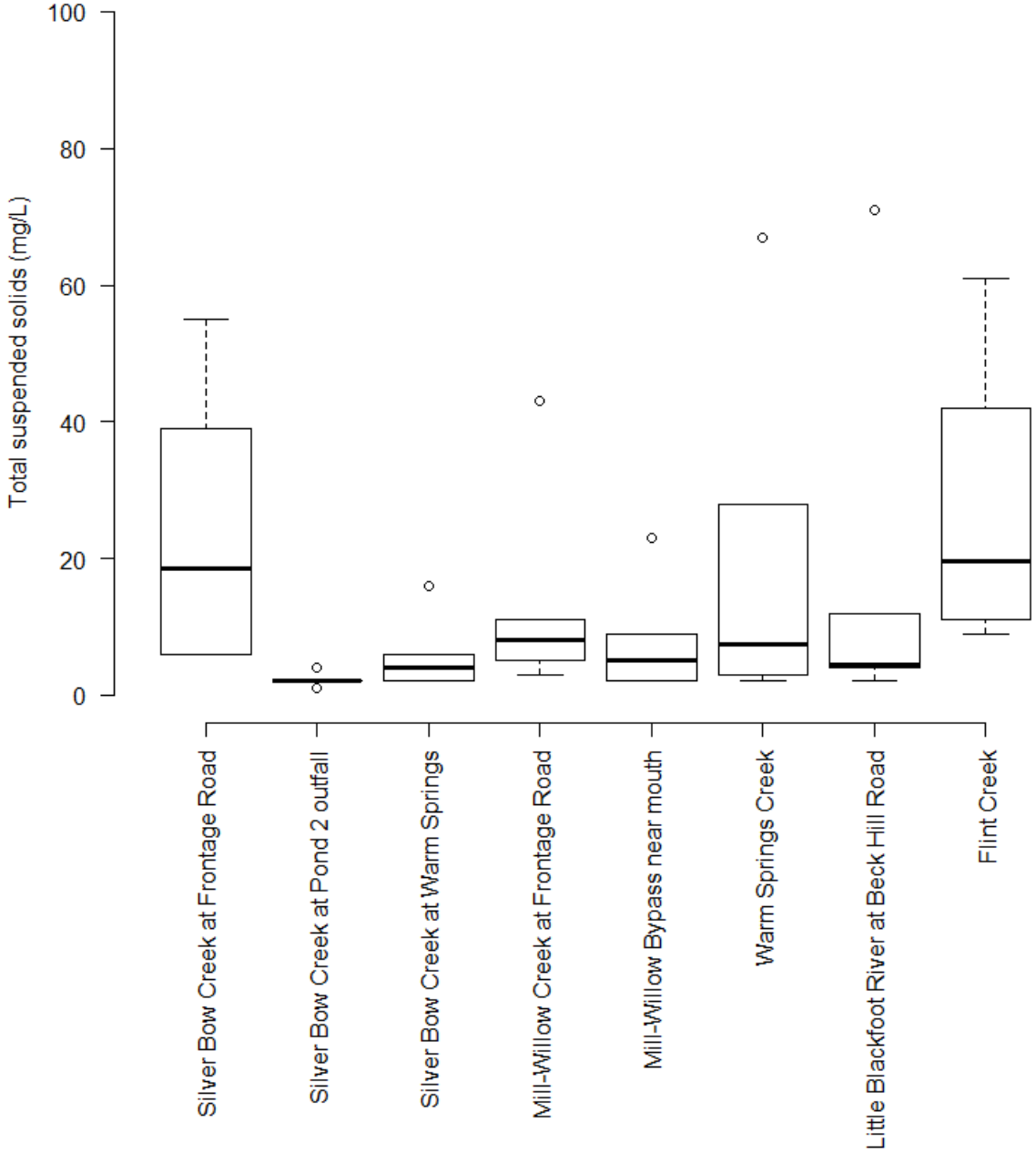

Figure 2-20. Boxplots of total suspended sediment concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2018.

2.3.4 Common Ions

2.3.4.1 Hardness

Water hardness in the Clark Fork River mainstem in 2018 ranged from 76-232 mg/L (Figure 2-21). Median water hardness in the mainstem tended to increase at each site downstream to Gemback Road (Site CFR-11F), then leveled off downstream through Reach A (to Site CFR-34), and decreased downstream to Turah (Site CFR-116A) (Figure 2-21). Hardness in the mainstem would be classified between "moderately hard" and "very hard"[14].

Water hardness in the Clark Fork River tributaries in 2018 ranged from 45-260 mg/L (Figure 2-22). Median hardness was lowest in Mill-Willow Creek at Frontage Road (Figure 2-22). In the other tributaries median hardness was similar except for the Silver Bow Creek sites which had slightly higher hardness (Figure 2-22). Between Mill-Willow Creek sites above (at Frontage Road; Site MCWC-MWB) and below (near mouth; Site MWB-SBC) the Mill-Willow Bypass median water hardness nearly doubled (Figure 2-22). Hardness levels in the tributaries would be classified as ranging from "soft" to "very hard".

[14] Hardness classifications: 0-60 mg/L is "soft"; 61-120 mg/L is "moderately hard"; 121-180 mg/L is "hard"; and more than 180 mg/L is "very hard" [USGS, 2015].

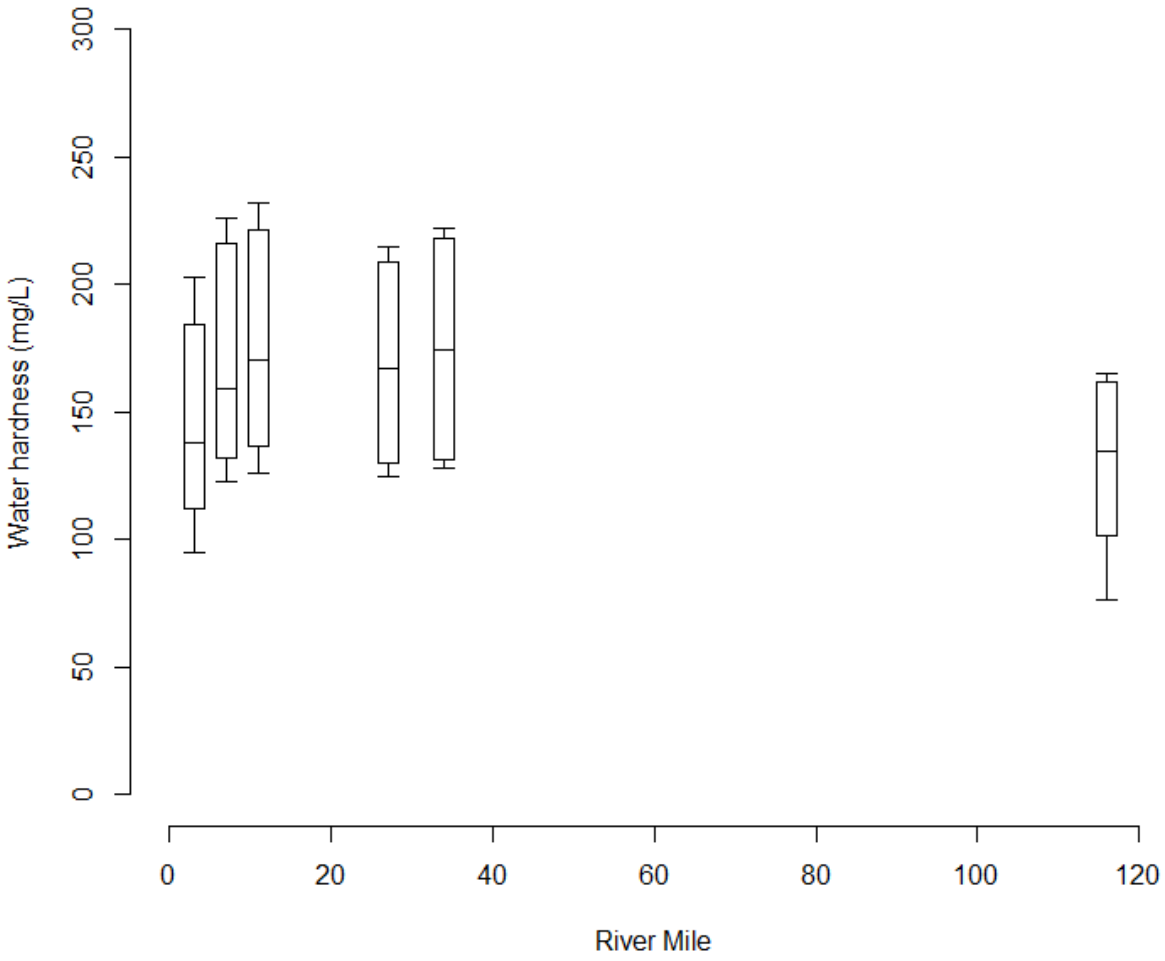

Figure 2-21. Boxplots of water hardness at mainstem sampling sites in the Clark Fork River Operable Unit, 2018.

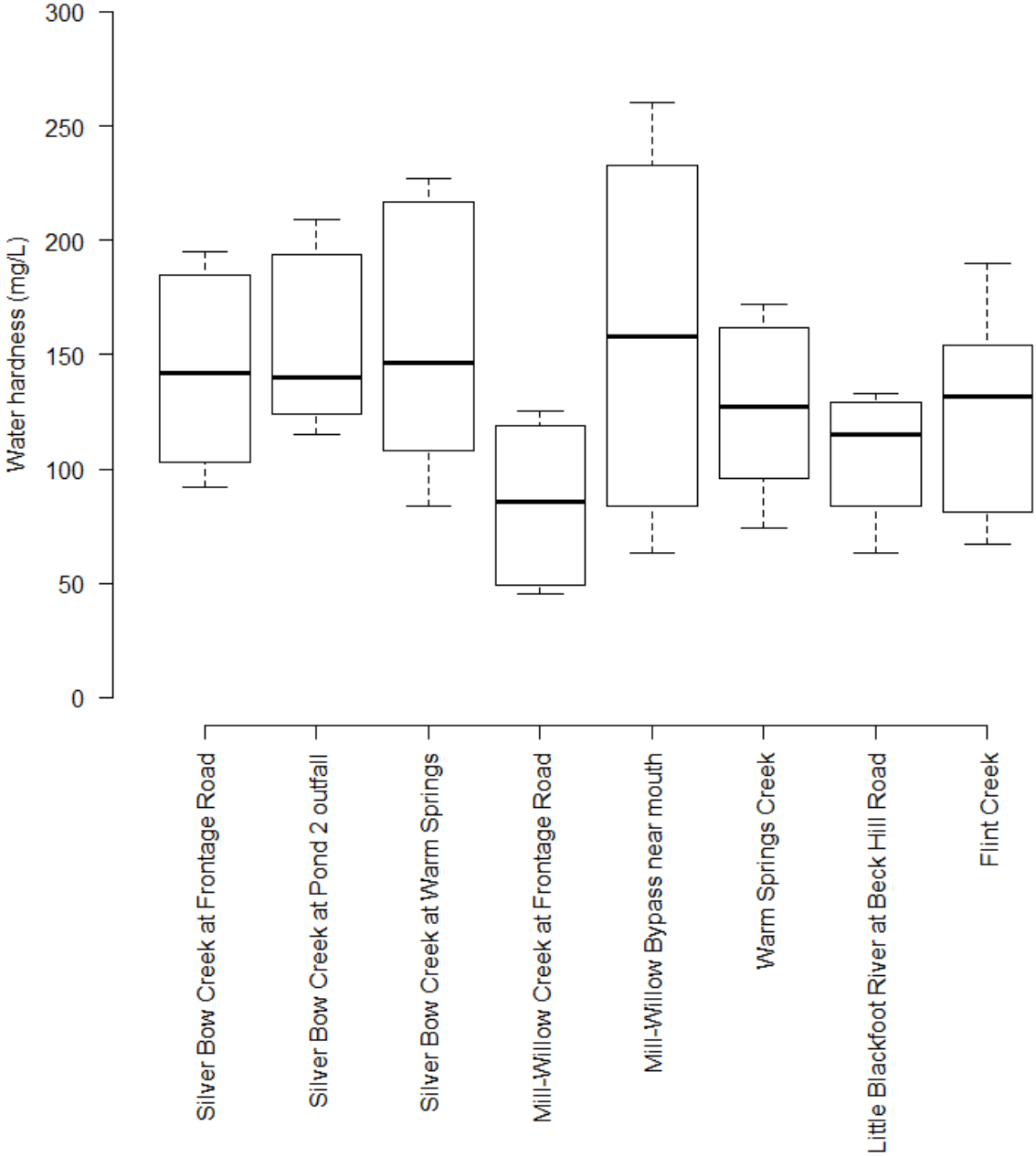

Figure 2-22. Boxplots of water hardness at tributary sampling sites in the Clark Fork River Operable Unit, 2018.

2.3.4.2 Alkalinity and Bicarbonate

In 2018, alkalinity in the Clark Fork River ranged from 61-170 mg/L (Figure 2-23) and from 45-190 mg/L in the tributaries (Figure 2-24). Bicarbonate alkalinity ranged from 73-190 mg/L in the mainstem (Figure 2-25) and from 31-230 mg/L in the tributaries (Figure 2-26). Alkalinity and bicarbonate alkalinity were generally lowest during runoff periods and highest during low water periods.

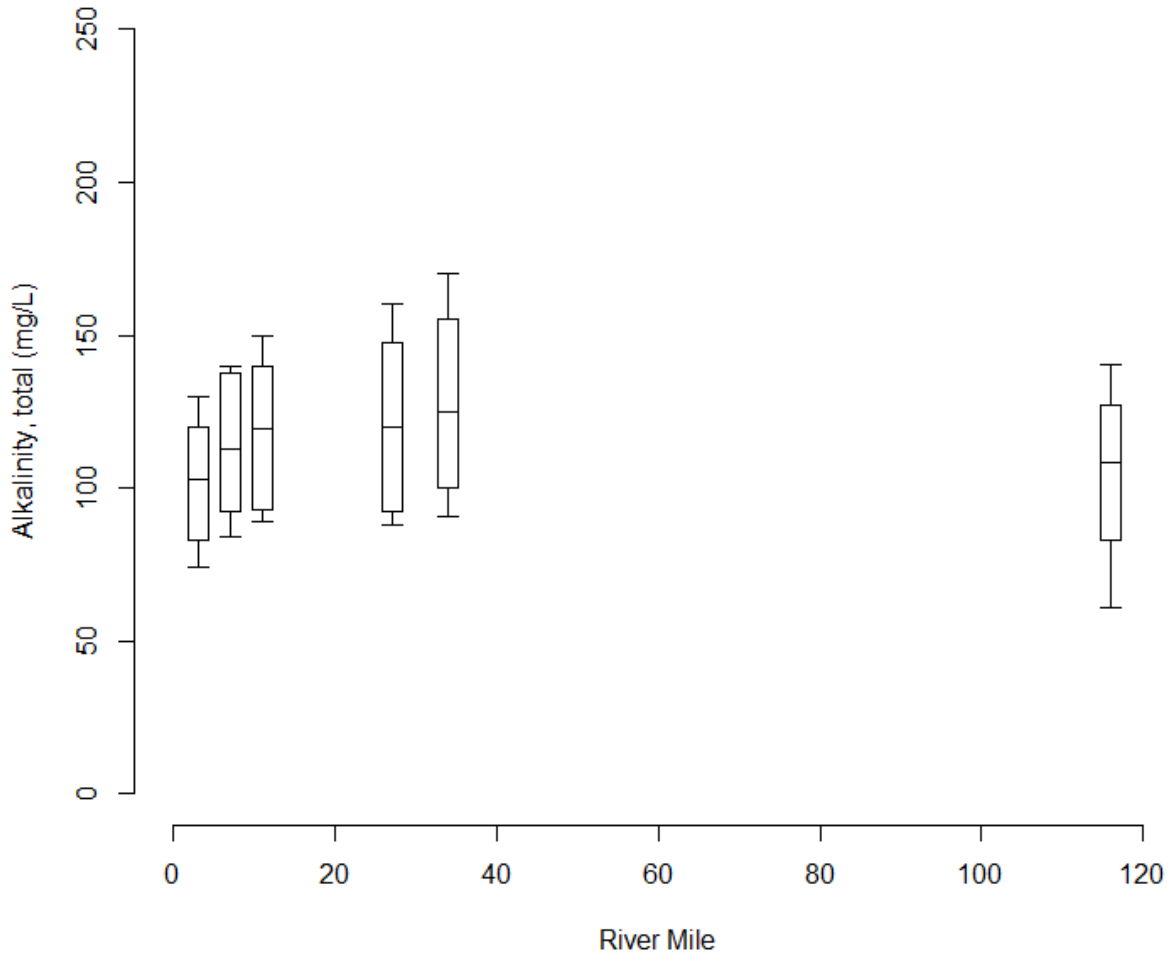

Figure 2-23. Boxplots of alkalinity at mainstem sampling sites in the Clark Fork River Operable Unit, 2018.

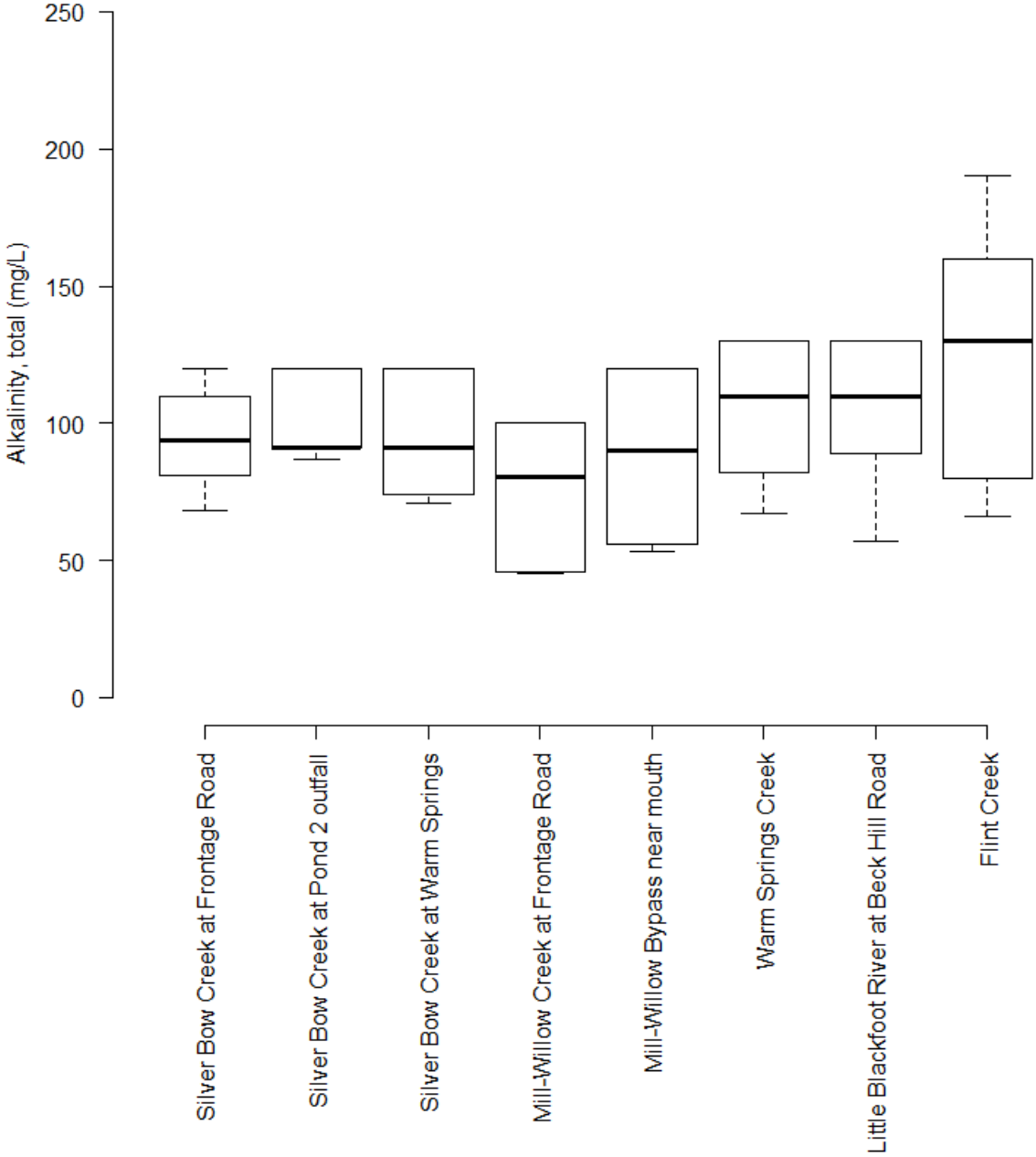

Figure 2-24. Boxplots of alkalinity at tributary sampling sites in the Clark Fork River Operable Unit, 2018.

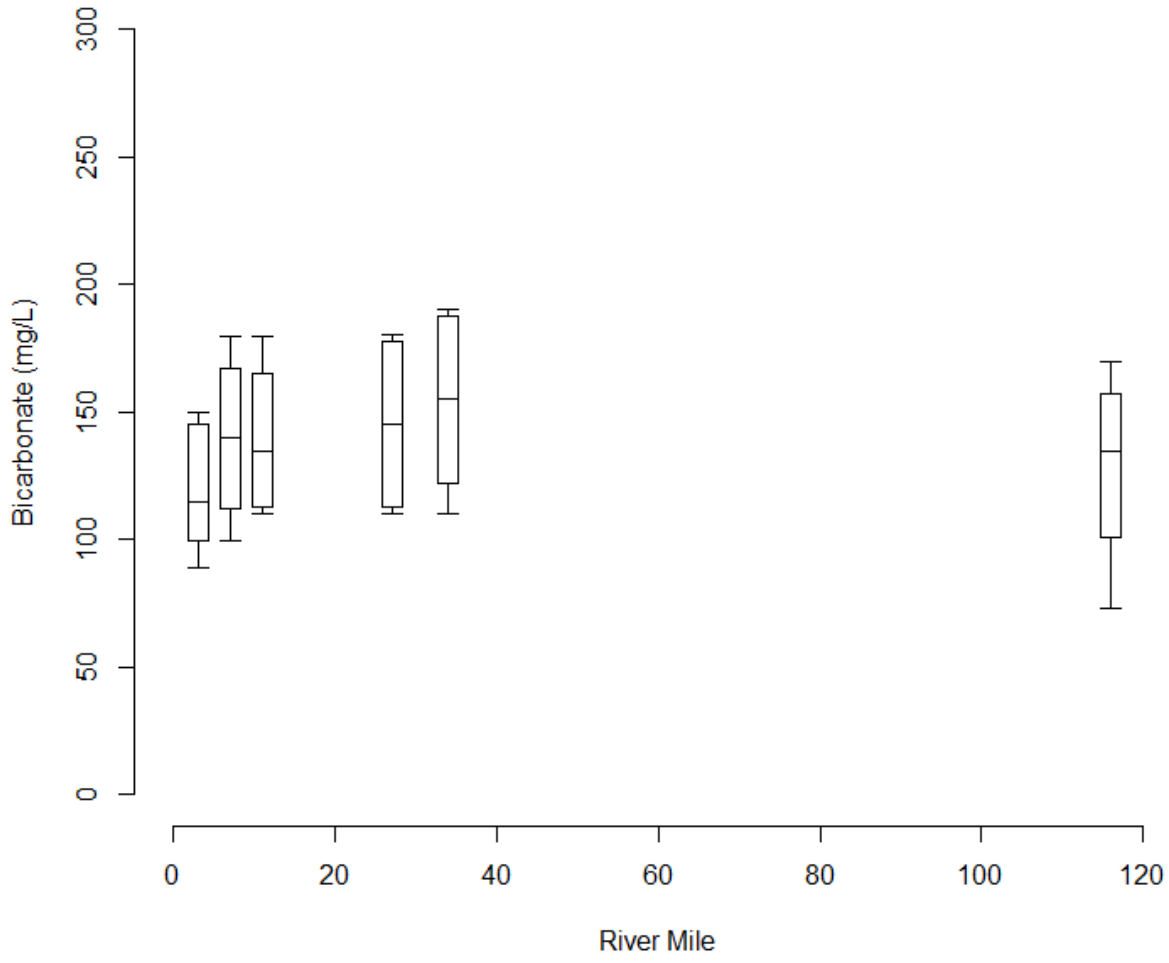

Figure 2-25. Boxplots of bicarbonate alkalinity at mainstem sampling sites in the Clark Fork River Operable Unit, 2018.

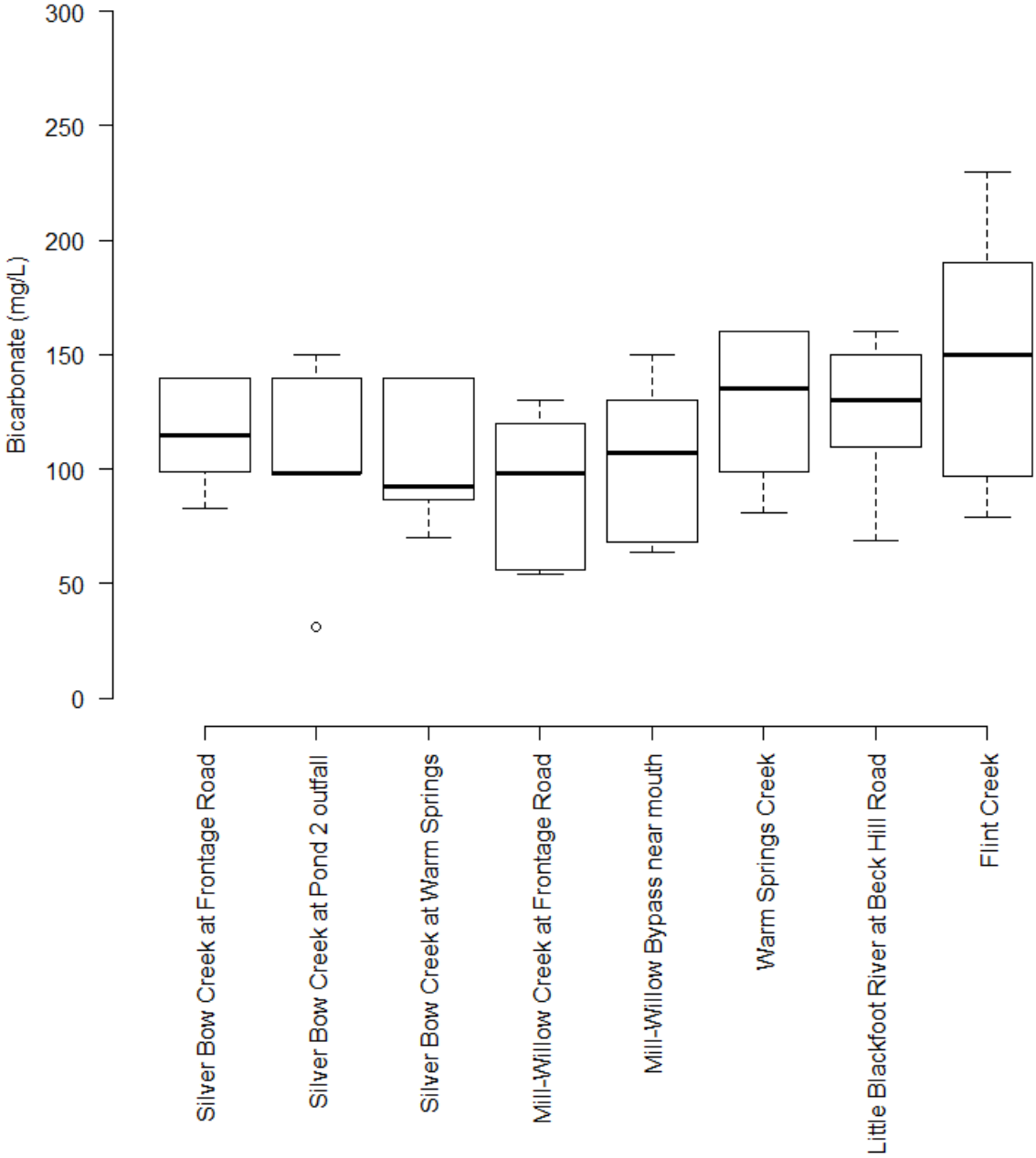

Figure 2-26. Boxplots of bicarbonate alkalinity at tributary sampling sites in the Clark Fork River Operable Unit, 2018.

2.3.4.3 Sulfate

Sulfate concentrations in the Clark Fork River mainstem in 2018 ranged from 14-100 mg/L (Figure 2-27). Median sulfate concentrations increased at each of the first three mainstem sites and then decreased at each site downstream to Turah (Site CFR-116A) (Figure 2-27). The lowest median sulfate concentrations were observed at Turah. Seasonally, sulfate concentrations tended to be highest during the low water sample periods and lowest during runoff periods.

Sulfate concentrations in the Clark Fork River tributaries in 2018 ranged from 6-153 mg/L (Figure 2-28). As in the mainstem, sulfate concentrations were seasonal and generally highest during low water periods and lowest during runoff periods in the tributaries. Between Silver Bow Creek sites above (at Frontage Road; Site SS-19) and below (at Pond 2 outfall; Site SBC-P2) the Warm Springs Ponds there was a modest increase in median sulfate concentrations (Figure 2-28). However, between Mill-Willow Creek sites above (at Frontage Road; Site MCWC-MWB) and below (near mouth; Site MWB-SBC) the Mill-Willow Bypass median sulfate concentrations increased by approximately five times (Figure 2-28). Sulfate concentrations were relatively low (i.e., less than 50 mg/L) in other tributary sites (Figure 2-28).

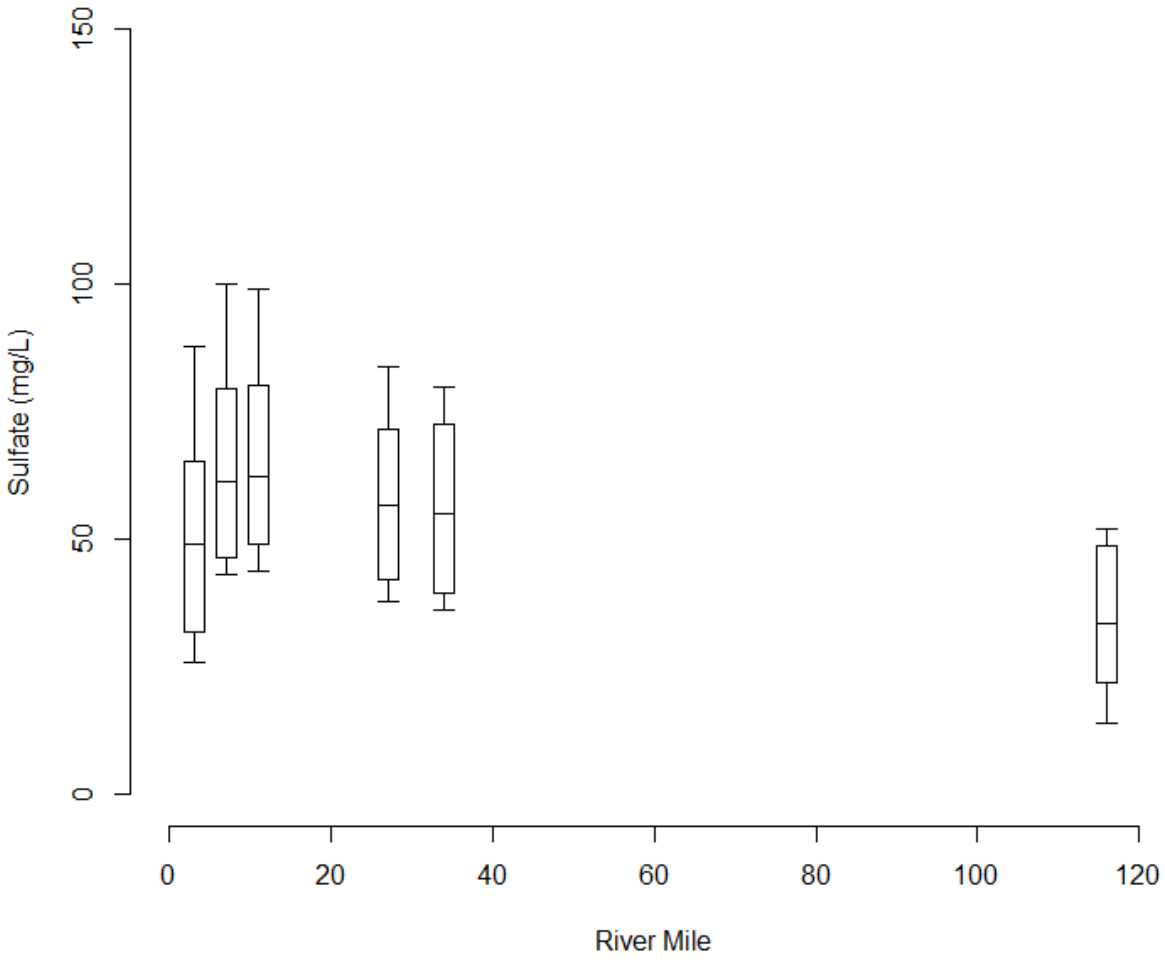

Figure 2-27. Boxplots of sulfate concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2018.

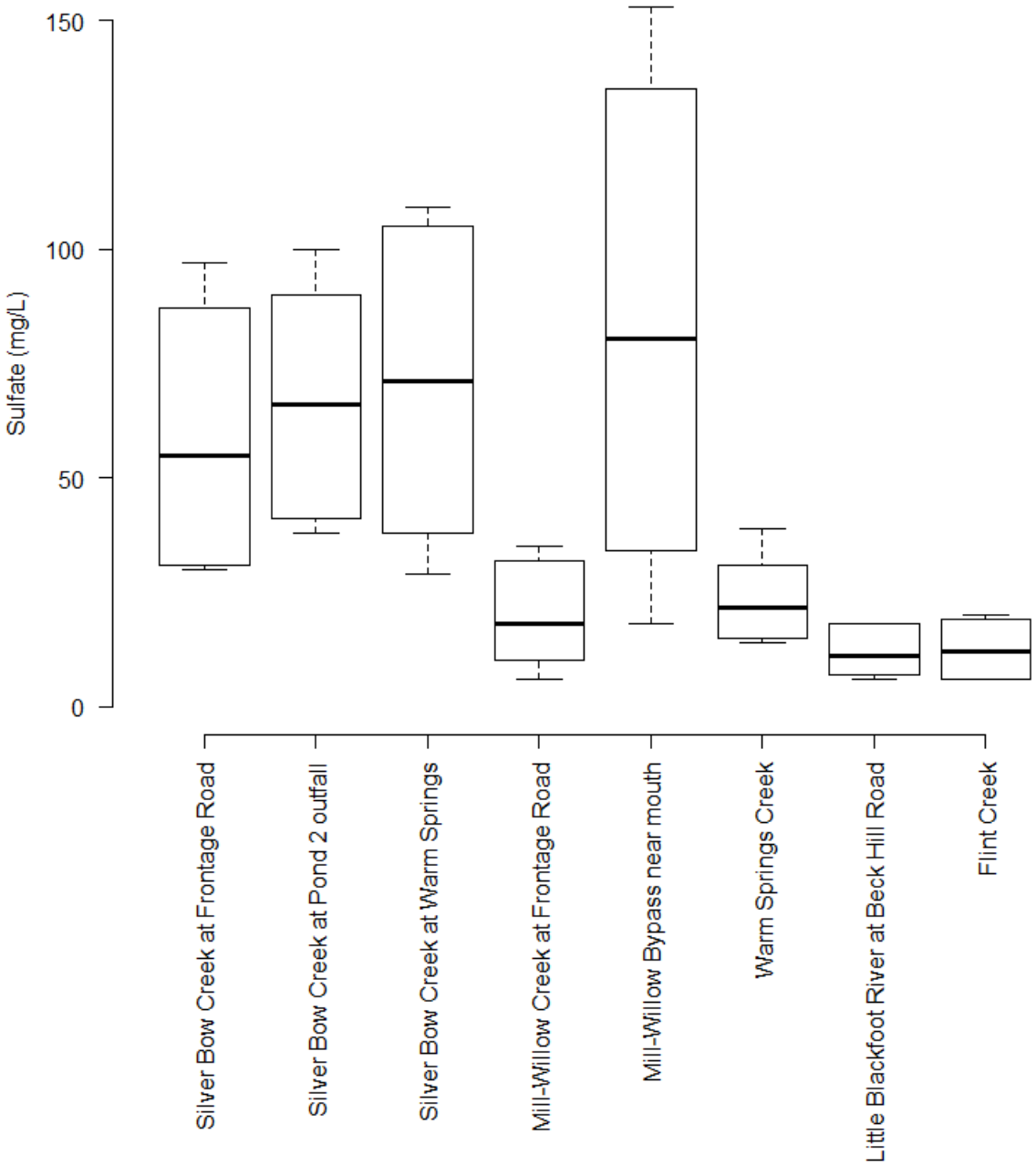

Figure 2-28. Boxplots of sulfate concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2018.

2.3.5 Nutrients

2.3.5.1 Total Nitrogen

Total nitrogen concentrations in the Clark Fork River mainstem in 2018 ranged from 0.19-0.74 mg/L (Table 2-5). Median concentrations increased at each Reach A site downstream to Williams-Tavenner Bridge at river mile 34 (Site CFR-34) and then decreased downstream at Turah (Figure 2-29). All mainstem sites except Site CFR-03A had median concentrations above the total nitrogen standard (Figure 2-29) although that standard only technically applied to the Q2-Falling and Q3 samples. In Q2-Falling and Q3, the mainstem samples from Site CFR-27H and Site CFR-34 exceeded the standard (Table 2-5).

Total nitrogen concentrations in the Clark Fork River tributaries in 2018 ranged from 0.12-1.92 mg/L (Table 2-5). All Silver Bow Creek samples in 2018 exceeded the total nitrogen standard during the Q2-Falling and Q3 sample periods (Figure 2-30). In addition, the total nitrogen samples from Flint Creek in Q2-Falling and Q3 also exceeded the total nitrogen standard (Table 2-5). Concentrations in Silver Bow Creek above the Warm Springs Ponds (at Frontage Road; Site SS-19) were substantially higher than either site downstream from the ponds (Figure 2-30). Concentrations in the two Mill-Willow Creek sites were similar (Figure 2-30).

Table 2-5. Total nitrogen concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.38	0.50	0.31	0.25	0.23	0.22
CFR-07D	Clark Fork River at Galen Road	0.45	0.57	0.34	0.30	0.28	0.30
CFR-11F	Clark Fork River at Gemback Road	0.41	0.57	0.36	0.29	0.26	0.32
CFR-27H	Clark Fork River at Deer Lodge	0.50	0.72	0.41	0.34	0.37	0.42
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.51	0.74	0.46	0.37	0.36	0.43
CFR-116A	Clark Fork River at Turah	0.45	0.62	0.34	0.30	0.19	0.19
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	1.92[D]	0.67	0.43	0.56	0.84	0.99
SBC-P2	Silver Bow Creek at Pond 2 outfall	0.70	---	0.45	0.50	0.59	0.33
SS-25	Silver Bow Creek at Warm Springs	0.55	0.51	0.34	0.36	0.39	0.30
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.18	0.52	0.22	0.18	0.20	0.23
MWB-SBC	Mill-Willow Bypass near mouth	0.18	0.47	0.21	0.24	0.21	0.24
WSC-SBC	Warm Springs Creek near mouth	0.12	0.47	0.19	0.15	0.15	0.15
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.15	0.49	0.34	0.21	0.15	0.08
FC-CFR	Flint Creek near mouth	0.39	0.70	0.33	0.32	0.29	0.39

---	Not sampled.
ND	Not detected at method detection limit.
D	Result obtained from analysis of diluted sample.
	Exceeds Clark Fork River total nitrogen standard (0.30 mg/L; applies June 21 to September 21; ARM 17.30.631) and Middle Rockies Ecoregion total nitrogen standard (also 0.30 mg/L; applies July 1 to September 30; DEQ [2014]).

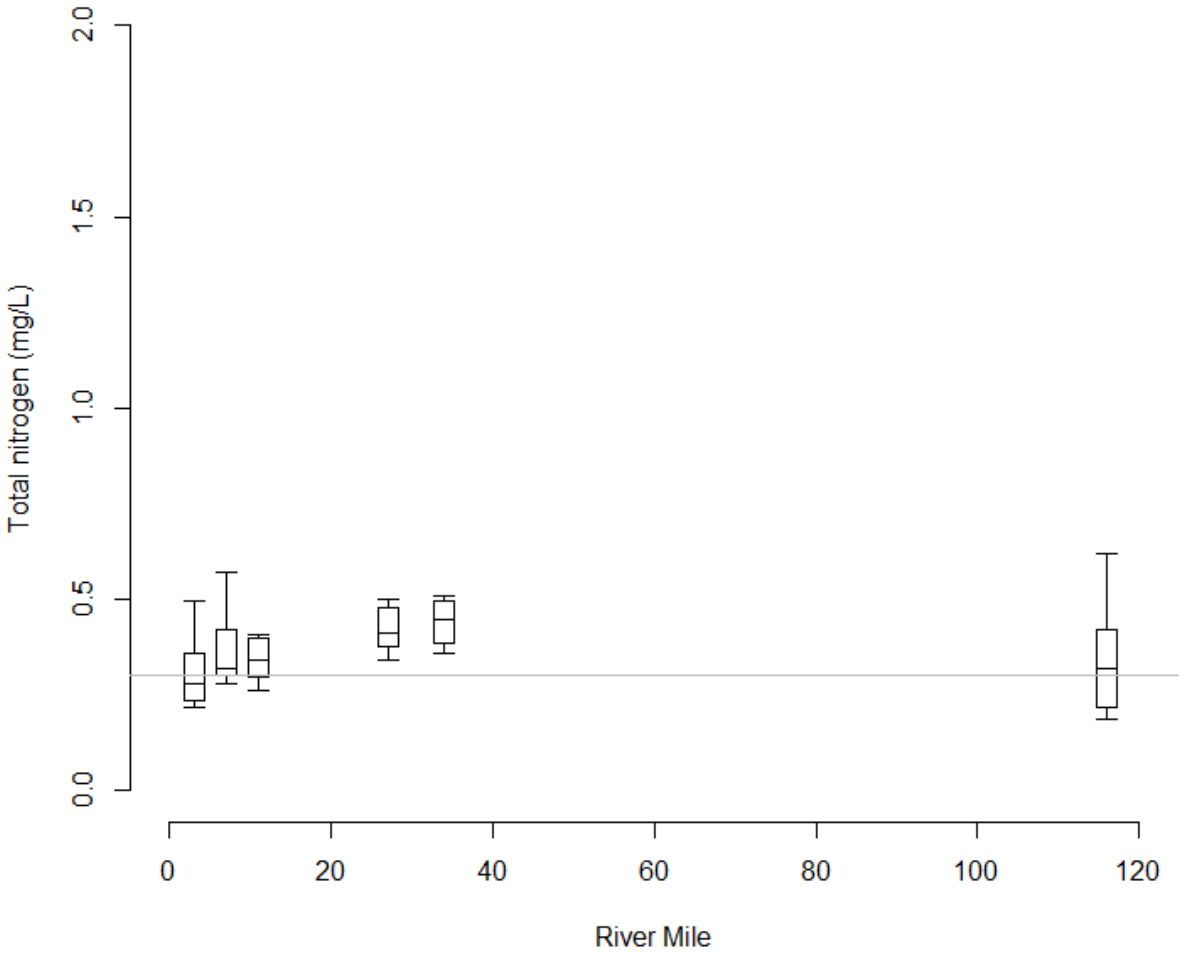

Figure 2-29. Boxplots of total nitrogen concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2018. Horizontal line represents total nitrogen standard [DEQ, 2014].

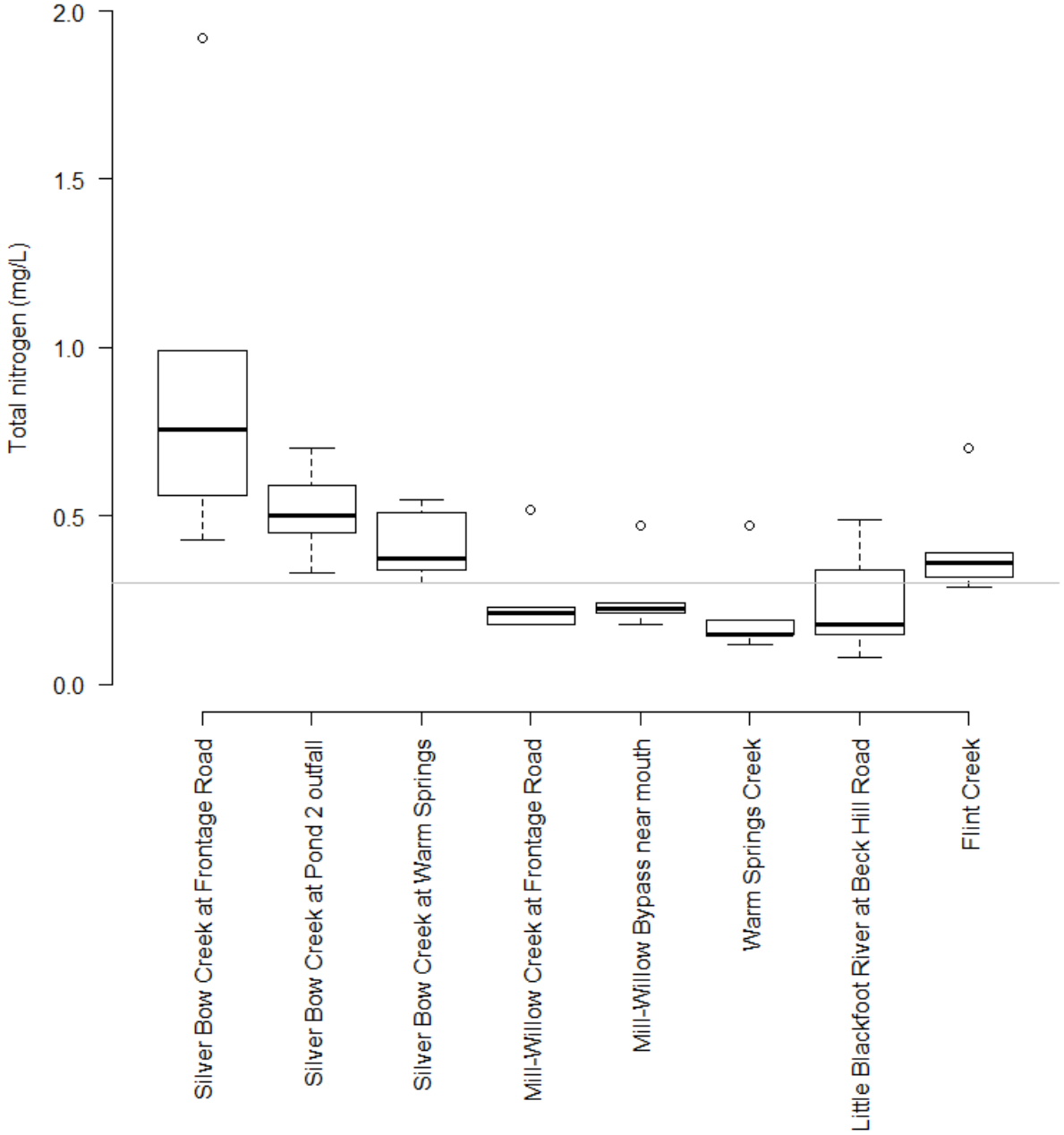

Figure 2-30. Boxplots of total nitrogen concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2018. Horizontal line represents total nitrogen standard [DEQ, 2014].

2.3.5.2 Nitrate Plus Nitrite Nitrogen

Nitrate plus nitrite nitrogen concentrations in the Clark Fork River mainstem in 2018 ranged from <0.02-0.24 mg/L (Table 2-6). In the mainstem, median concentrations were highest at Williams-Tavenner Bridge (Site CFR-34) and lowest near Galen (Site CFR-03A) (Figure 2-31).

Nitrate plus nitrite nitrogen concentrations in the Clark Fork River tributaries in 2018 ranged from <0.02-0.77 mg/L (Table 2-6). In the tributaries, all sites except Silver Bow Creek at Frontage Road (Site SS-19), as well as the other Silver Bow sites (Sites SBC-P2 and SS-25) during Q1, had concentrations at or below 0.17 mg/L (Table 2-6). In Silver Bow Creek at Frontage Road, concentrations were at times (e.g., Q1, Q3, Q4) substantially higher than any other sites in the CFROU. However, during high water periods (Q2), concentrations at Site SS-19 were similar to other sites (Figure 2-31; Figure 2-32).

Table 2-6. Nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem Sites							
CFR-03A	Clark Fork River near Galen	0.18	0.03	0.014[J]	0.019[J]	0.03	0.05
CFR-07D	Clark Fork River at Galen Road	0.23	0.06	0.03	0.03	0.06	0.14
CFR-11F	Clark Fork River at Gemback Road	0.14	0.05	0.02	0.02	ND	0.14
CFR-27H	Clark Fork River at Deer Lodge	0.20	0.07	0.03	0.05	0.11	0.24
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.19	0.09	0.05	0.07	0.10	0.23
CFR-116A	Clark Fork River at Turah	0.09	0.05	0.03	0.03	ND	0.06
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.77	0.08	0.12	0.16	0.55	0.77
SBC-P2	Silver Bow Creek at Pond 2 outfall	0.34	---	ND	ND	ND	ND
SS-25	Silver Bow Creek at Warm Springs	0.25	0.03	ND	0.011[J]	ND	0.03
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.04	0.03	0.017[J]	0.019[J]	0.04	0.09
MWB-SBC	Mill-Willow Bypass near mouth	ND	ND	0.014[J]	0.03	0.04	0.10
WSC-SBC	Warm Springs Creek near mouth	0.06	0.05	0.04	0.04	0.09	0.10
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.011[J]	ND	0.018[J]	0.011[J]	ND	ND
FC-CFR	Flint Creek near mouth	0.07	0.04	0.03	0.03	0.03	0.17

---	Not sampled.
ND	Not detected at method detection limit.
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25%).

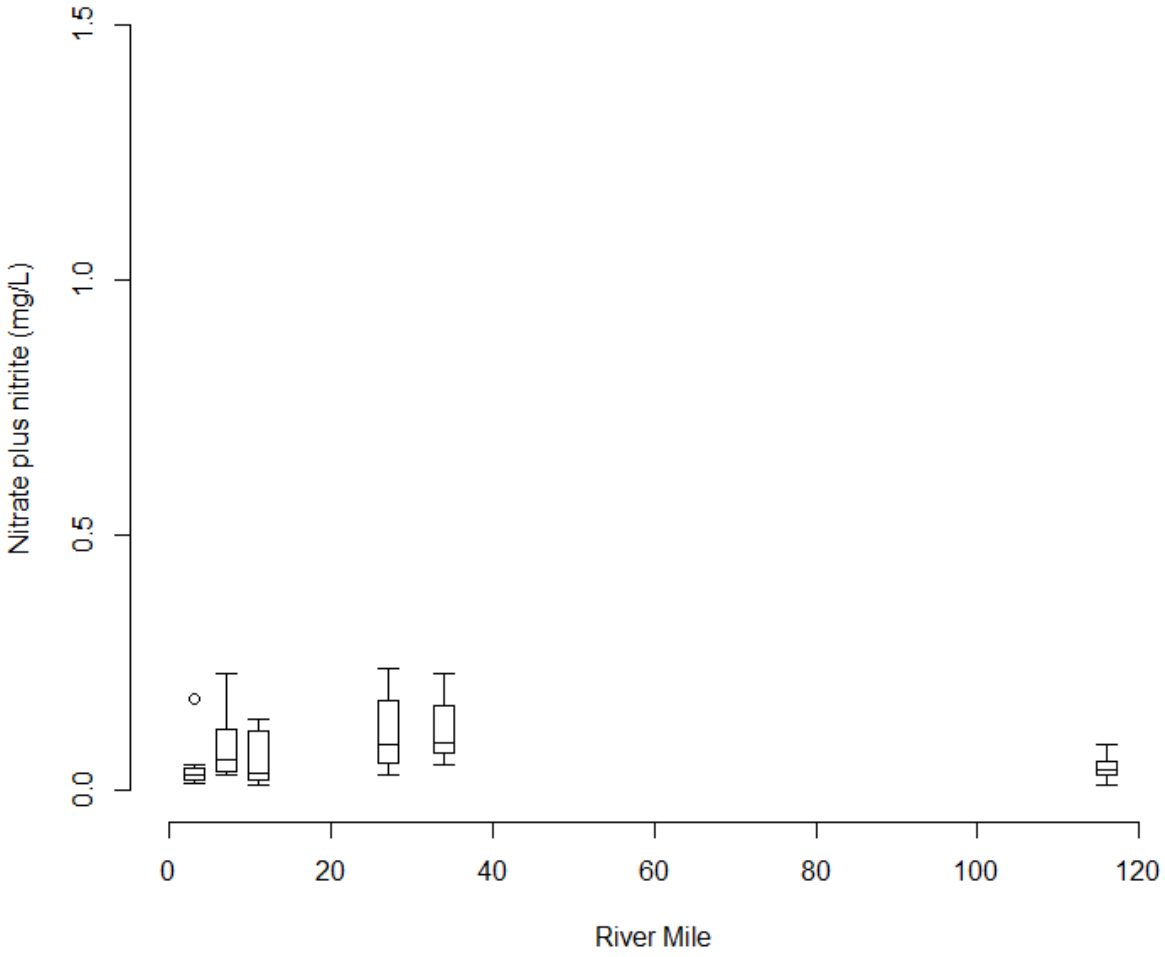

Figure 2-31. Boxplots of nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2018.

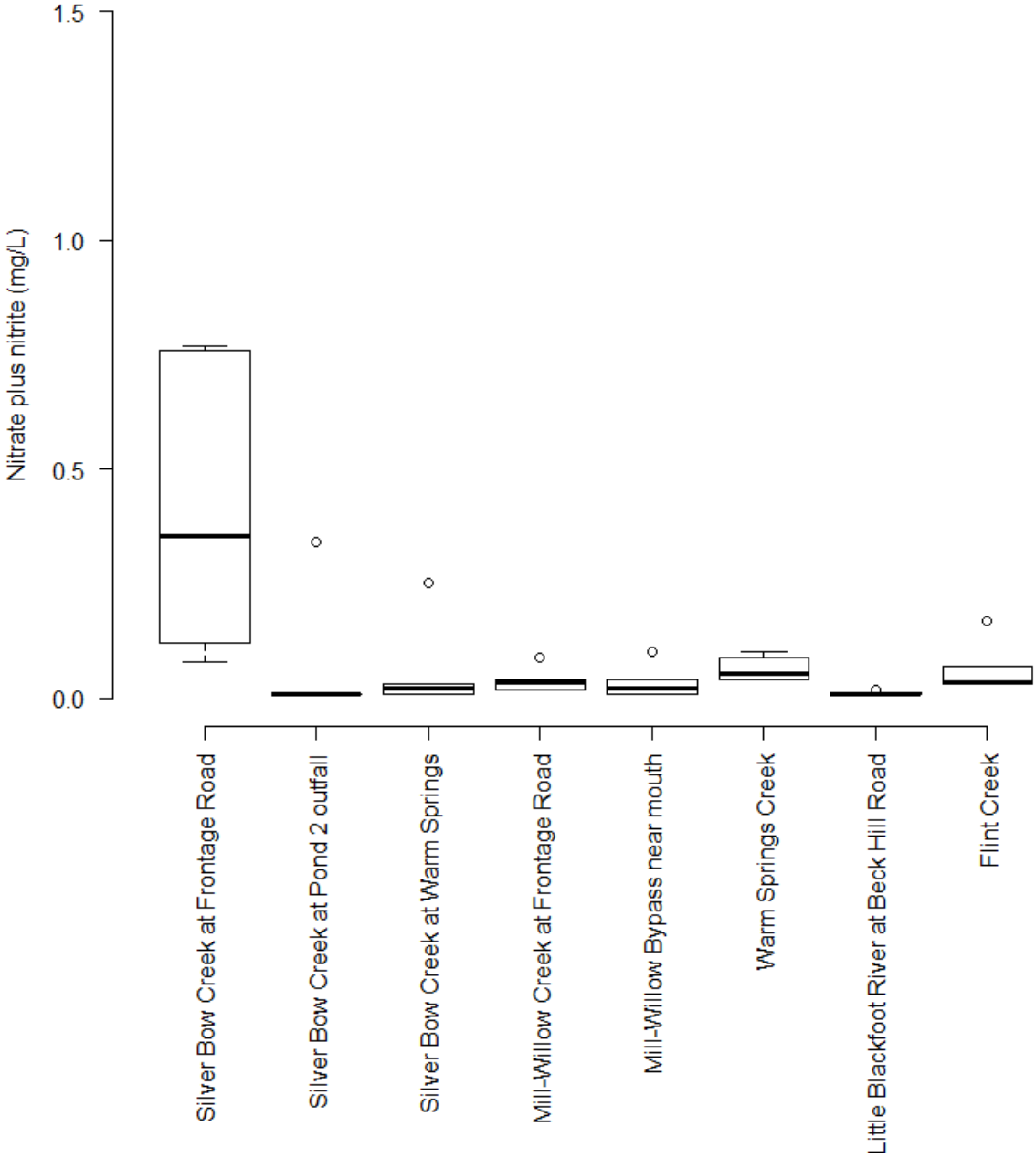

Figure 2-32. Boxplots of nitrate plus nitrite nitrogen concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2018.

2.3.5.3 Total Ammonia

Ammonia concentrations were measured in the Silver Bow Creek sites in 2018 (Sites SS-19, SBC-P2, and SS-25). One sample (Silver Bow Creek at Frontage Road; Site SS-19) had an ammonia concentration of 0.45 mg/L in Q1; all other samples had concentrations below the method detection limit (0.05 mg/L).

2.3.5.4 Total Phosphorus

Total phosphorus concentrations in the Clark Fork River mainstem in 2018 ranged from 0.014-0.228 mg/L (Table 2-7). Median total phosphorus concentrations were highest at the Williams-Tavenner Bridge site at river mile 34 (Site CFR-34) (Figure 2-33). At all sites in the mainstem, median total phosphorus concentrations in 2018 were above the total phosphorus Clark Fork River-specific standard (Figure 2-33) although that standard only technically applied to the Q2-Falling and Q3 samples. All mainstem sites had concentrations exceeding the Middle Rockies Ecoregion-specific standard during the Q2-Falling sample period (Table 2-7). In Q3, the samples from Sites CFR-07D, CFR-11F, CFR-27H, and CFR-34 all exceeded the Clark Fork River-specific standard (Table 2-7).

Total phosphorus concentrations in the Clark Fork River tributaries in 2018 ranged from 0.0015-0.280 mg/L (Table 2-7). All Silver Bow Creek samples, except one from the Warm Springs site in Q1, had concentrations exceeding the Middle Rockies Ecoregion-specific standard, although that standard technically only applied during Q3 (Table 2-7). Median concentrations in Silver Bow Creek above the Warm Springs ponds (at Frontage Road; Site SS-19) were higher than the concentrations in Silver Bow Creek immediately below the ponds (at Pond 2 Outfall; Site SBC-P2) and at Warm Springs (Figure 2-34). Concentrations in the two Mill-Willow Creek sites were similar (Figure 2-34). In Q3, concentrations in Flint Creek exceeded the Middle Rockies Ecoregion-specific standard (Table 2-7).

Table 2-7. Total phosphorus concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.020	0.081	0.061	0.051	0.018	0.022
CFR-07D	Clark Fork River at Galen Road	0.027	0.113	0.062	0.052	0.023	0.019
CFR-11F	Clark Fork River at Gemback Road	0.032	0.123	0.075	0.055	0.023	0.025
CFR-27H	Clark Fork River at Deer Lodge	0.048	0.208	0.101	0.067	0.023	0.029
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.066	0.228	0.110	0.077	0.029	0.034
CFR-116A	Clark Fork River at Turah	0.070	0.218	0.090	0.056	0.014	0.024
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.280	0.217	0.126	0.115	0.077	0.280
SBC-P2	Silver Bow Creek at Pond 2 outfall	0.033	---	0.115	0.108	0.097	0.044
SS-25	Silver Bow Creek at Warm Springs	0.028	0.081	0.080	0.077	0.060	0.037
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.021	0.110	0.036	0.038	0.022	0.034
MWB-SBC	Mill-Willow Bypass near mouth	0.019	0.077	0.036	0.034	0.014	0.017
WSC-SBC	Warm Springs Creek near mouth	0.0015[J]	0.090	0.026	0.018	0.009	0.010
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.020	0.151	0.057	0.033	0.029	0.020
FC-CFR	Flint Creek near mouth	0.064	0.155	0.074	0.069	0.049	0.048

--- Not sampled.

ND Not detected at method detection limit.

Exceeds the Middle Rockies Ecoregion total phosphorus standard (0.030 mg/L; applies July 1 to September 30; DEQ [2014].

Exceeds Clark Fork River total phosphorus standard (0.020 mg/L; applies to mainstem sites from June 21 to September 21; ARM 17.30.631).

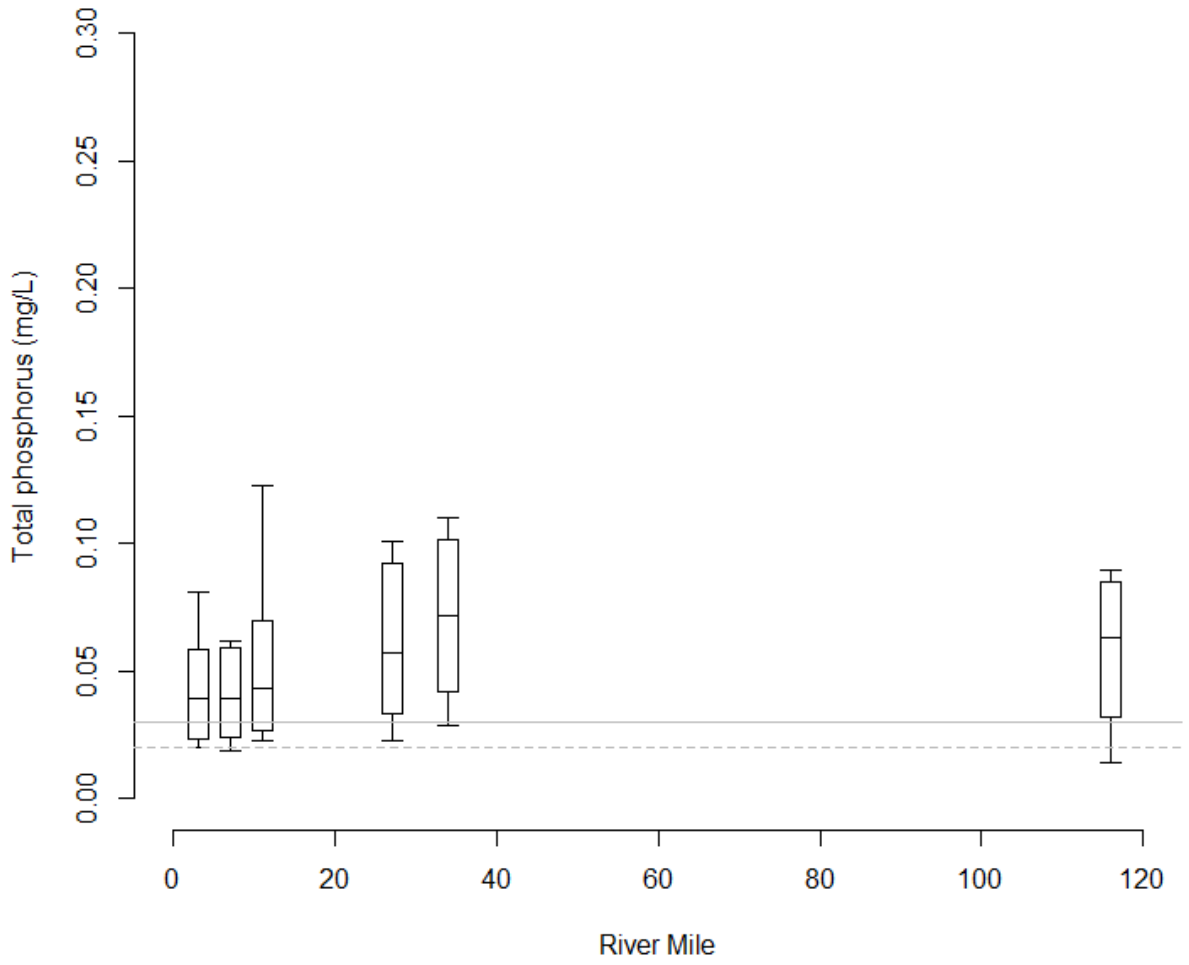

Figure 2-33. Boxplots of total phosphorus concentrations (mg/L) at Clark Fork River mainstem monitoring stations, 2018. Horizontal lines represent standards specific to the Clark Fork River (dashed line; ARM 17.30.631) and the Middle Rockies Ecoregion (solid line; DEQ [2014].

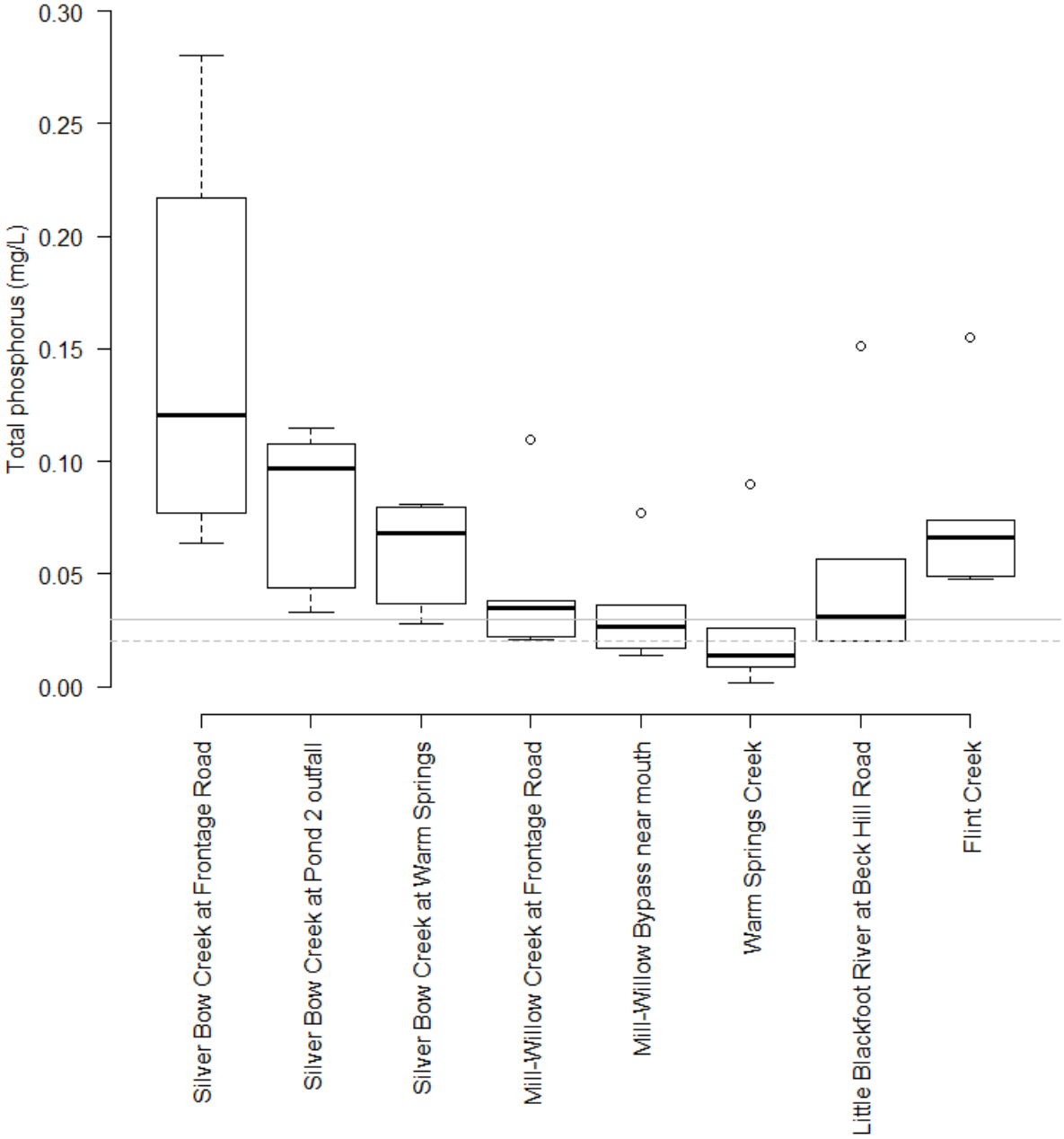

Figure 2-34. Boxplots of total phosphorus concentrations (mg/L) at Clark Fork River tributary monitoring stations, 2018. Horizontal lines represent standards specific to the Clark Fork River (dashed line; ARM 17.30.631) and the Middle Rockies Ecoregion (solid line; DEQ [2014].

2.3.6 Contaminants of Concern

2.3.6.1 Arsenic

In the Clark Fork River mainstem in 2018, dissolved arsenic concentrations ranged from 0.005-0.027 mg/L (Table 2-8) and total recoverable concentrations ranged from 0.001-0.052 mg/L (Table 2-9). Exceedances of the dissolved arsenic performance goal occurred at all Reach A sites (i.e., Sites CFR-03A, CFR-07D, CFR-11F, CFR-27H, and CFR-34) during all Q2 and Q3 sample periods, and also occurred at Site CFR-11F during the Q1 sample period and Site CFR-116A during the Q2-Peak sample period (Table 2-8). Exceedances of the total recoverable arsenic performance goal occurred in all Reach A sites except near Galen (Site CFR-03A) during all Q2 sample periods (Table 2-9). Total recoverable arsenic only exceeded the standard at Site CFR-03A during the Q2-Rising sampling period (Table 2-9).

Longitudinally in 2018, mainstem Reach A sites (i.e., sites sampled between river mile 3 and 42) appeared to have substantially higher median arsenic concentrations compared to concentrations at Turah (river mile 116) (Figure 2-35; Figure 2-36). Concentrations tended to increase (and become more variable) with distance downstream through Reach A (Figure 2-35; Figure 2-36).

Dissolved and total recoverable arsenic concentrations at each Clark Fork River mainstem site were generally similar in 2018 compared to prior monitoring years, although concentrations at most sites were relatively high during Q2 2018, particularly during the Q2-Rising and Q2-Peak sample periods (Figure 2-37; Figure 2-38). Over the period of monitoring at these mainstem sites, there do not appear to be any discernable temporal trends at these sites in either dissolved or total recoverable arsenic concentrations given the variability in these data (Figure 2-37; Figure 2-38).

In the Clark Fork River tributaries in 2018, dissolved arsenic concentrations ranged from 0.004-0.042 mg/L (Table 2-8) and total recoverable concentrations ranged from 0.004-0.051 mg/L (Table 2-9). Exceedances of the dissolved and total recoverable arsenic performance goals occurred in both Silver Bow Creek sites located downstream from the Warm Springs Ponds (i.e., Sites SBC-P2 and SS-25) during all Q2 and Q3 sample periods[15] except for the Q2-Falling period, where total recoverable arsenic did not exceed the standard at Site SBC-P2 (Table 2-8; Table 2-9). Exceedances of the dissolved arsenic performance goal occurred in both Mill-Willow Creek sites (Sites MCWC-MWB and MWB-SBC) during all sample periods (Table 2-8). Exceedances of the total recoverable performance goal occurred in both Mill-Willow Creek sites in all sample periods except Q4 (Table 2-9).

Median dissolved and total recoverable arsenic concentrations nearly doubled between paired sites in Silver Bow Creek above (Site SS-19) and below (Site SBC-P2) the Warm Springs Ponds (Figure 2-39; Figure 2-40). Between paired Mill-Willow Creek sites above (Site MCWC-MWB) and

[15] Site SBC-P2 was not accessible due to high streamflows during the Q2-Rising sample period and was not sampled.

below (Site MWB-SBC) the Mill-Willow Bypass, median dissolved and total recoverable arsenic concentrations were similar (Figure 2-39; Figure 2-40). The Silver Bow Creek sites below the Warm Springs Ponds (Sites SBC-P2 and SS-25) and the two Mill-Willow Creek sites had the highest median arsenic concentrations of any tributary sites by a substantial margin (Figure 2-39; Figure 2-40). The lowest median arsenic concentrations occurred in Warm Springs Creek and the Little Blackfoot River (Figure 2-39; Figure 2-40).

Dissolved and total recoverable arsenic concentrations at each Clark Fork River tributary sites were similar in 2018 compared to prior monitoring years, although concentrations in all Q2 sample periods were relatively high (Figure 2-41; Figure 2-42). Over the period of monitoring at these tributary sites, there do not appear to be any temporal trends at any of these sites in either dissolved or total recoverable arsenic concentrations given the variability in these data (Figure 2-41; Figure 2-42).

Table 2-8. Dissolved arsenic concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.008	0.019	0.017	0.016	0.014	0.008
CFR-07D	Clark Fork River at Galen Road	0.009	0.019	0.025	0.020	0.014	0.009
CFR-11F	Clark Fork River at Gemback Road	0.011	0.020	0.027	0.020	0.016	0.009
CFR-27H	Clark Fork River at Deer Lodge	0.010	0.019	0.026	0.018	0.016	0.008
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.010	0.018	0.026	0.018	0.016	0.008
CFR-116A	Clark Fork River at Turah	0.007	0.008	0.014	0.009	0.007	0.005
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.009	0.012	0.009	0.009	0.007	0.005
SBC-P2	Silver Bow Creek at Pond 2 Outfall	0.009	---	0.019	0.018	0.030	0.011
SS-25	Silver Bow Creek at Warm Springs	0.010	0.028	0.023	0.024	0.025	0.013
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.018	0.042	0.027	0.032	0.019	0.016
MWB-SBC	Mill-Willow Bypass near mouth	0.017	0.040	0.028	0.031	0.019	0.016
WSC-SBC	Warm Springs Creek near mouth	0.004	0.005	0.008	0.006	0.005	0.004
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.004	0.005	0.007	0.006	0.005	0.004
FC-CFR	Flint Creek near mouth	0.006	0.007	0.007	0.009	0.009	0.006

--- Not sampled.

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

Table 2-9. Total recoverable arsenic concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.009	0.024	0.018	0.017	0.014	0.008
CFR-07D	Clark Fork River at Galen Road	0.012	0.037	0.030	0.024	0.014	0.009
CFR-11F	Clark Fork River at Gemback Road	0.014	0.039	0.032	0.023	0.015	0.001
CFR-27H	Clark Fork River at Deer Lodge	0.015	0.051	0.038	0.025	0.016	0.009
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.016	0.052	0.038	0.025	0.016	0.010
CFR-116A	Clark Fork River at Turah	0.009	0.018	0.017	0.012	0.007	0.006
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.015	0.016	0.011	0.010	0.007	0.005
SBC-P2	Silver Bow Creek at Pond 2 Outfall	0.008	---	0.019	0.018	0.030	0.011
SS-25	Silver Bow Creek at Warm Springs	0.011	0.032	0.023	0.025	0.026	0.013
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.021	0.051	0.028	0.033	0.019	0.017
MWB-SBC	Mill-Willow Bypass near mouth	0.019	0.045	0.030	0.033	0.019	0.016
WSC-SBC	Warm Springs Creek near mouth	0.004	0.013	0.011	0.008	0.006	0.004
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.004	0.010	0.007	0.006	0.006	0.004
FC-CFR	Flint Creek near mouth	0.007	0.017	0.014	0.013	0.009	0.007

--- Not sampled.

Exceeds specified arsenic surface water performance goal for total recoverable concentration (0.018 mg/L) [USEPA, 2004].

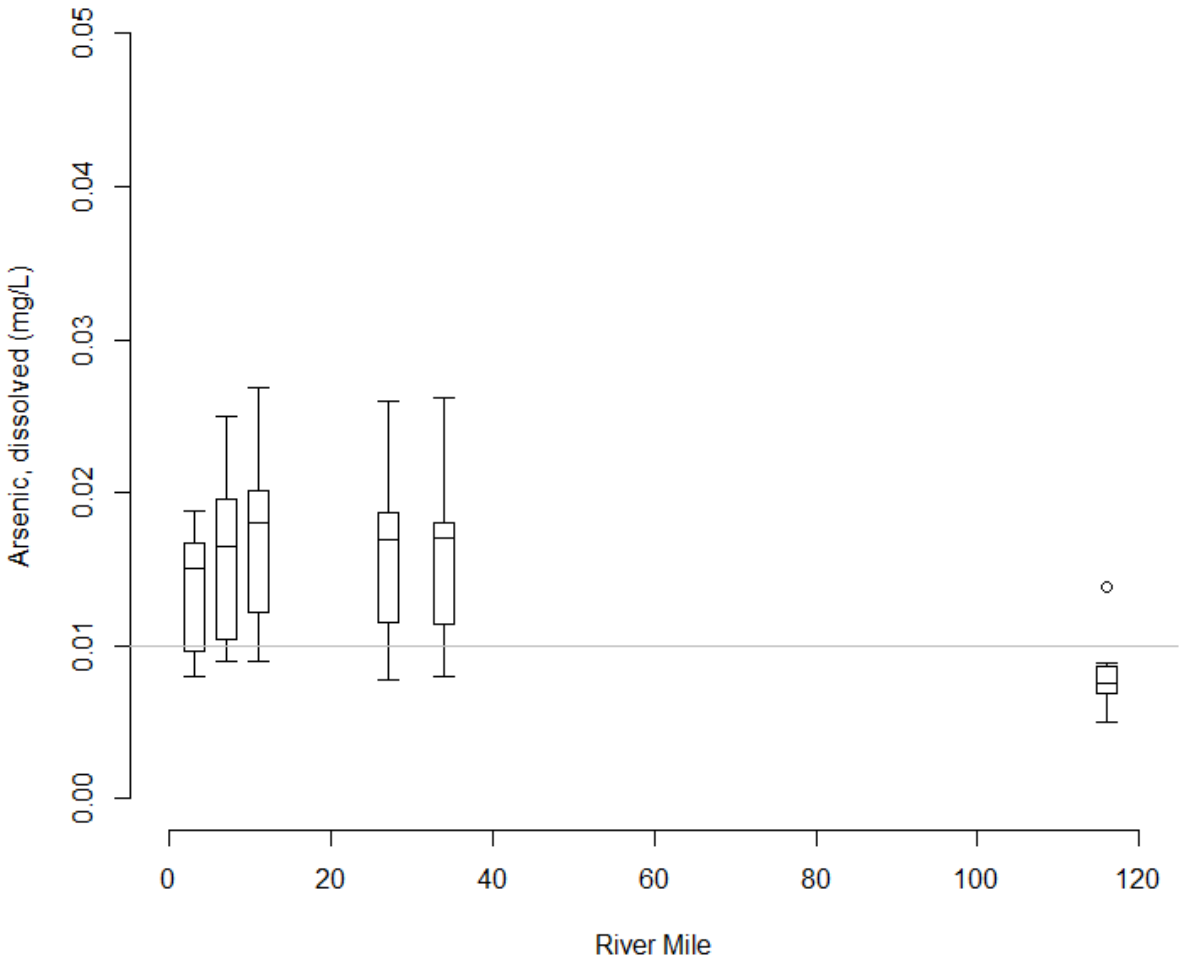

Figure 2-35. Boxplots of dissolved arsenic concentration by river mile at mainstem sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the arsenic performance goal for dissolved concentration [USEPA, 2004].

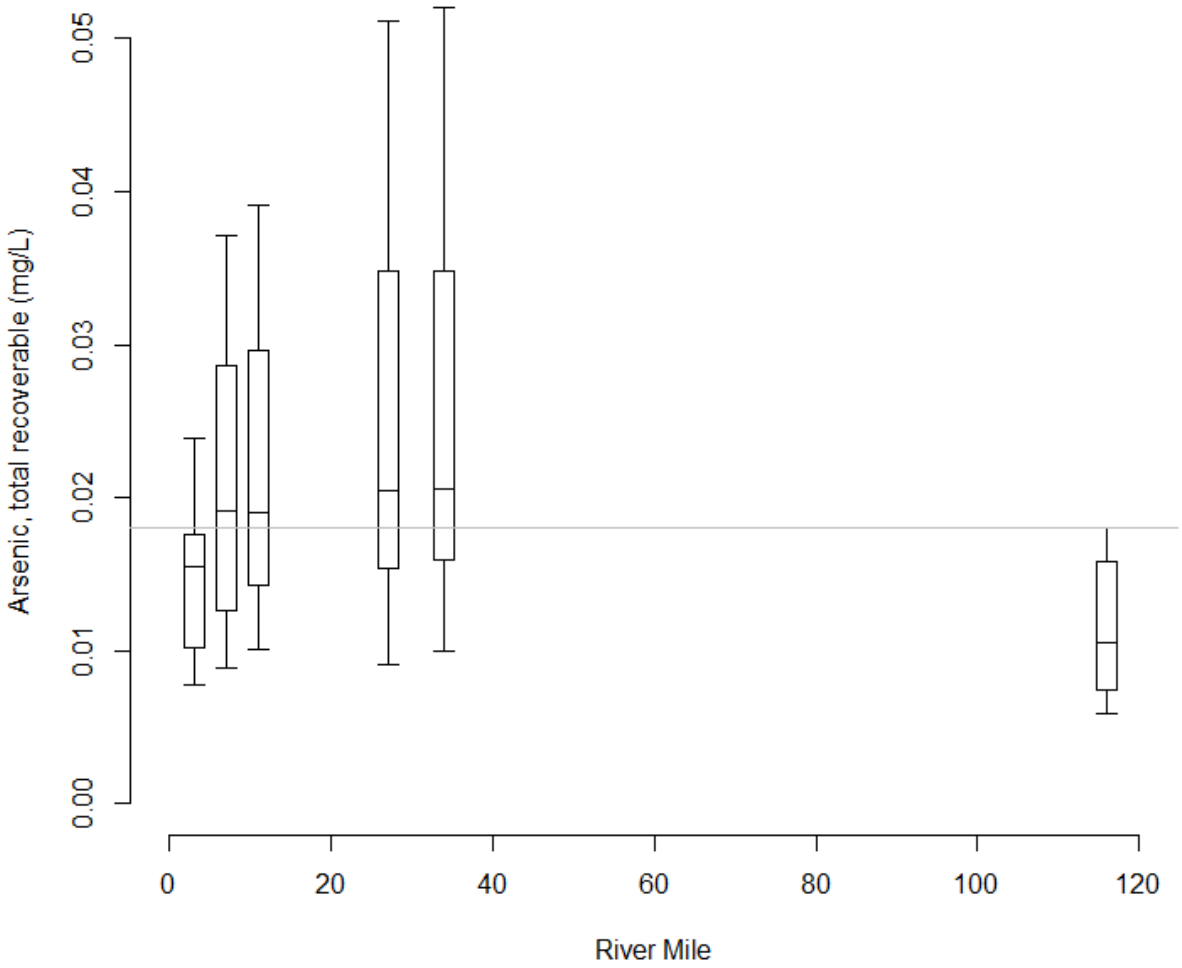

Figure 2-36. Boxplots of total recoverable arsenic concentrations by river mile at mainstem sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the arsenic performance goal for total recoverable concentration [USEPA, 2004].

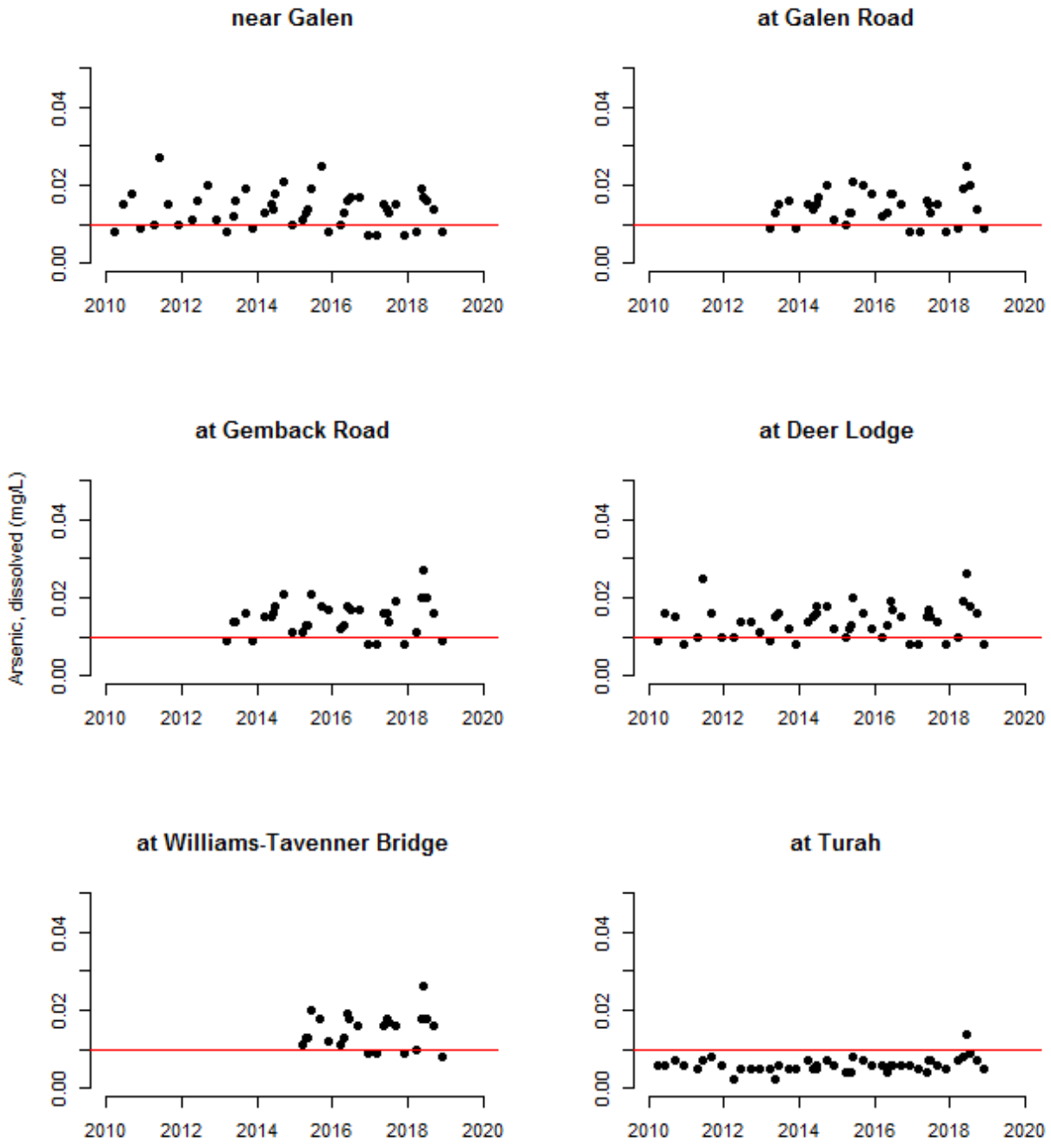

Figure 2-37. Dissolved arsenic concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the arsenic performance goal for dissolved concentration [USEPA, 2004].

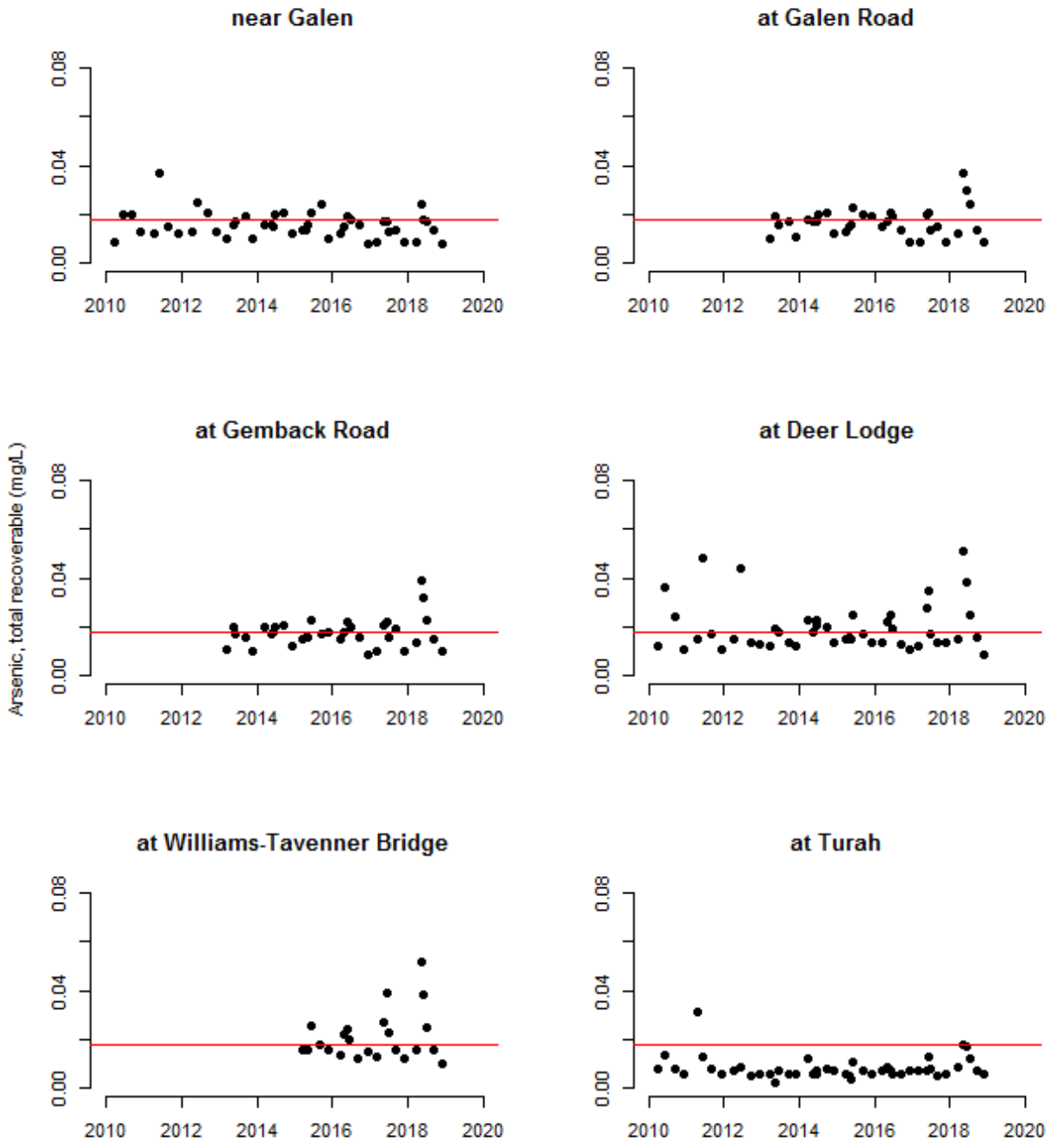

Figure 2-38. Total recoverable arsenic concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the arsenic performance goal for total recoverable concentration [USEPA, 2004].

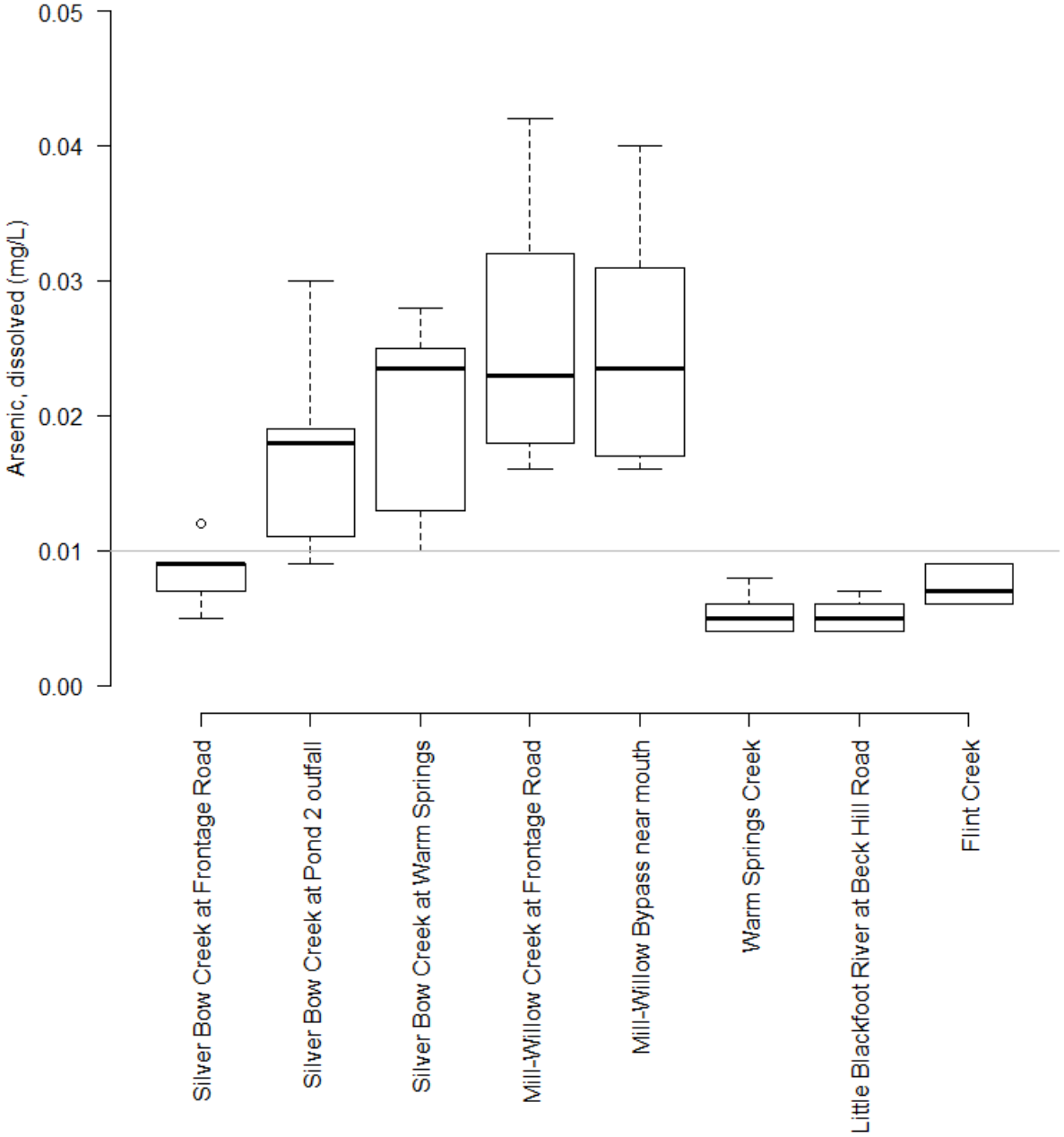

Figure 2-39. Boxplots of dissolved arsenic concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the arsenic performance goal for dissolved concentration [USEPA, 2004].

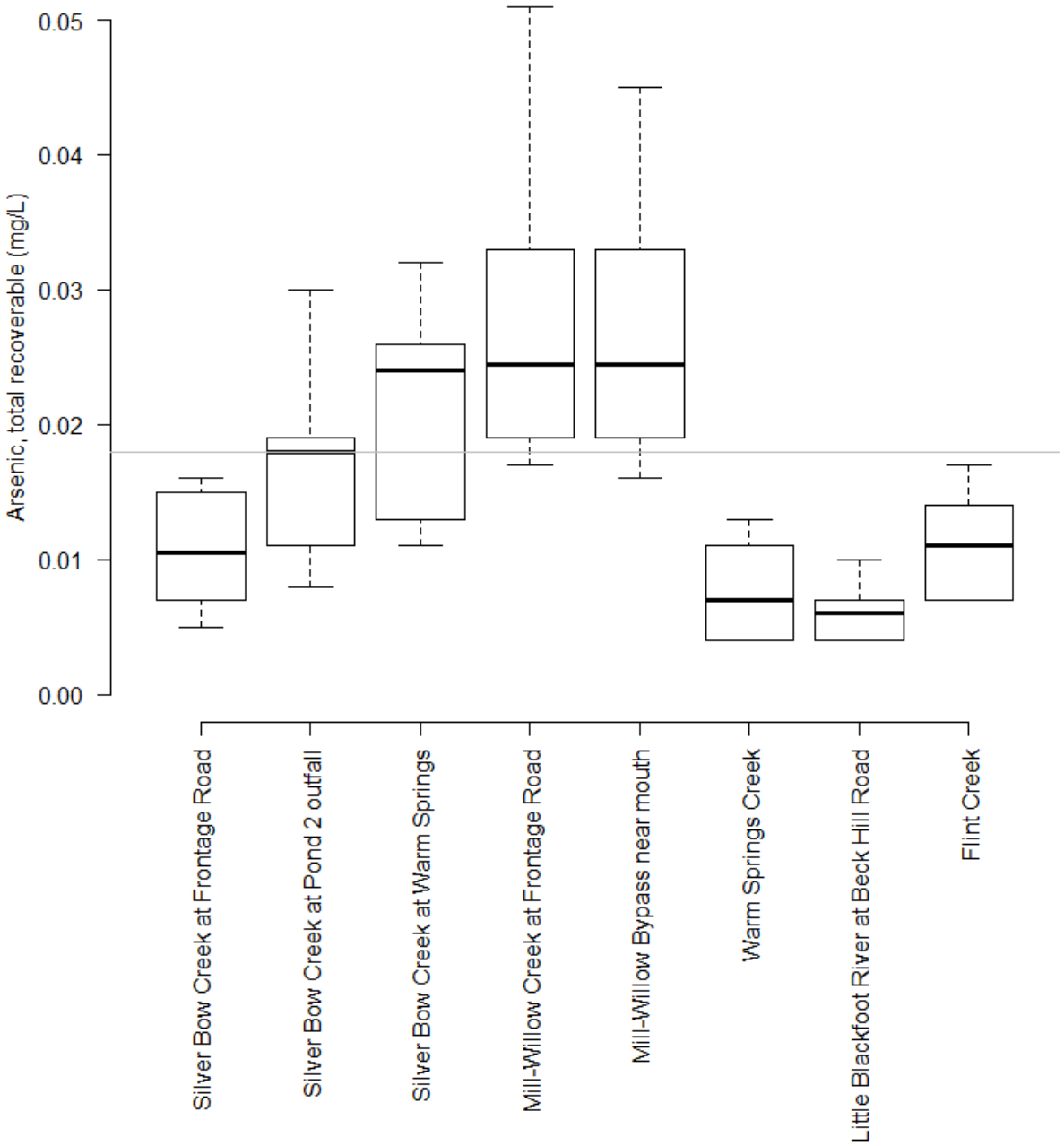

Figure 2-40. Boxplots of total recoverable arsenic concentrations at tributary sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the arsenic performance goal for total recoverable concentration [USEPA, 2004].

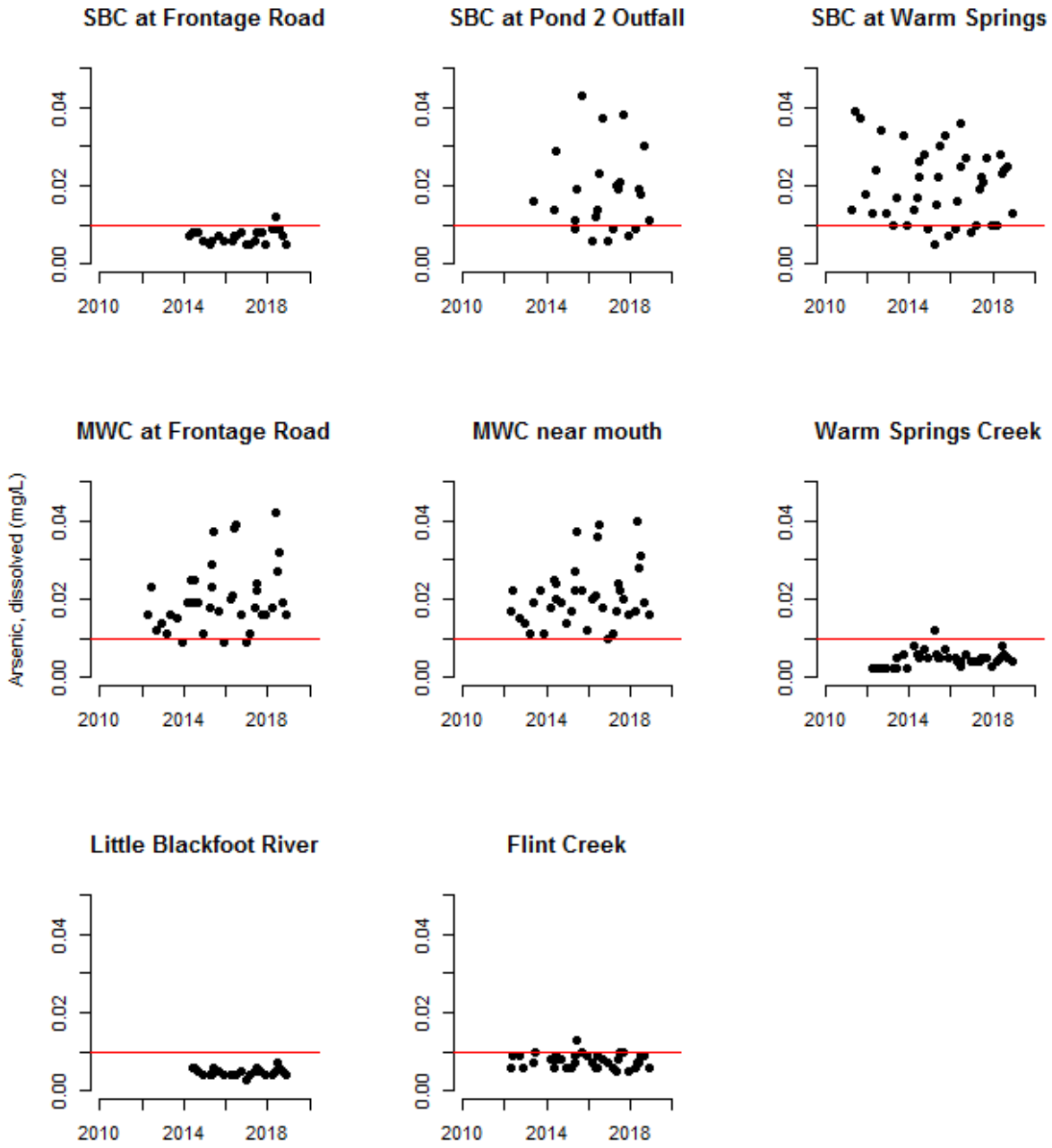

Figure 2-41. Dissolved arsenic concentrations at tributary sampling sites[16] in the Clark Fork River Operable Unit, 2010-2018. Horizontal line represents the arsenic performance goal for dissolved concentration [USEPA, 2004].

[16] Tributary abbreviations: SBC = Silver Bow Creek and MWC = Mill-Willow Creek.

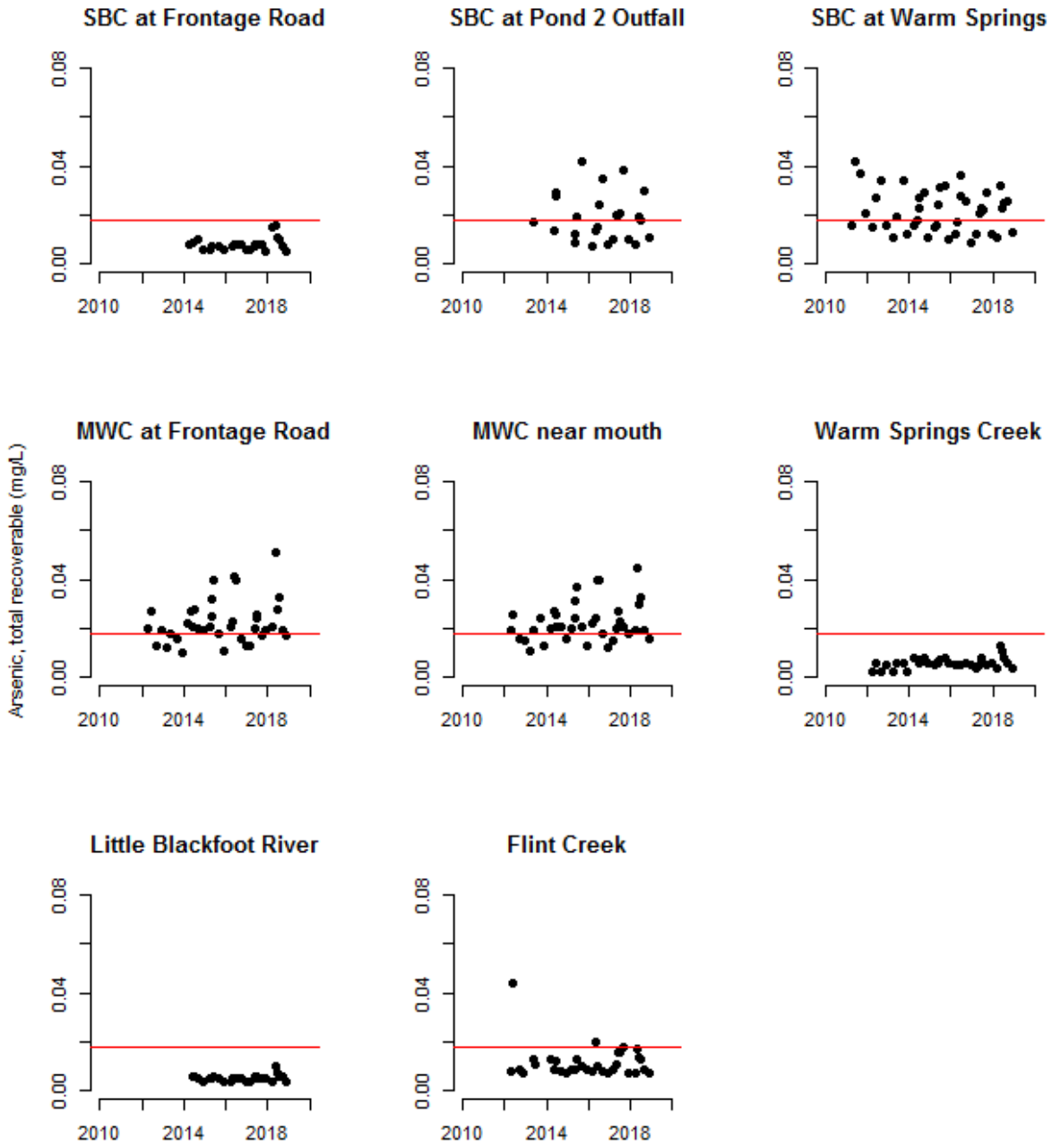

Figure 2-42. Total recoverable arsenic concentrations at tributary sampling sites[17] in the Clark Fork River Operable Unit, 2010-2018. Horizontal line represents the arsenic performance goal for total recoverable concentration [USEPA, 2004].

[17] Tributary abbreviations: SBC = Silver Bow Creek and MWC = Mill-Willow Creek.

2.3.6.2 Cadmium

In the Clark Fork River mainstem in 2018, total recoverable cadmium concentrations ranged from 0.00004-0.00087 mg/L (Table 2-10). No exceedances of the chronic aquatic life standard for cadmium occurred in the mainstem in 2018 (Table 2-10).

Longitudinally, median total recoverable cadmium concentrations at mainstem sites increased through Reach A from river mile 3 (Clark Fork River near Galen; Site CFR-03A) to river mile 34 (Clark Fork River at Williams-Tavenner Bridge; Site CFR-34) and then decreased downstream to river mile 116 (Clark Fork River at Turah; Site CFR-116A) in 2018 (Figure 2-43).

Total recoverable cadmium concentrations at each Clark Fork River mainstem site were generally similar in 2018 compared to prior monitoring years although there were several notable exceptions where 2018 samples had concentrations that were higher than expected compared to prior monitoring years (Figure 2-44). Over the period of monitoring at these mainstem sites, there do not appear to be any temporal trends at these sites in total recoverable cadmium concentrations given the variability in these data (Figure 2-44).

In the Clark Fork River tributaries in 2018, total recoverable cadmium concentrations ranged from <0.00003-0.00040 mg/L (Table 2-10). No tributary sample concentrations exceeded the chronic aquatic life standard in 2018 (Table 2-10).

Median total recoverable cadmium concentrations decreased, by about half, between paired sites in Silver Bow Creek above (Site SS-19) and below (Site SBC-P2) the Warm Springs Ponds (Figure 2-45). Between paired Mill-Willow Creek sites above (Site MCWC-MWB) and below (Site MWB-SBC) the Mill-Willow Bypass, median concentrations decreased slightly at the downstream site (Figure 2-45). Median concentrations at Warm Springs Creek, Flint Creek, and the Little Blackfoot River were low compared to the chronic aquatic life standard (Figure 2-45).

Generally, total recoverable cadmium concentrations at each Clark Fork River tributary site were similar in 2018 compared to prior monitoring years (Figure 2-46). Temporal trends are not apparent at most tributary sites except for Silver Bow Creek at Frontage Road (Site SS-19) (Figure 2-46).

Table 2-10. Total recoverable cadmium concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.00011	0.00024	0.00010	0.00010	0.00004	0.00009
CFR-07D	Clark Fork River at Galen Road	0.00016	0.00045	0.00020	0.00015	0.00006	0.00009
CFR-11F	Clark Fork River at Gemback Road	0.00016	0.00052	0.00020	0.00015	0.00005	0.00010
CFR-27H	Clark Fork River at Deer Lodge	0.00022	0.00081	0.00038	0.00022	0.00008	0.00012
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.00023	0.00087	0.00046	0.00027	0.00020	0.00011
CFR-116A	Clark Fork River at Turah	0.00014	0.00058	0.00025	0.00016	0.00004	0.00006
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.00073	0.00040	0.00031	0.00023	0.00027	0.00034
SBC-P2	Silver Bow Creek at Pond 2 Outfall	0.00013	---	0.00014	0.00013	0.00005	0.00016
SS-25	Silver Bow Creek at Warm Springs	0.00015	0.00022	0.00010	0.00011	0.00004	0.00013
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.00007	0.00035	0.00014	0.00008	0.00004	0.00012
MWB-SBC	Mill-Willow Bypass near mouth	0.00005	0.00019	0.00011	0.00008	ND	0.00003
WSC-SBC	Warm Springs Creek near mouth	0.00004	0.00024	0.00011	0.00009	0.00004	0.00005
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	ND	0.00010	0.00003[J]	ND	ND	ND
FC-CFR	Flint Creek near mouth	0.00003[J]	0.00017	0.00010	0.00008	ND	0.00003

---	Not sampled.
ND	Not detected at method detection limit.
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25%).

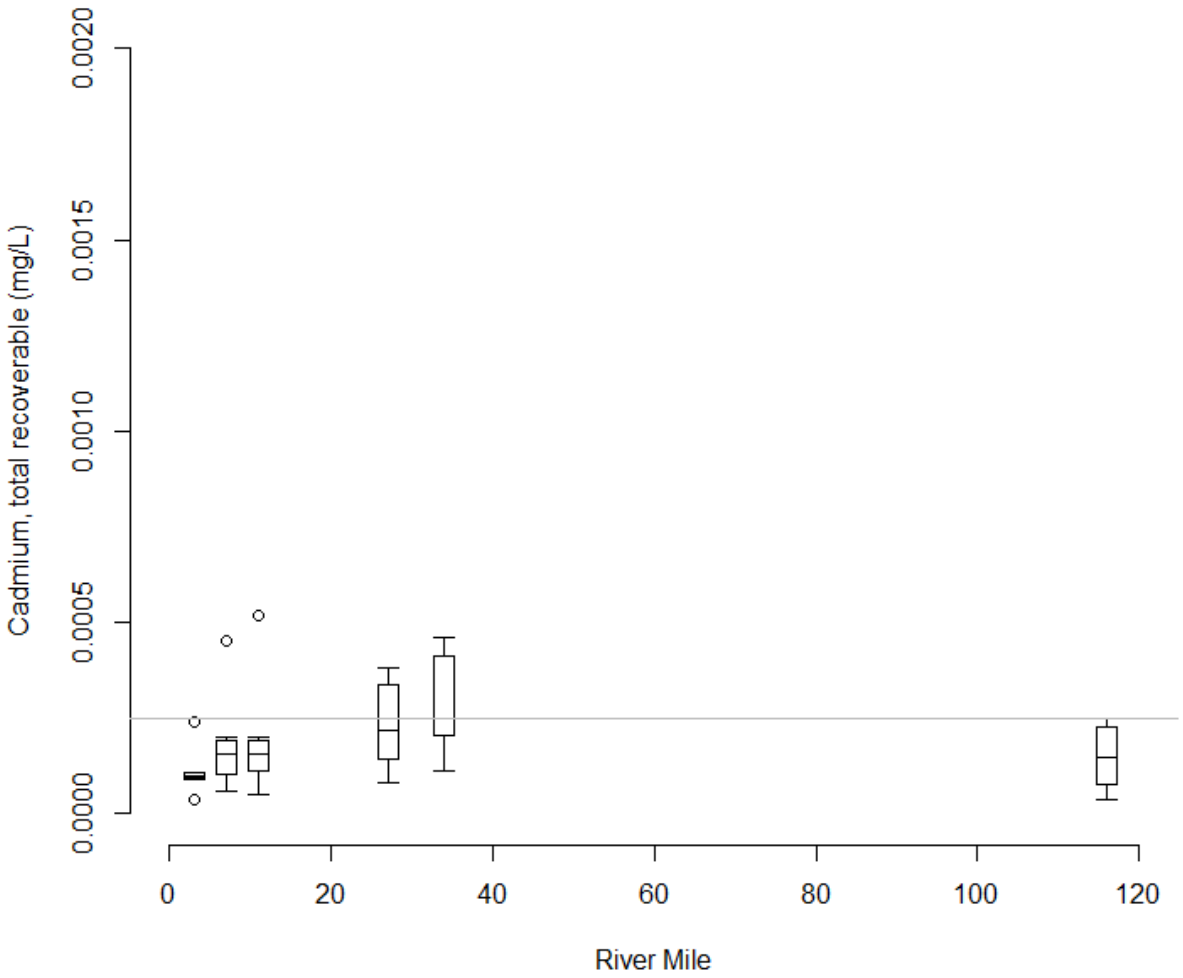

Figure 2-43. Boxplots of total recoverable cadmium concentration by river mile at mainstem sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal [USEPA, 2004].

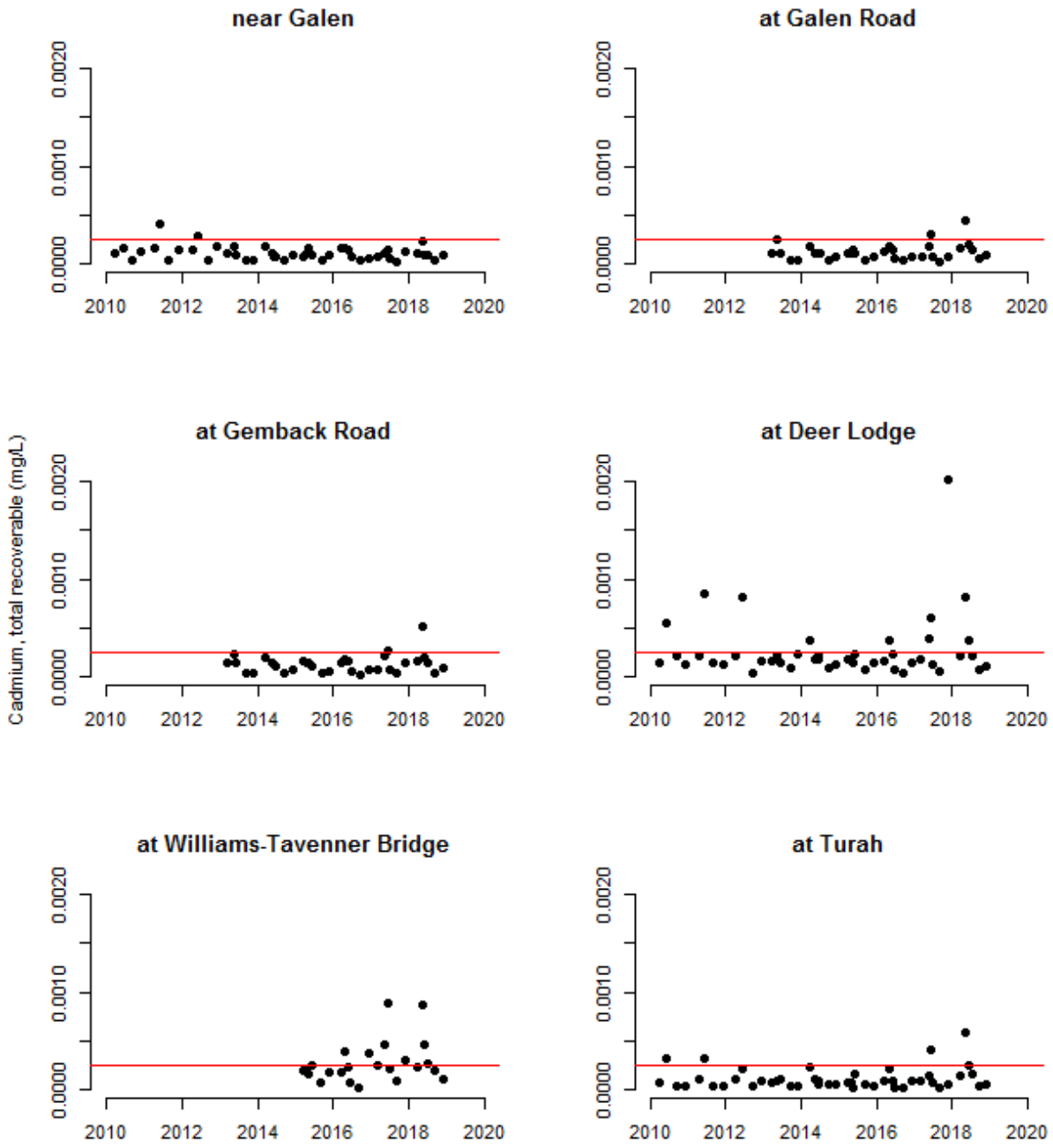

Figure 2-44. Total recoverable cadmium concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal [USEPA, 2004].

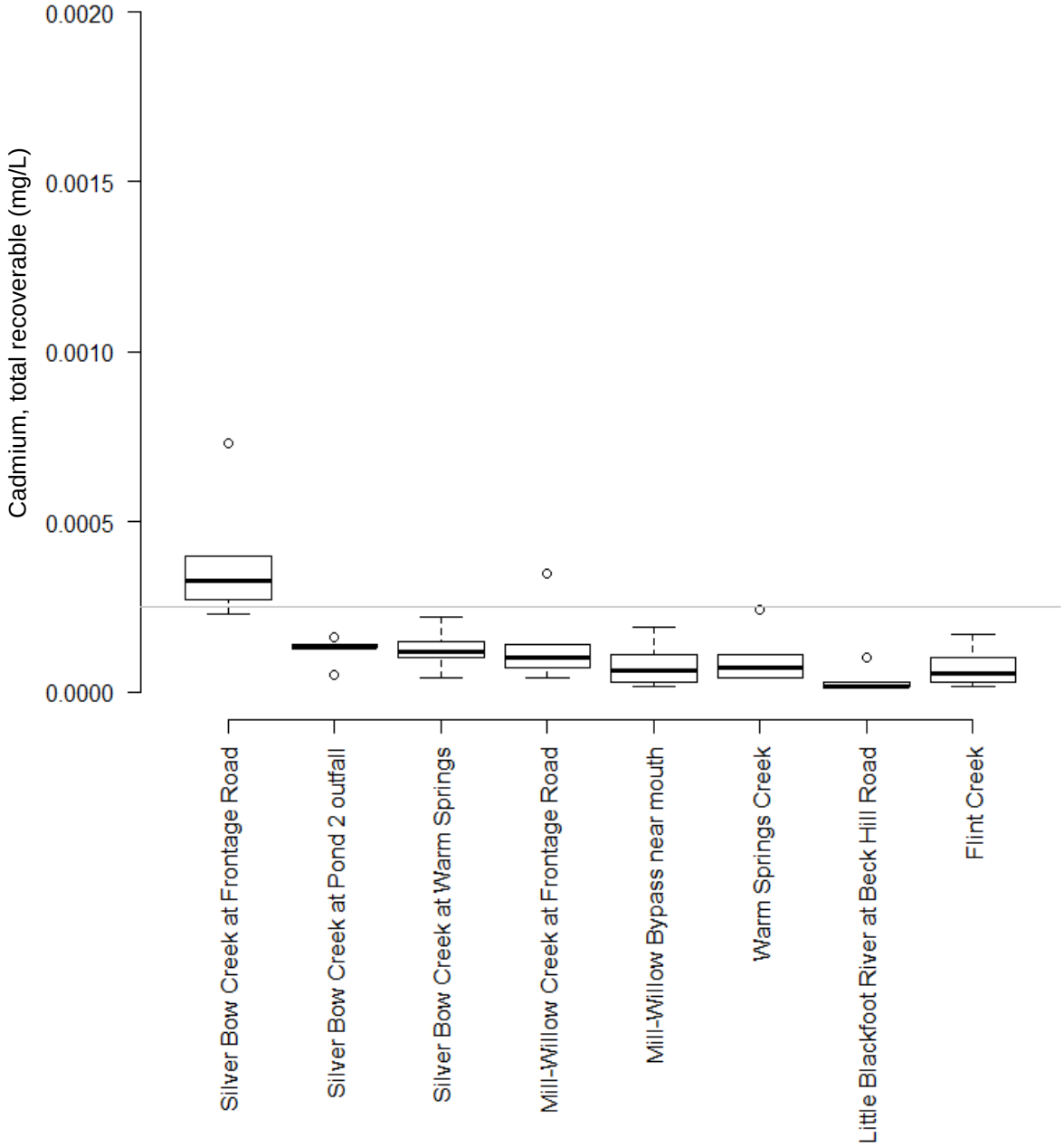

Figure 2-45. Boxplots of total recoverable cadmium concentration at tributary sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal [USEPA, 2004].

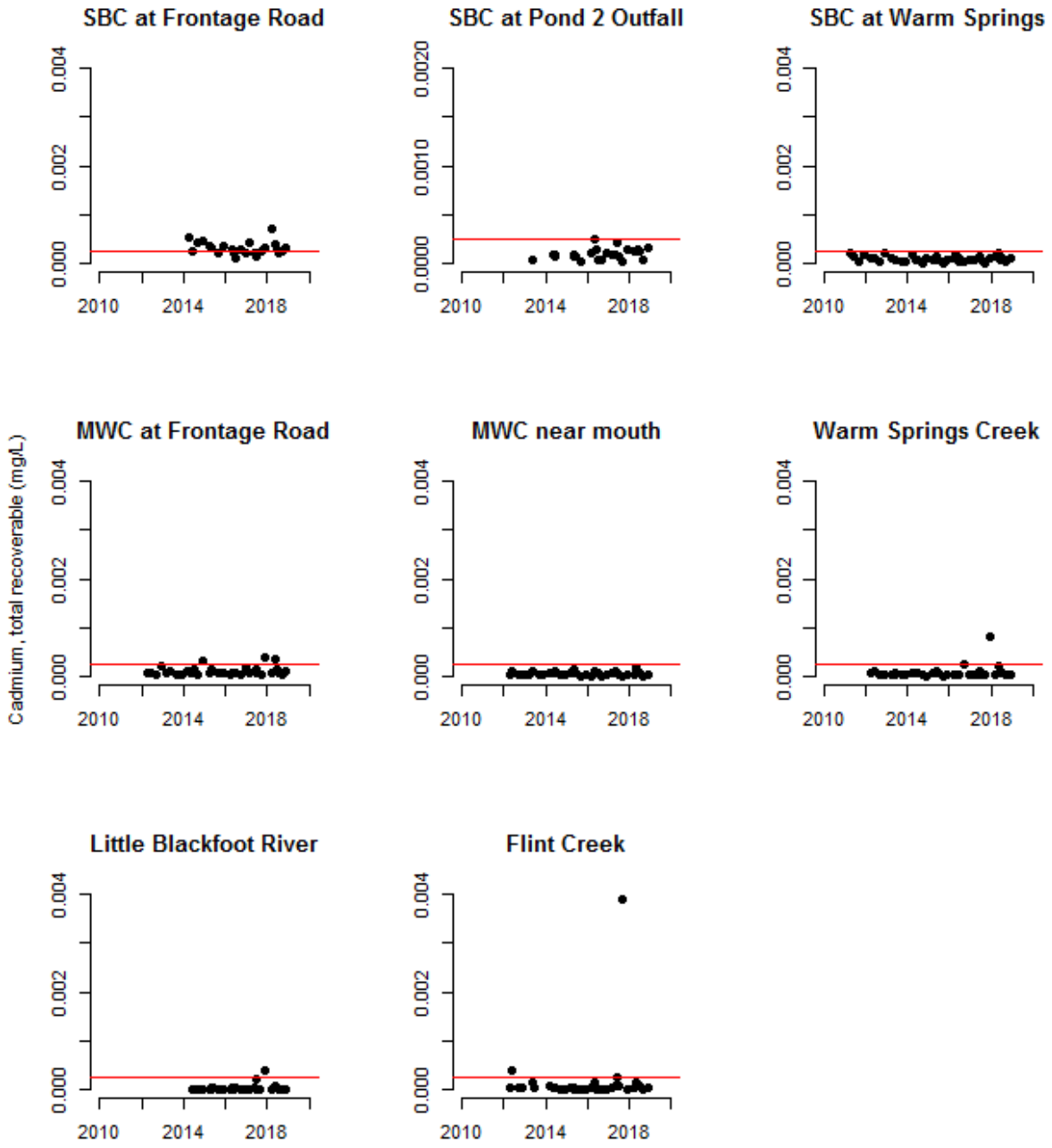

Figure 2-46. Total recoverable cadmium concentrations at tributary sampling sites[18] in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal [USEPA, 2004].

[18] Tributary abbreviations: SBC = Silver Bow Creek and MWC = Mill-Willow Creek.

2.3.6.3 Copper

In the Clark Fork River mainstem in 2018, dissolved copper concentrations ranged from 0.003-0.022 mg/L (Table 2-11). Five mainstem samples in 2018 had concentrations exceeding the copper performance goal: Clark Fork River at Deer Lodge (Site CFR-27H), Clark Fork River at Williams-Tavenner Bridge (Site CFR-34), and Clark Fork River at Turah (Site CFR-116A) during the Q2-Rising sample period; Site CFR-116A during the Q2-Peak sample period; and Site CFR-34 during the Q2-Falling sample period (Table 2-11).

Longitudinally, median concentrations at mainstem sites increased gradually through Reach A from river mile 3 (Clark Fork River near Galen; Site CFR-03A) to river mile 34 (Clark Fork River at Williams-Tavenner Bridge; Site CFR-34) and then decreased downstream to river mile 116 (Clark Fork River at Turah; Site CFR-116A) in 2018 (Figure 2-47).

Dissolved copper concentrations at each Clark Fork River mainstem site were generally similar in 2018 compared to prior monitoring years, although concentrations at some sites were relatively high during Q2 sample periods (Figure 2-48). Over the period of monitoring at the mainstem sites, there do not appear to be any temporal trends at these sites given the variability in these data (Figure 2-48).

In the Clark Fork River tributaries in 2018, dissolved copper concentrations ranged from <0.001-0.019 mg/L (Table 2-11). One exceedance of the dissolved copper performance goal occurred in the Clark Fork River tributaries in 2018: in Silver Bow Creek at Frontage Road during the Q1 sample period (Table 2-11).

Median dissolved copper concentrations decreased between paired Silver Bow Creek sites above (Site SS-19) and below (Site SBC-P2) the Warm Springs Ponds (Figure 2-49). Between paired Mill-Willow Creek sites above (Site MCWC-MWB) and below (Site MWB-SBC) the Mill-Willow Bypass, median concentrations were similar (Figure 2-49). Median concentrations in the Little Blackfoot River and Flint Creek were lower than in the other tributaries (Figure 2-49).

Dissolved copper concentrations at each Clark Fork River tributary site were similar in 2018 compared to prior monitoring years, although concentrations were relatively high at some sites during Q2, particularly the two Mill-Willow Creek sites (Figure 2-50). No sites demonstrated clear temporal trends (Figure 2-50).

Table 2-11. Dissolved copper concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.005	0.009	0.008	0.006	0.004	0.004
CFR-07D	Clark Fork River at Galen Road	0.005	0.013	0.011	0.009	0.005	0.004
CFR-11F	Clark Fork River at Gemback Road	0.006	0.014	0.014	0.009	0.006	0.004
CFR-27H	Clark Fork River at Deer Lodge	0.008	0.022	0.025	0.013	0.009	0.004
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.009	0.021	0.028	0.016	0.009	0.005
CFR-116A	Clark Fork River at Turah	0.007	0.010	0.014	0.007	0.003	0.003
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.019	0.017	0.012	0.014	0.012	0.012
SBC-P2	Silver Bow Creek at Pond 2 Outfall	0.008	---	0.012	0.012	0.005	0.007
SS-25	Silver Bow Creek at Warm Springs	0.005	0.009	0.008	0.007	0.004	0.005
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.002	0.010	0.004	0.003	0.002	0.002
MWB-SBC	Mill-Willow Bypass near mouth	0.002	0.009	0.004	0.003	0.002	0.002
WSC-SBC	Warm Springs Creek near mouth	0.002	0.006	0.006	0.003	0.002	0.002
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.000 74[J]	0.002	0.001	0.001	ND	ND
FC-CFR	Flint Creek near mouth	0.001	0.004	0.002	0.001	ND	ND

---	Not sampled.
ND	Not detected at method detection limit.
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25%).
	Exceeds federal ambient water quality criteria for chronic toxicity [USEPA, 1986].

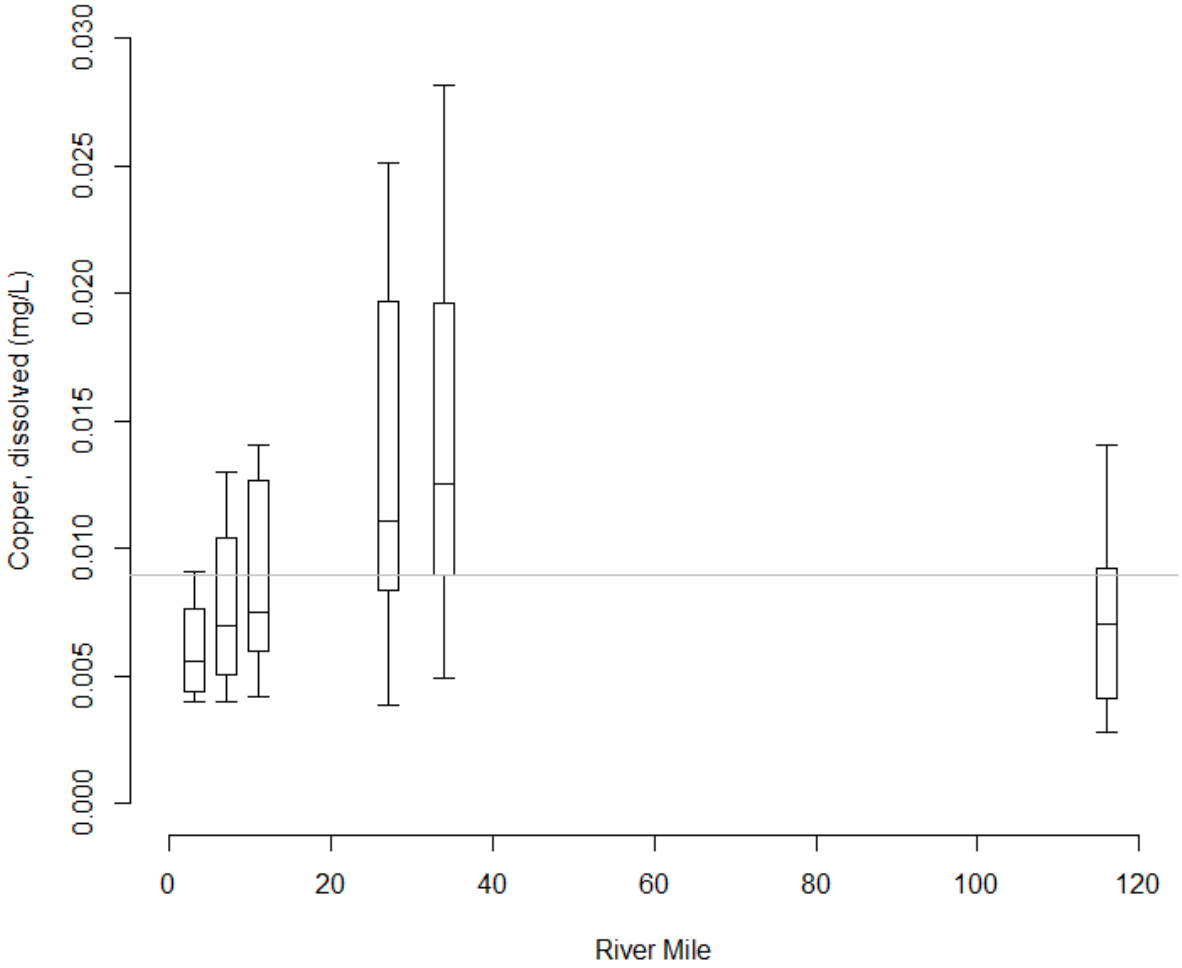

Figure 2-47. Boxplots of dissolved copper concentration by river mile at mainstem sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal[19] [USEPA, 2004].

[19] Assuming water hardness is 100 mg/L as CaCO3.

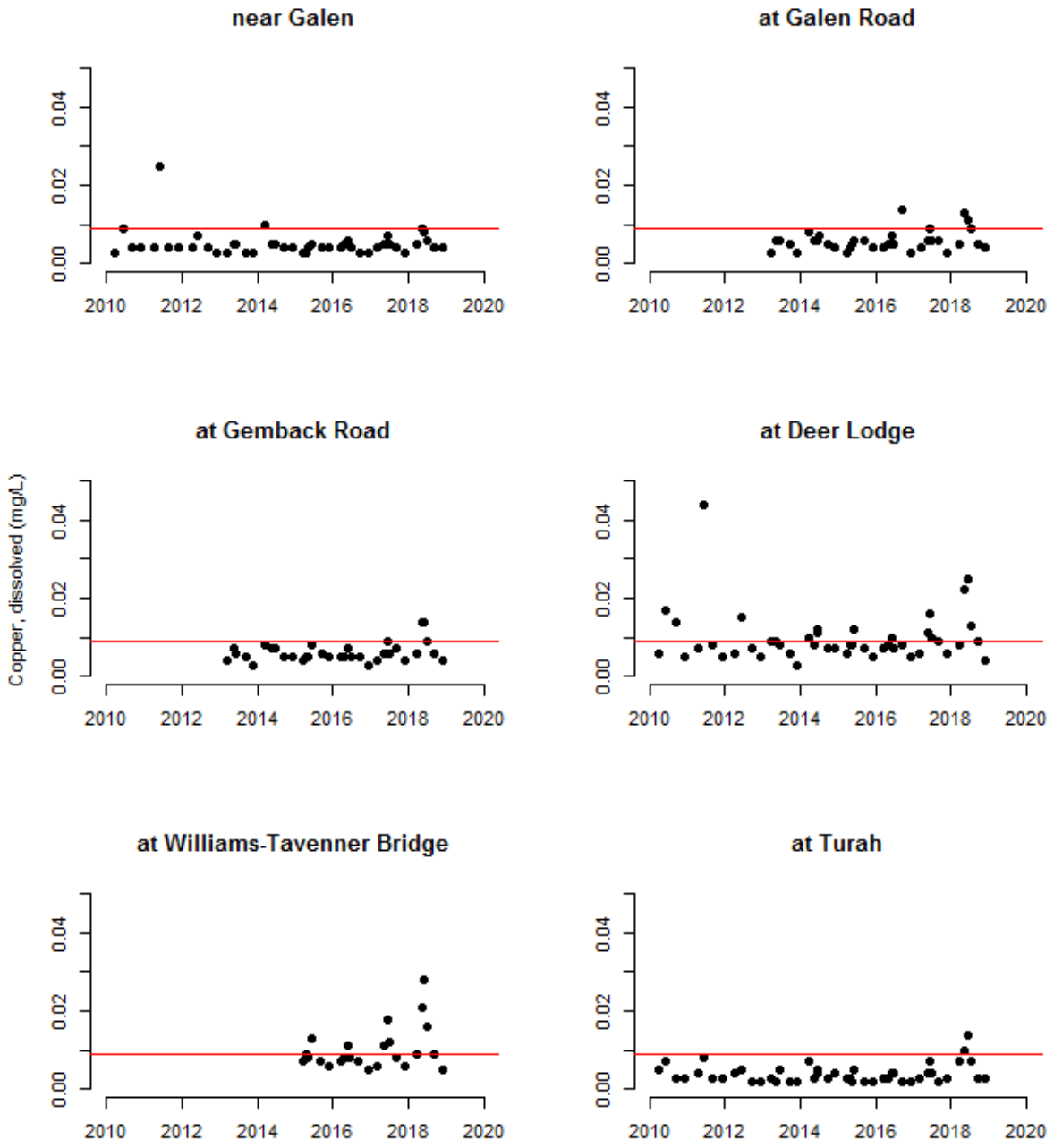

Figure 2-48. Dissolved copper concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal[20] [USEPA, 2004].

[20] Assuming water hardness is 100 mg/L as CaCO3.

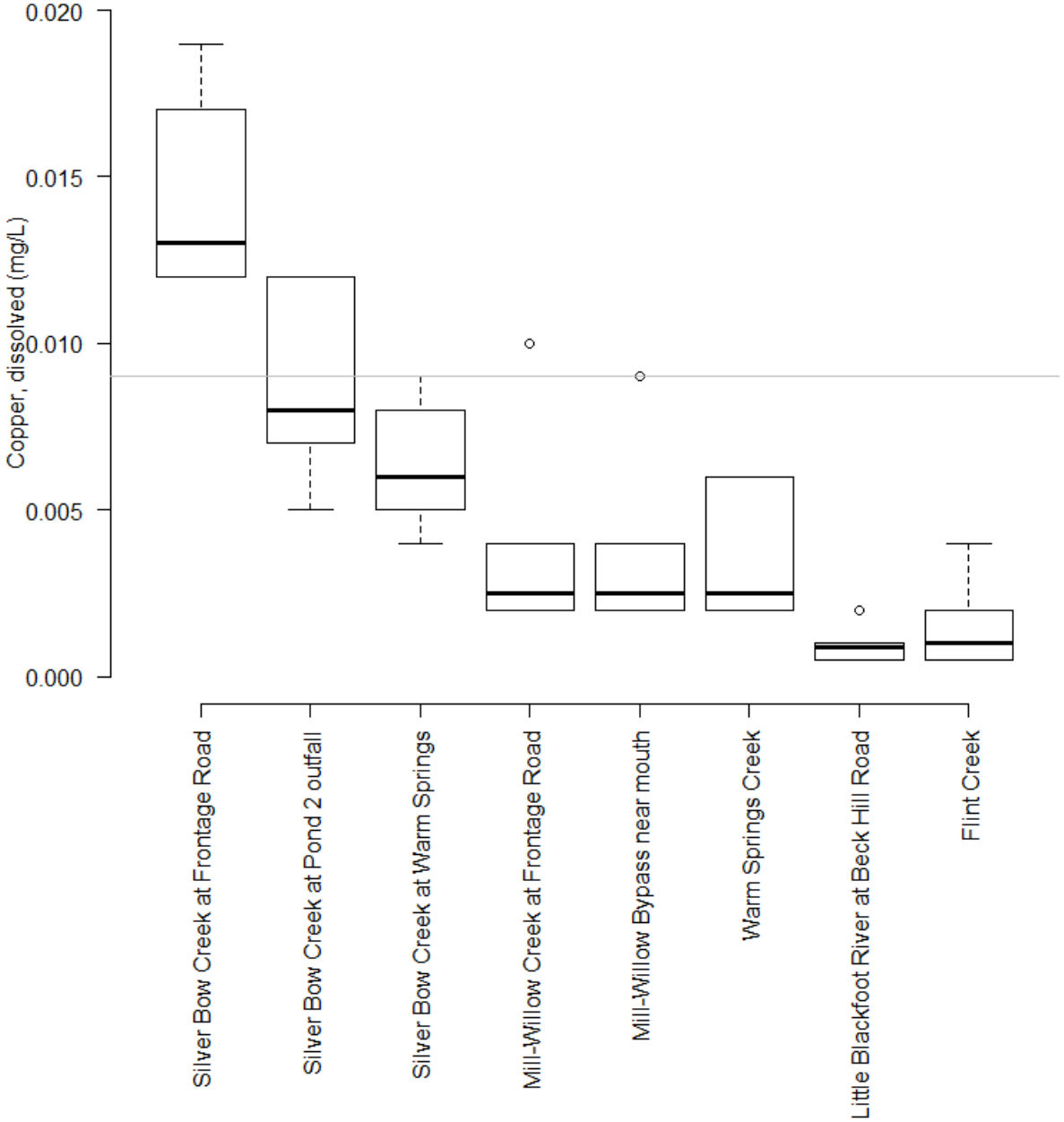

Figure 2-49. Boxplots of dissolved copper concentration at tributary sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal[21] [USEPA, 2004].

[21] Assuming water hardness is 100 mg/L as CaCO3.

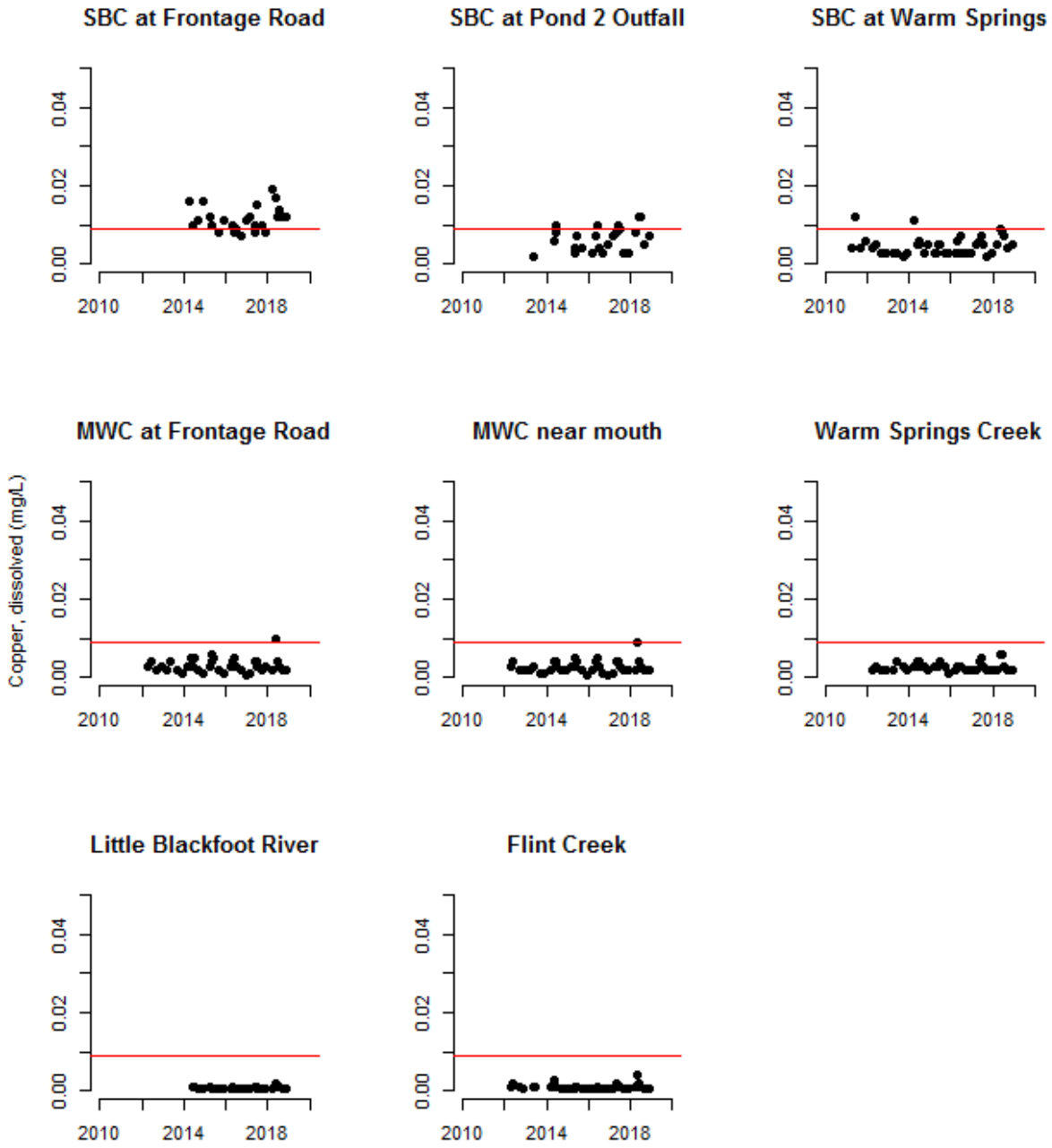

Figure 2-50. Dissolved copper concentrations at tributary sampling sites[22] in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal[23] [USEPA, 2004].

[22] Tributary abbreviations: SBC = Silver Bow Creek and MWC = Mill-Willow Creek.

[23] Assuming water hardness is 100 mg/L as CaCO3.

2.3.6.4 Lead

In the Clark Fork River mainstem in 2018, total recoverable lead concentrations ranged from 0.0003-0.0378 mg/L (Table 2-12). Exceedances of the lead chronic aquatic life standard occurred at all mainstem sites at least once during Q2 sampling periods (Table 2-12).

Longitudinally, median concentrations at these mainstem sites increased through Reach A from river mile 3 (Clark Fork River near Galen; Site CFR-03A) to river mile 34 (Clark Fork River at Williams-Tavenner Bridge; Site CFR-34) and then decreased downstream to river mile 116 (Clark Fork River at Turah; Site CFR-116A) (Figure 2-51). Median concentrations at Site CFR-116A were higher than at Site CFR-03A (Figure 2-51).

Total recoverable lead concentrations at each Clark Fork River mainstem site were generally similar in 2018 compared to prior monitoring years, although the Q2 concentrations at most sites were relatively high (Figure 2-52). There do not appear to be any readily discernable temporal trends in concentrations at these mainstem sites (Figure 2-52).

In the Clark Fork River tributaries in 2018, total recoverable lead concentrations ranged from <0.0003-0.0154 mg/L (Table 2-12). Exceedances of the total recoverable lead performance goal occurred at all tributary sites except Silver Bow Creek at Pond 2 Outfall (Site SBC-P2[24]) and Silver Bow Creek at Warm Springs (Site SS-25) (Table 2-12).

Median total recoverable lead concentrations decreased, by about half, between paired sites in Silver Bow Creek above (Site SS-19) and below (Site SBC-P2) the Warm Springs Ponds (Figure 2-53). Between paired Mill-Willow Creek sites above (Site MCWC-MWB) and below (Site MWB-SBC) the Mill-Willow Bypass, median concentrations decreased slightly at the downstream site (Figure 2-53). Median concentrations in Flint Creek were substantially higher than in other tributary sites in 2018 (Figure 2-53).

Total recoverable lead concentrations at each Clark Fork River tributary site were similar in 2018 compared to prior monitoring years (Figure 2-54). There do not appear to be any readily discernable temporal trends in concentrations at these tributary sites (Figure 2-54).

[24] Site SBC-P2 was not accessible during the Q2-Rising sample period and was not sampled.

Table 2-12. Total recoverable lead concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.0009	0.0045	0.0013	0.0014	0.0003	0.0006
CFR-07D	Clark Fork River at Galen Road	0.0023	0.0150	0.0052	0.0032	0.0008	0.0011
CFR-11F	Clark Fork River at Gemback Road	0.0033	0.0180	0.0062	0.0027	0.0005	0.0013
CFR-27H	Clark Fork River at Deer Lodge	0.0067	0.0329	0.0133	0.0062	0.0011	0.0020
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.0073	0.0378	0.0150	0.0070	0.0012	0.0021 J
CFR-116A	Clark Fork River at Turah	0.0034	0.0137	0.0058	0.0033	0.0003	0.0009
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.0041	0.0086	0.0035	0.0021	0.0011	0.0012
SBC-P2	Silver Bow Creek at Pond 2 Outfall	0.0003	---	0.0008	0.0005	ND	0.0006
SS-25	Silver Bow Creek at Warm Springs	0.0007	0.0026	0.0014	0.0008	ND	0.0006
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.0014	0.0074	0.0016	0.0010	0.0009	0.0031
MWB-SBC	Mill-Willow Bypass near mouth	0.0009	0.0039	0.0014	0.0010	ND	0.0005
WSC-SBC	Warm Springs Creek near mouth	0.0002 J	0.0069	0.0022	0.0016	0.0006	0.0004
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.00018 J	0.0045	0.0009	0.00028 J	ND	ND
FC-CFR	Flint Creek near mouth	0.0023	0.0154	0.0095	0.0057	0.0013	0.0018 J

---	Not sampled.
ND	Not detected at method detection limit.
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25%).
	Exceeds chronic aquatic life standard [DEQ, 2017].

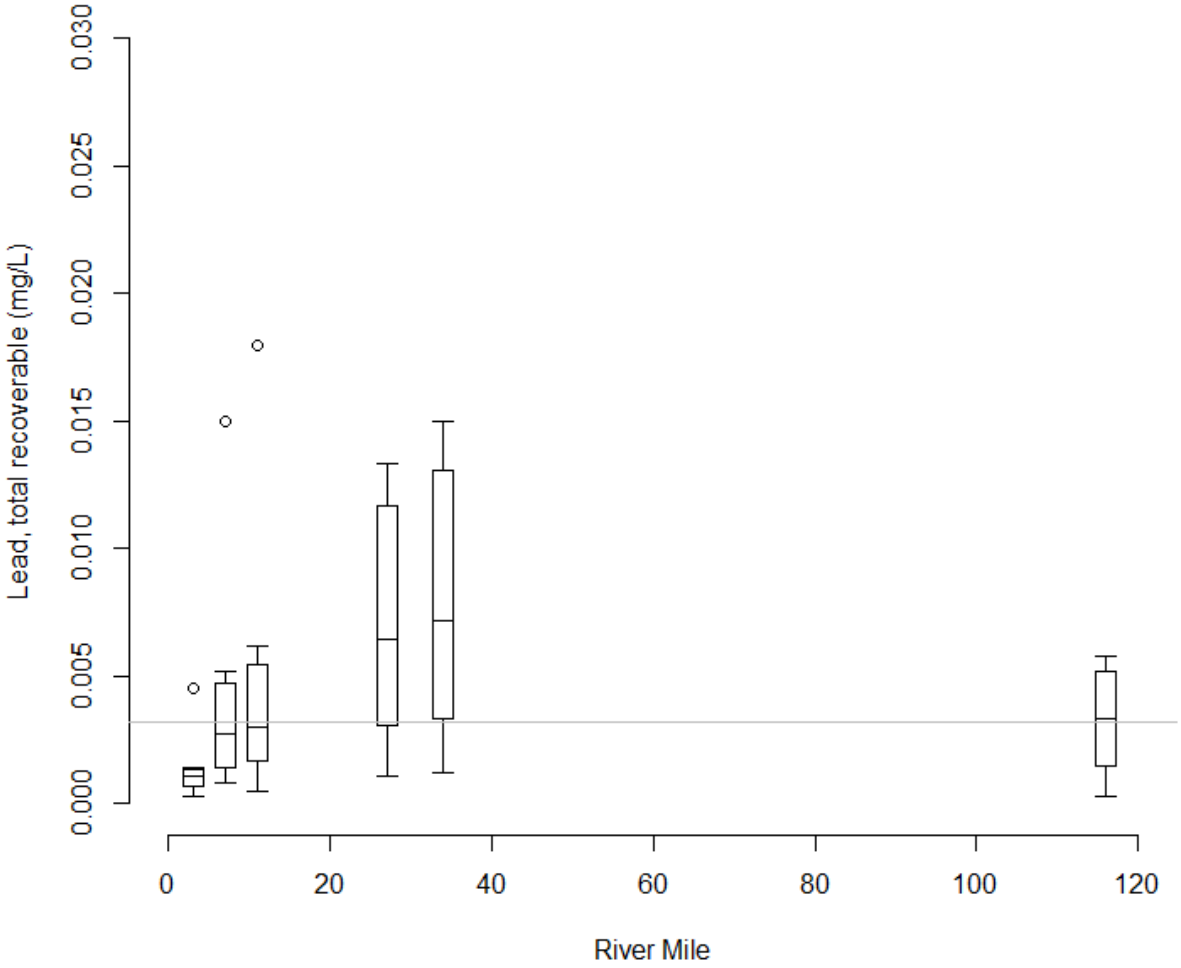

Figure 2-51. Boxplots of total recoverable lead concentration by river mile at mainstem sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal[25] [USEPA, 2004].

[25] Assuming water hardness is 100 mg/L as CaCO3.

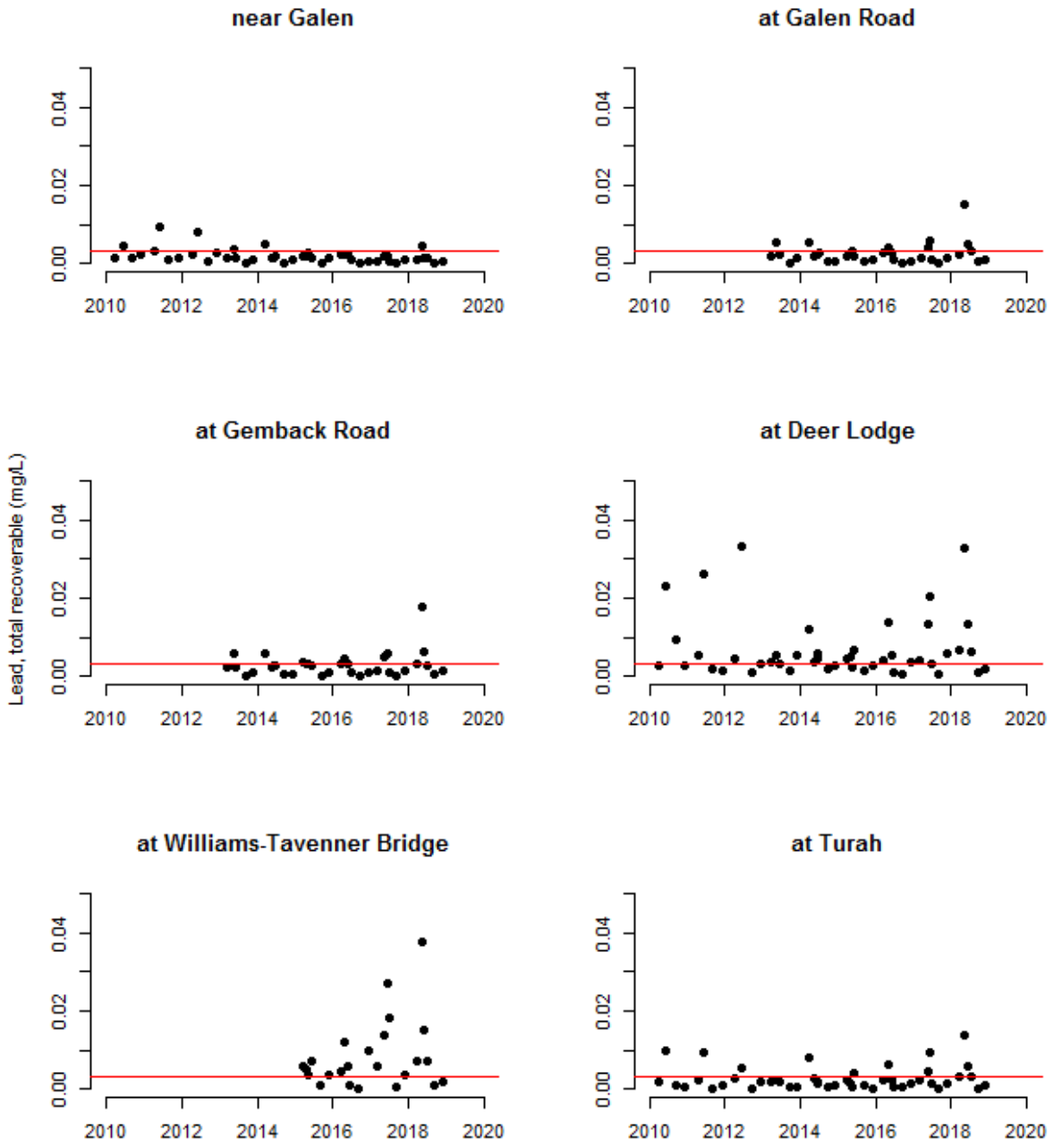

Figure 2-52. Total recoverable lead concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal[26] [USEPA, 2004].

[26] Assuming water hardness is 100 mg/L as CaCO3.

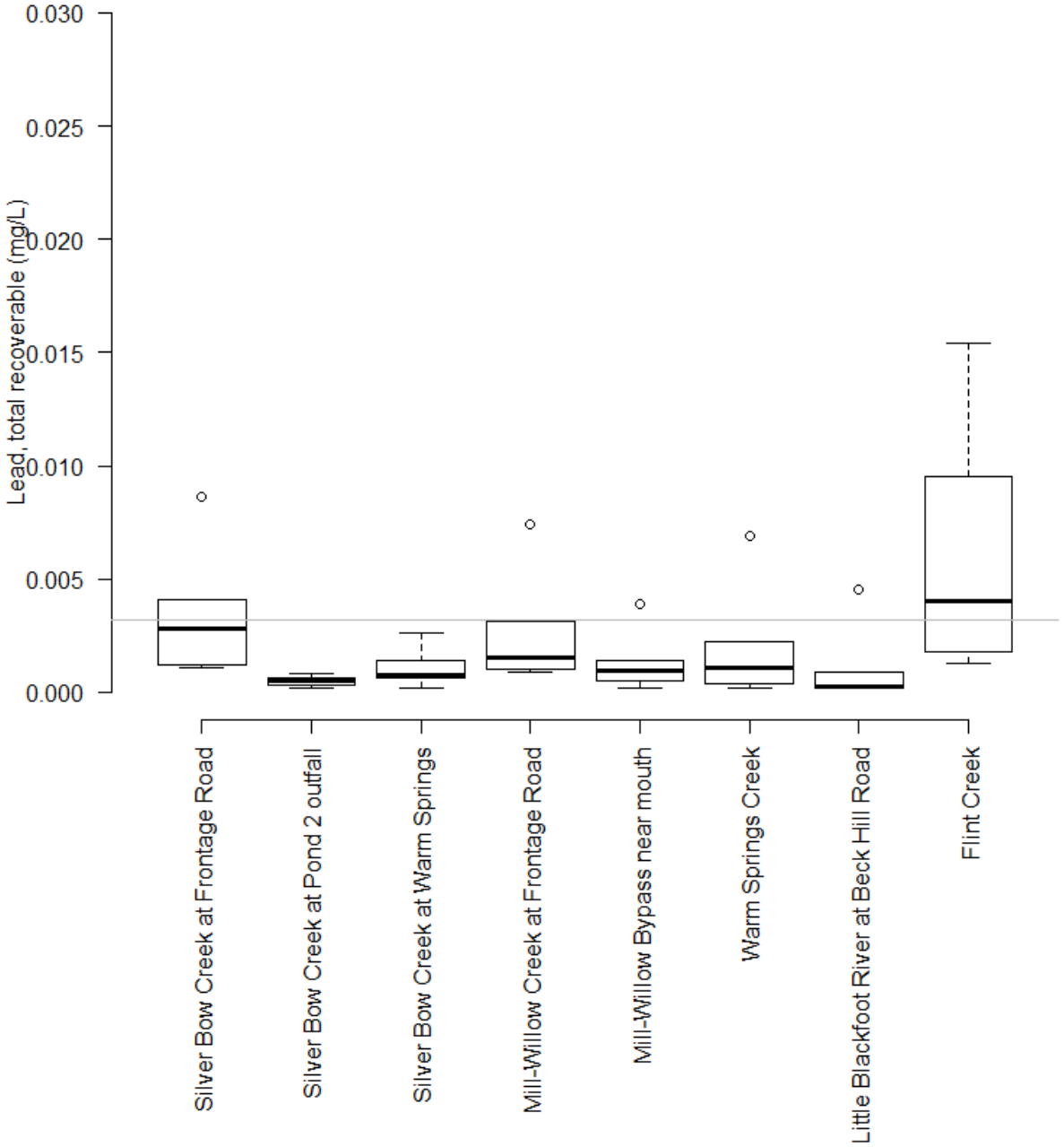

Figure 2-53. Boxplots of total recoverable lead concentration at tributary sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal[27] [USEPA, 2004].

[27] Assuming water hardness is 100 mg/L as CaCO3.

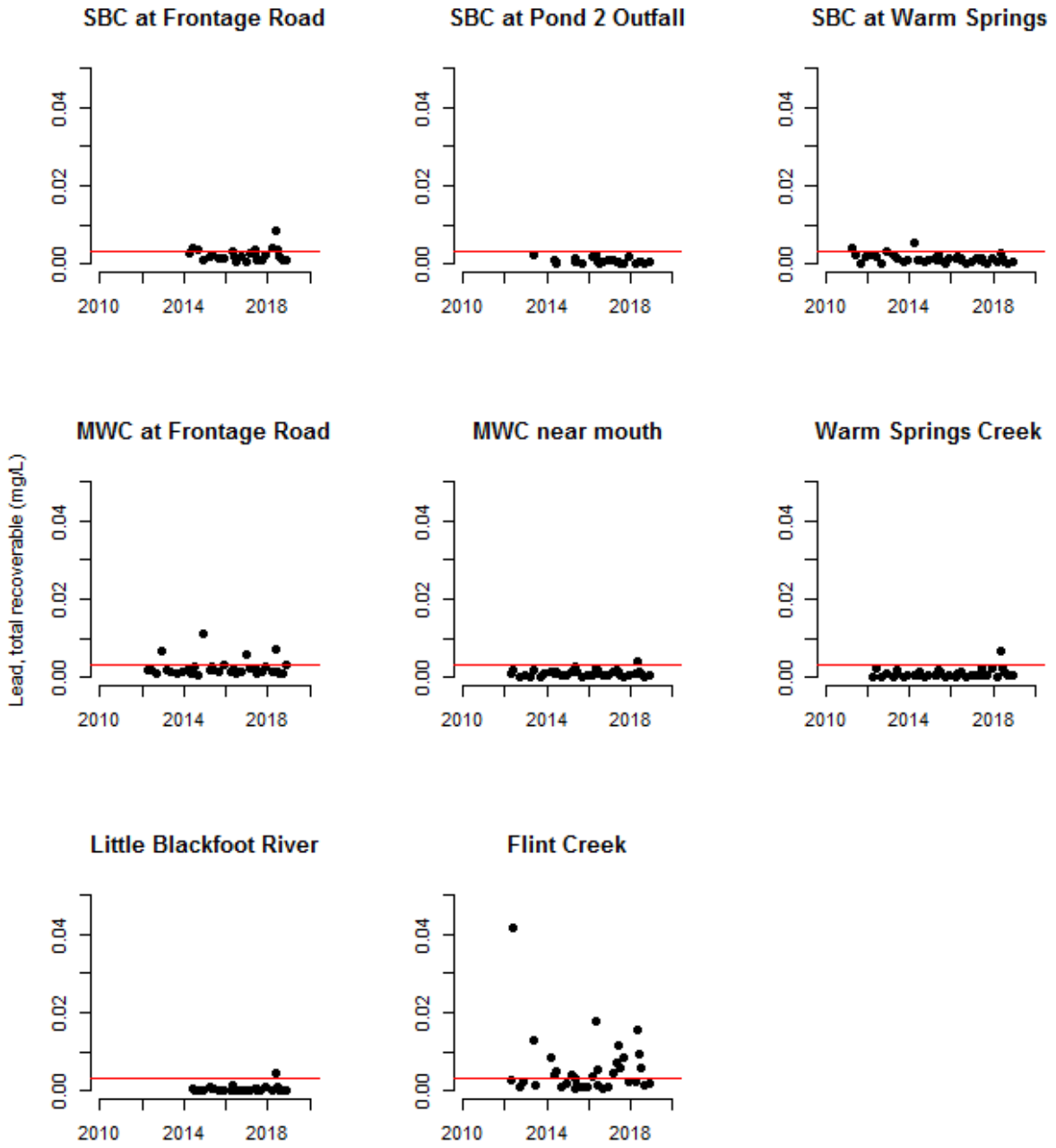

Figure 2-54. Total recoverable lead concentrations at tributary sampling sites[28] in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal[29] [USEPA, 2004].

[28] Tributary abbreviations: SBC = Silver Bow Creek and MWC = Mill-Willow Creek.

[29] Assuming water hardness is 100 mg/L as CaCO3.

2.3.6.5 Zinc

In the Clark Fork River mainstem in 2018, total recoverable zinc concentrations ranged from <0.008-0.199 mg/L (Table 2-13). Exceedances of the aquatic life standard occurred in the mainstem at Deer Lodge (Site CFR-27H), at the Williams-Tavenner Bridge (Site CFR-34), and at Turah (Site CFR-116A) during the Q2-Rising sample period (Table 2-13).

Longitudinally, median zinc concentrations at these mainstem sites increased gradually through Reach A from river mile 3 (Clark Fork River near Galen; Site CFR-03A) to river mile 34 (Clark Fork River at Williams-Tavenner Bridge; Site CFR-34) and then decreased downstream to river mile 116 (Clark Fork River at Turah; Site CFR-116A) (Figure 2-55).

Total recoverable zinc concentrations at each Clark Fork River mainstem site were generally similar in 2018 compared to prior monitoring years, although concentrations were relatively high at some sites during Q2 (Figure 2-56). Over the period of monitoring at these mainstem sites, there do not appear to be any temporal trends in total recoverable zinc concentrations given the variability in these data (Figure 2-56).

In the Clark Fork River tributaries in 2018, total recoverable zinc concentrations ranged from <0.008-0.176 mg/L (Table 2-13). No exceedances of the total recoverable zinc performance goal occurred in the Clark Fork River tributaries in 2018 (Table 2-13).

Median total recoverable zinc concentrations decreased, by more than half, between paired sites in Silver Bow Creek above (Site SS-19) and below (Site SBC-P2) the Warm Springs Ponds (Figure 2-57). Between paired Mill-Willow Creek sites above (Site MCWC-MWB) and below (Site MWB-SBC) the Mill-Willow Bypass, median concentrations were similar (Figure 2-57).

Total recoverable zinc concentrations at each Clark Fork River tributary site were similar in 2018 compared to prior monitoring years (Figure 2-58). No sites appear to have increasing or decreasing trends in concentrations (Figure 2-58).

Table 2-13. Total recoverable zinc concentrations (mg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-03A	Clark Fork River near Galen	0.022	0.036	0.017	0.013	ND	0.009
CFR-07D	Clark Fork River at Galen Road	0.028	0.091	0.035	0.023	0.012	0.013
CFR-11F	Clark Fork River at Gemback Road	0.028	0.094	0.043	0.022	ND	0.016
CFR-27H	Clark Fork River at Deer Lodge	0.042	0.179	0.084	0.054	0.012	0.021
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.048	0.199	0.096	0.050	0.015	0.023
CFR-116A	Clark Fork River at Turah	0.033	0.152	0.065	0.036	0.008	0.013
Tributary sites							
SS-19	Silver Bow Creek at Frontage Road	0.176	0.093	0.062	0.050	0.066	0.109
SBC-P2	Silver Bow Creek at Pond 2 Outfall	0.029	---	0.023	0.013	ND	0.013
SS-25	Silver Bow Creek at Warm Springs	0.028	0.027	0.018	0.011	ND	0.011
MCWC-MWB	Mill-Willow Creek at Frontage Road	0.010	0.040	0.012	0.007	ND	0.019
MWB-SBC	Mill-Willow Bypass near mouth	0.007[J]	0.020	0.011	0.007[J]	ND	ND
WSC-SBC	Warm Springs Creek near mouth	0.003[J]	0.035	0.016	0.010	ND	ND
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	0.002[J]	0.019	0.007[J]	0.004[J]	ND	ND
FC-CFR	Flint Creek near mouth	0.009	0.043	0.033	0.024	ND	0.009

---	Not sampled.
ND	Not detected at method detection limit.
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25%).
	Exceeds chronic/acute aquatic life standard [DEQ, 2017].

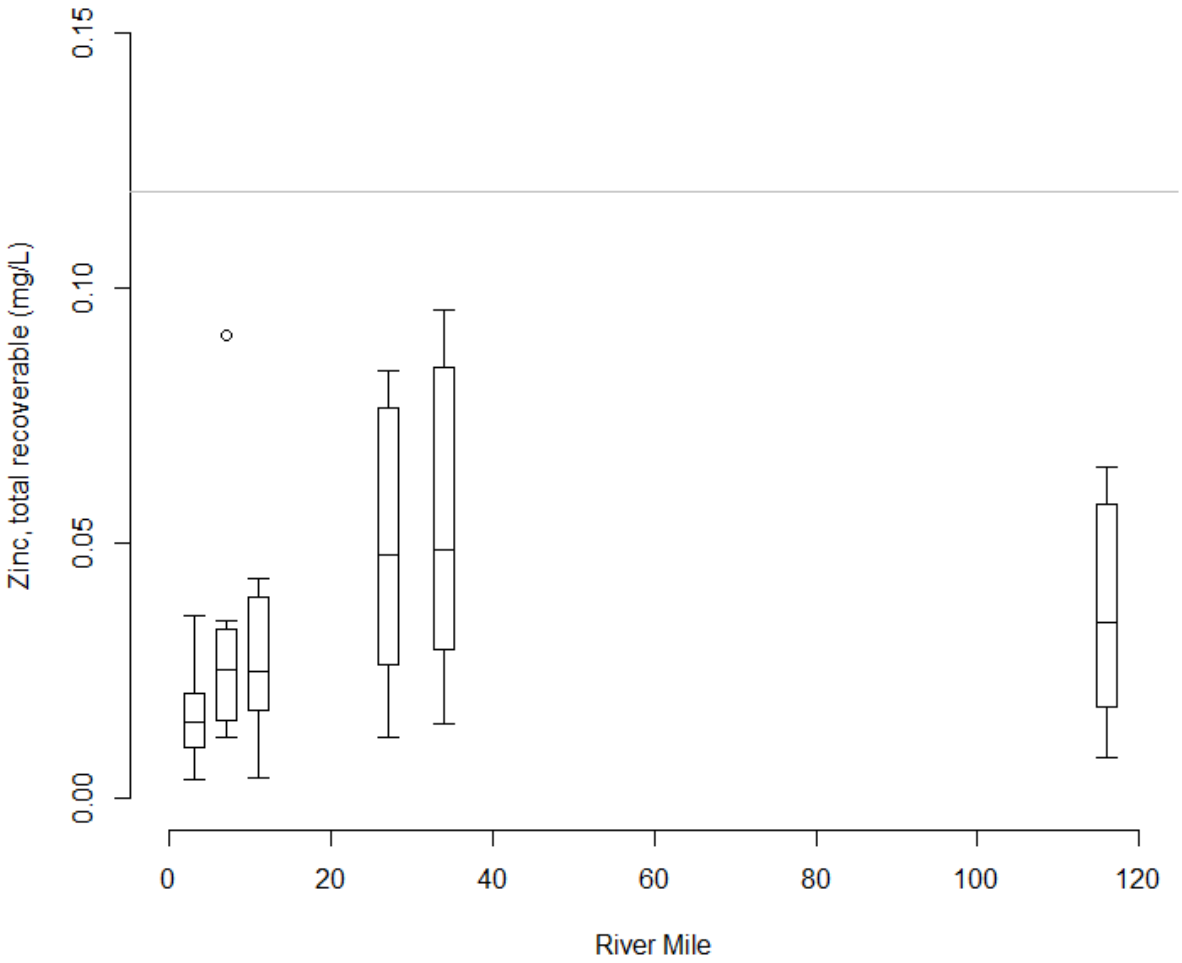

Figure 2-55. Boxplots of total recoverable zinc concentration by river mile at mainstem sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal[30] [USEPA, 2004].

[30] Assuming water hardness is 100 mg/L as CaCO3.

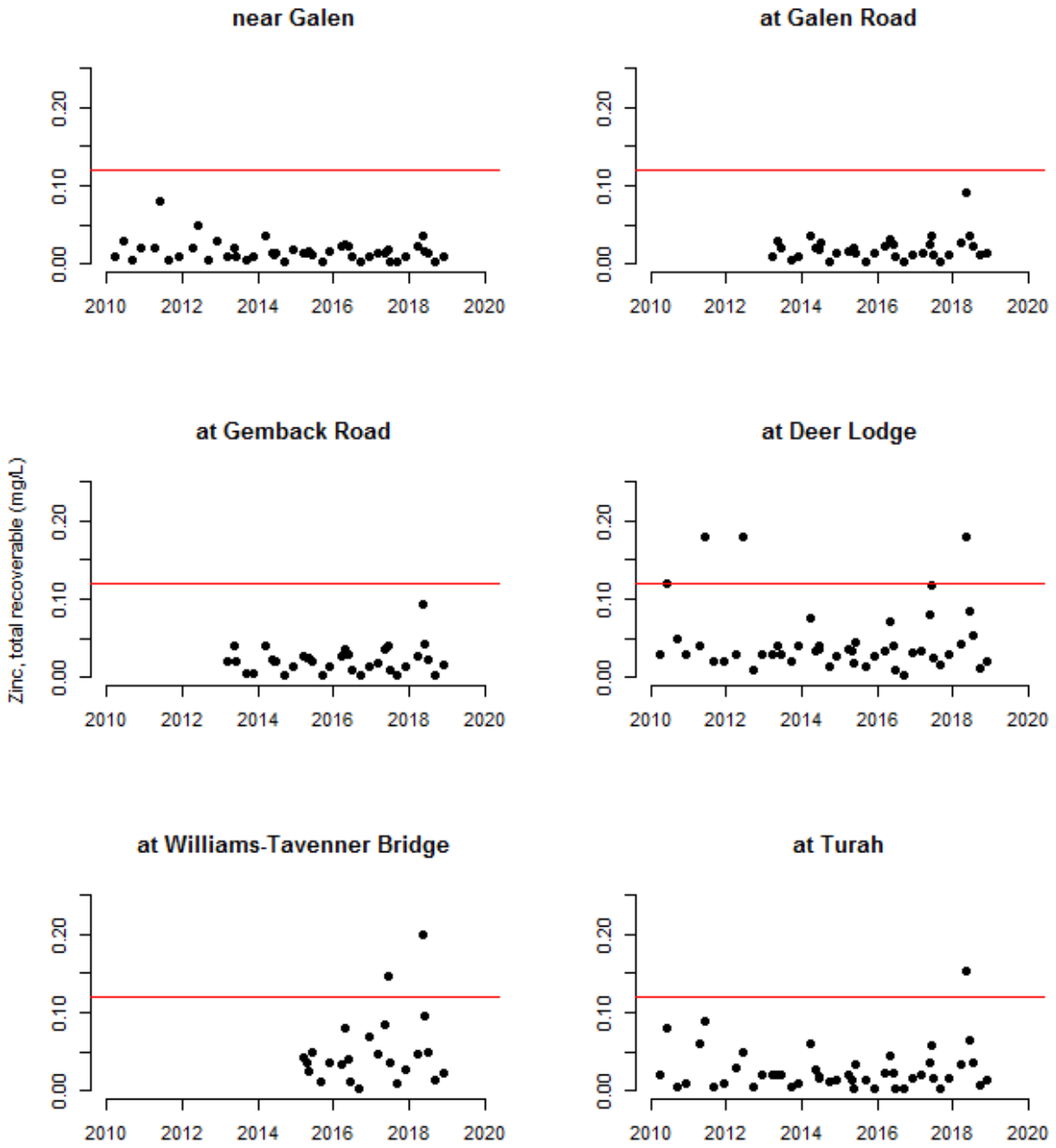

Figure 2-56. Total recoverable zinc concentrations at mainstem sampling sites in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal[31] [USEPA, 2004].

[31] Assuming water hardness is 100 mg/L as CaCO3.

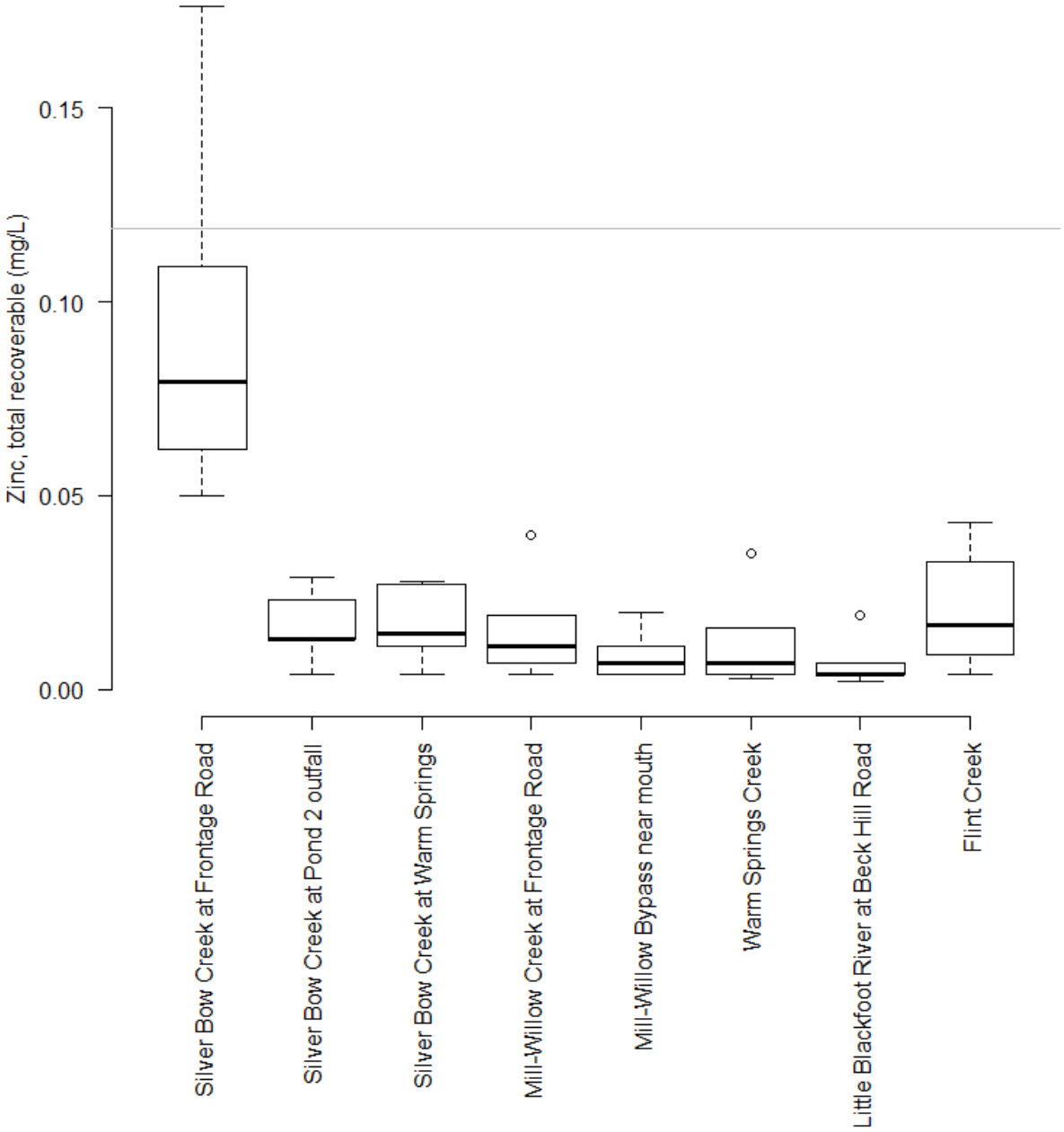

Figure 2-57. Boxplots of total recoverable zinc concentration at tributary sampling sites in the Clark Fork River Operable Unit, 2018. Horizontal line represents the performance goal[32] [USEPA, 2004].

[32] Assuming water hardness is 100 mg/L as CaCO3.

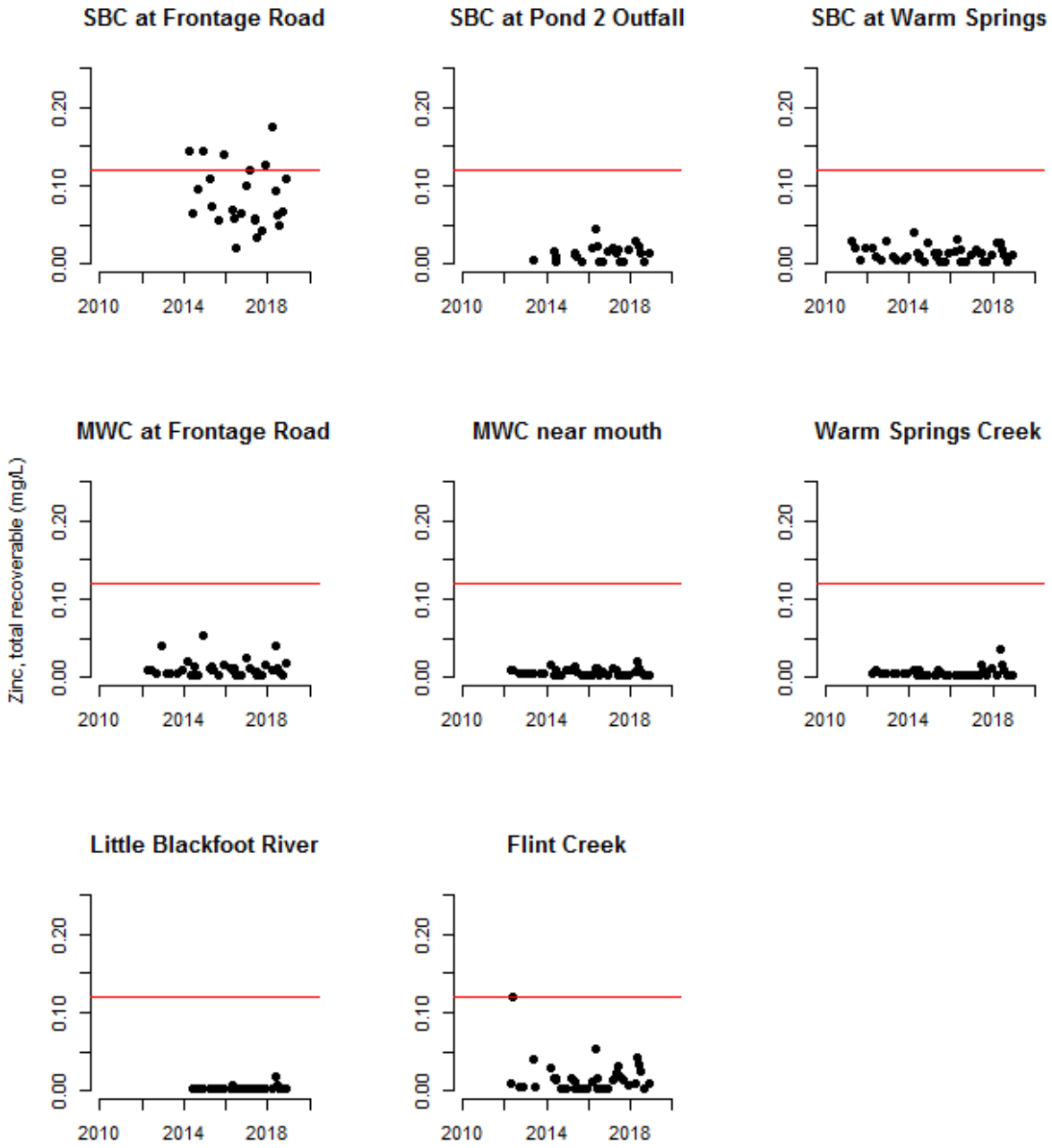

Figure 2-58. Total recoverable zinc concentrations at tributary sampling sites[33] in the Clark Fork River Operable Unit, 2010-2018. Horizontal lines represent the performance goal[34] [USEPA, 2004].

[33] Tributary abbreviations: SBC = Silver Bow Creek and MWC = Mill-Willow Creek.

[34] Assuming water hardness is 100 mg/L as CaCO3.

2.3.7 Other Metals

2.3.7.1 Mercury

In the Clark Fork River near Drummond (Site CFR-84F) in 2018, total mercury concentrations ranged from 0.019-0.180 µg/L (Table 2-14). All Q2 samples exceeded the mercury human health surface water standard (Table 2-14). In Flint Creek (Site FC-CFR) in 2018, total mercury concentrations ranged from 0.045-0.640 µg/L (Table 2-14). Exceedances of the mercury human health surface water standard occurred in all sample periods except Q3 (Table 2-14).

Table 2-14. Total mercury concentrations (µg/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-84F	Clark Fork River near Drummond	0.029	0.180[D]	0.052	0.068[J]	0.020[J]	0.019
Tributary sites							
FC-CFR	Flint Creek near mouth	0.107[J]	0.640[D]	0.340[D]	0.144[J]	0.045[J]	0.061[J]

J — Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25%).

D — Result obtained from analysis of diluted sample.

Exceeds human health surface water standard (0. 050 µg/L; DEQ [2017]).

2.3.7.2 Methylmercury

In the Clark Fork River near Drummond in 2018, methylmercury concentrations ranged from 0.186-0.880 ng/L (Table 2-15). In Flint Creek in 2018, methylmercury concentrations ranged from 0.759-2.09 ng/L (Table 2-15).

Table 2-15. Methylmercury concentrations (ng/L) at Clark Fork River Operable Unit monitoring stations, 2018.

Site ID	Site Location	Sample Period					
		Q1	Q2			Q3	Q4
			Rising	Peak	Falling		
Mainstem sites							
CFR-84F	Clark Fork River near Drummond	0.402	0.880[J]	0.510	0.350	0.244	0.186[J]
Tributary sites							
FC-CFR	Flint Creek near mouth	0.759	2.09[J]	1.24	1.49	0.817	1.050

J — Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25%).

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. Data quality objectives (DQOs) were evaluated for accuracy and precision. These DQOs were largely met in 2018 with a few exceptions.

Analyte concentrations were measured in field blanks to evaluate sampling accuracy and the extent to which the field techniques may have contaminated the samples. Twelve field blank samples were collected in 2018 and 23 analyte concentrations were measured in each. Two additional analyte concentrations (mercury and methylmercury) were measured in six field blanks. Therefore, in total 288 analyte concentrations were evaluated in the field blanks and 2.8 percent (8 of 288) of the analytes had concentrations equal to or greater than the respective analytical reporting limit. Two analytes had concentrations above the respective analytical reporting limit (RL) in the field blanks: dissolved zinc and hardness were detected above the RLs in 4 of 12 (33 percent) of the field blank samples. In the four field blank samples with dissolved zinc concentrations above the RL, concentrations ranged from 0.009-0.019 mg/L (mean = 0.014 mg/L). In all four field blank samples with hardness concentrations above the RL, concentrations were at the RL (1 mg/L).

Analyte concentrations were compared in field sample and field duplicate pairs to evaluate overall sampling precision. Twelve field sample and field duplicate pairs were collected in 2018 and 23 analytes were analyzed in each. Six field sample and field duplicate pairs were also analyzed for total mercury and methylmercury concentrations. Therefore, in total 288 comparisons were made between field sample and field duplicate pairs in 2018. The relative percent difference (RPD) of each of those pairs exceeded 25 percent in 2.4 percent (7 of 288) of the pairs. Some pairs had RPD greater than 25 percent but either the field sample, field duplicate, or both had a concentration that was less than five times the RL and therefore the RPD from those pairs were disregarded for purposes of quality assurance performance evaluation. Field sample and field duplicate pairs with RPD higher than 25 percent, and sample and duplicate concentrations at least five times the reporting limit included: methylmercury at Site FC-CFR on May 9 and November 26, 2018 (RPDs of 28 percent and 29 percent, respectively); total recoverable mercury at Site FC-CFR on March 19, July 5, September 10, and November 26, 2018 (RPDs of 31, 35, 53, and 37 percent, respectively); and total recoverable lead at Site FC-CFR on November 26, 2018 (RPD of 29 percent.

2.4 DISCUSSION

2.4.1 Streamflows

Streamflows in 2018 were very high relative to long-term measurements. Strong mountain snowpack in 2018 led to well above-average streamflows throughout the spring runoff period and strong flows were sustained thoughout the summer and fall at nearly all sites.

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 factors. Optimal water temperature for most trout species is approximately 12–14 C. Sustained temperatures in the 20–25 C range may be fatal for trout.

Temperature monitoring results for the upper Clark Fork River monitoring stations during 2018 indicated modest seasonal and spatial variations that periodically were higher than the preferred range for cold water organisms such as trout. The maximum recorded water temperatures in the mainstem reached 17.8 C (at Gemback Road) and 19.7 C in the tributaries (Silver Bow Creek).

Stream temperatures are extremely variable at sites in the upper Clark Fork River basin because of weather and diel variation and this monitoring program is not intended to characterize temperature extremes at each site. More detailed hourly temperature data, collected by Montana Fish, Wildlife and Parks, has indicated that water temperatures in the Clark Fork River and tributaries are at times extremely stressful for trout, often exceeding 20 C and occasionally exceeding 25 C at many of these sites.

2.4.2.2 pH

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. If pH falls below 6.5, salmonid egg production, salmonid hatching success, and emergence success of some aquatic insects may be reduced. 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.

DEQ stream classifications in the upper Clark Fork River watershed vary by stream and recommended pH levels differ based on the classification. In the Clark Fork River mainstem downstream from Deer Lodge recommended pH is a range of 6.5-8.5 and upstream from Deer Lodge the recommended range is 6.5-9.0 [ARM 17.30.607]. One mainstem site had pH exceeding the recommended range: the Clark Fork River at Williams-Tavenner Bridge (Site CFR-34) had a pH of 8.59 in Q3. Additionally, pH in the Clark Fork River at Deer Lodge (Site CFR-27H) was 8.52 in Q3 which exceeded the recommended range for the river downsteam of Deer Lodge, but would be within the acceptable range for the river above Deer Lodge. One mainstem site had pH measured below the recommended range; pH was measured at 6.47 at Site CFR-27H in Q4. Based on these measurements outside the recommended rangesexceedances, DEQ could potentially enact restrictions for any discharges to the river which were above 8.5. Causes of elevated pH at these sites may have been related to increased primary productivity from nutrient enrichment. Causes of the low pH measurement are unclear.

In addition, two tributary sites (Silver Bow Creek at the Pond 2 outfall; Site SBC-P2 and Silver Bow Creek at Warm Springs, Site SS-25) had pH above the recommended range (Silver Bow Creek is classified as "I" with recommended pH range of 6.5-9.5; ARM 17.30.607). On September 11, 2018 pH at Site SBC-P2 was 10.53 and pH at Site SS-25 was 9.74. Site SBC-P2 had the highest median pH of all tributary and mainstem sites in 2018. Elevated daytime pH may be 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 of 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 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, and we observed that conductivity was generally highest during the Q1 sample period prior to spring runoff. Conductivity measured in the Clark Fork River mainstem in 2018 ranged from 160-521 µS/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 µS/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 solubility of atmospheric oxygen. Dissolved oxygen levels fluctuate seasonally and over diel cycles due to variation in rates of stream metabolism.

Adequate dissolved oxygen concentrations are required by biological stream communities and for the decomposition of organic matter in the stream. Acceptable levels of dissolved oxygen for the protection of aquatic life are defined in the Montana water quality standards [DEQ, 2017].

No dissolved oxygen concentrations in the CFROU in 2018 indicated water quality or water use limitations associated with low oxygen concentrations (range: 8.4-16.6 mg/L). However, the lowest dissolved oxygen concentrations are expected to occur in the pre-dawn hours and monitoring occurred in the daytime at all sites.

Recent work indicates that anoxic conditions have occurred along the stream bottom of the Clark Fork River beneath *Cladophora* mats in Reach C [Valett et al., 2017]. It is not known if those conditions also occur in other portions of the Clark Fork River but *Cladophora* growth is prolific in Reach A and B of the CFROU as well. These anoxic conditions may have a strong influence on stream ecology in the Clark Fork River.

2.4.2.5 Turbidity

Turbidity refers to the amount of light that is absorbed or scattered by water. Increasing turbidity or "cloudiness" in surface waters usually results from the presence of suspended silt or clay particles, organic matter, colored organic compounds, or microorganisms. Turbidity usually, but not always, correlates closely with the total suspended sediment concentration which measures the weight of suspended matter in solution. The lack of correlation between those parameters may be due to variation in particle sizes, weights, or refractive properties of the substances that contribute to turbidity.

Turbidity is an important parameter for drinking water. Elevated turbidity may impede recreational and aesthetic uses of water. High turbidity may adversely affect feeding, growth, and habitat quality for salmonids and other fishes, and may influence surface water temperatures. The DEQ 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; ARM 17.30.626–627].

Turbidity during the 2018 monitoring events was generally low (10 NTU or less), although during the Q2-Rising and Q2-Peak sample periods turbidity was relatively high at some sites. For example, turbidity was between 51 NTU and 75 NTU at sites from Deer Lodge to Turah during the Q2-Rising event and between 16 NTU and 28 NTU at the same sites during the Q2-Peak event. Although turbidity was high, no consecutive sites sampled on the same day had a turbidity increase of 10 NTU in 2018.

2.4.3 Total Suspended Sediment

Total suspended sediment measures the mass of material suspended in a given volume of water. Suspended sediment measures sediment 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 may vary with watershed geology, stream velocity, bed form, and turbulence. Excess fine sediment interferes with most water uses and may have particularly adverse effects on benthic invertebrate and salmonid fish growth and reproduction. Increased suspended sediment reduces light penetration and may affect primary production by aquatic plants and the morphology of alluvial stream channels. In the Clark Fork River system, many COC concentrations are directly correlated with suspended sediment concentrations.

In general, total suspended sediment concentrations had spatial and seasonal patterns very similar to those for turbidity. The highest mainstem suspended sediment concentrations occurred in the lower half of Reach A at Deer Lodge and at Williams-Tavenner Bridge.

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 2018, the Clark Fork mainstem alkalinity ranged from 61-170 mg/L. Based on previous monitoring, calcium is the dominant cation at the upper Clark Fork River monitoring network stations.

Water hardness in the Clark Fork River mainstem stations in 2018 ranged from "moderately hard" to "very hard". In comparison, most rivers in western Montana have "moderately hard" to "hard" water [USGS, 2015]. 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]. Alkalinity in the upper mainstem Clark Fork River was moderate to high which reflects a well buffered system, with good potential for fish production barring other limitations.

In Mill-Willow Creek sulfate concentrations increased on average by about five times from above to below the Mill-Willow Bypass section of Mill-Willow Creek (between Sites MCWC-MWB and MWB-SBC). These results suggest that there are sources of sulfate in the floodplain along the Mill-Willow Bypass stream corridor.

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 period. These standards are 0.300 mg/L for total nitrogen and 0.030 mg/L for total phosphorus [DEQ, 2014].

The highest total nitrogen concentrations in the Clark Fork River mainstem in 2018 were at Deer Lodge or at the Williams-Tavenner Bridge. Two mainstem sites exceeded the relevant total nitrogen standard in 2018, which was only applicable during the Q2-Falling and Q3 events. Exceedances of the total nitrogen standard were 0.34 mg/L at Deer Lodge (Site CFR-27H) in Q2-Falling, 0.37 mg/L at Site CFR-27H in Q3, 0.37 mg/L at Williams-Tavenner Bridge (Site CFR-34) in Q2-Falling, and 0.36 mg/L at Site CFR-34 in Q3. About half the total nitrogen concentrations

at Site CFR-27H and Site CFR-34 in Q3 was inorganic nitrogen (nitrate plus nitrite) which is bioavailable.

Nutrient levels in Silver Bow Creek at Frontage Road, upstream from the Warm Springs Ponds, exceeded the total nitrogen standard by more than three times in Q3. In Q1 at the same site, total nitrogen levels were approximately three times higher than at any site in the CFROU monitoring network, and essentially 90 percent of the nitrogen was bioavailable (i.e., primarily nitrate plus nitrite).

All mainstem sites had total phosphorus concentrations exceeding the Clark Fork River mainstem-specific total phosphorus standard during the Q2-Falling event but no sites had concentrations exceeding that standard during the Q3 event. It is unknown if this phosphorus in the Clark Fork River is primarily derived from natural (i.e., geologic) characteristics in the watershed or from nutrient enrichment from anthropogenic influences. In the tributaries, all Silver Bow Creek sites and the Flint Creek site exceeded the total phosphorus standard in Q3.

2.4.6 Contaminants of Concern

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. The upper-most 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]. Surface water monitoring data collected in 2018 represents the ninth year of monitoring in the CFROU for this monitoring program.

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 unlikely that monitoring in that year would demonstrate much change in COC levels in the river from pre-remediation concentrations in 2010-2012. The 2014 monitoring year was the first year following complete cleanup of the Phase 1 project area. In 2015, remedial actions were in progress in additional river sections (Phases 2, 5, and 6) stretching approximately 6.4 miles in total and those cleanup actions were completed by the end of 2017. Remedial actions in other portions of Reach A are likely to occur over a ten-year period.

In 2018 exceedances of performance goals occurred for all COCs but, in the mainstem, were most frequent for arsenic. Of 36 samples collected in the Clark Fork River mainstem in 2018 (from six sites during six sample periods), performance goal exceedances occurred for cadmium in zero samples (0 percent), for zinc in three samples (8 percent), for copper in five samples (14 percent), for lead in 13 samples (36 percent), and for arsenic in 22 samples (61 percent).

Arsenic exceedances of the performance goals were most consistent in Reach A (all mainstem sites except at Turah) during Q2 and Q3. All samples from Reach A in Q2 and Q3 exceeded the performance goal for arsenic. The arsenic performance goal has specific requirements for dissolved concentrations (0.010 mg/L) and total recoverable concentrations (0.018 mg/L).

Exceedance of the dissolved arsenic performance goal was more common than exceedance of the total recoverable arsenic performance goal. Silver Bow Creek below the Warm Springs Ponds and Mill-Willow Creek were clearly sources of arsenic to the Clark Fork River as 91 percent (21 of 23) of the samples from sites in those stream sections exceeded the dissolved arsenic performance goal and 70 percent (16 of 23) of the samples exceeded the total recoverable performance goal.

Arsenic concentrations in Silver Bow Creek entering the Warm Springs Ponds (at Frontage Road) were always considerably lower than the concentrations leaving the ponds (at Warm Springs) indicating that arsenic is likely remobilized in the ponds as described by others [Chatham, 2012]. These results also support findings of the USGS monitoring program which identified the Warm Springs Ponds, the Mill-Willow Bypass, and groundwater near the Warm Springs Ponds as substantial arsenic sources to the upper Clark Fork River [Sando et al., 2014].

We did not conduct any formal statistical analysis on these data because we believe those analyses are premature currently in the CFROU. Instead, this report describes our own observations about the data from the plots presented. In the Clark Fork mainstem, it appears that the variability in the data would likely swamp any ability to discern changes in average COC concentrations through time given the relatively short period of monitoring to date and the variability in the data.

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.

2.4.8 Data Validation

Generally, this monitoring program has satisfied the data quality objectives and data quality indicators specified in the QAPP [Atkins, 2013]. In 2018, the sampling accuracy and overall sampling precision data quality objectives were met for at least 97 percent of the samples collected. The sampling accuracy data quality objective was not achieved for one-third of the dissolved zinc and hardness samples due to trace levels of contamination in the field blanks. The overall sampling precision was data quality objective was occaissonally not achieved for mercury and methylmercury. Overall, sampling accuracy and precision was very high and therefore, we do not recommend any changes to field, analysis, or quality assurance methods in 2019.

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 to remove floodplain tailings deposits and reduce streambank erosion within the CFROU 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 2018 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	33.0
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 2018 (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 2018 were the same as the monitoring site locations in 2017. Some monitoring site changes have occurred in prior monitoring

years. Please see the project sampling and analysis plan for details of those changes [RESPEC, 2018a].

Table 3-2. Instream sediment sampling locations in the Clark Fork River Operable Unit. Streamflows were measured at all sites which did not a have co-located U.S. Geological Survey streamflow gage.

Site ID	Site Location	Co-located USGS Streamflow Gage	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-34	Clark Fork River at Williams-Tavenner Bridge	none	46.47119	-112.72492
CFR-116A	Clark Fork at Turah	12334550	46.82646	-113.81424
Tributary Sites				
SS-19[35]	Silver Bow Creek at Frontage Road	none	46.12247	-112.80032
SS-25	Silver Bow Creek at Warm 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	Warm Springs Creek near mouth	12323770	46.18041	-112.78592
LC-7.5[36]	Lost Creek near mouth	12323850	46.21862	-112.77384
RTC-1.5[37]	Racetrack Creek near mouth	none	46.28395	-112.74921
LBR-CFR-02[38]	Little Blackfoot River at Beck Hill Road	none	46.53710	-112.72443

[35] In 2018, site SS-19 was sampled under the Streamside Tailings Operable Unit (SSTOU) monitoring program four times per year. This site was sampled during every sample quarter. At all other sites, sediment samples were only collected twice per year.

[36] Site LC-7 (GPS Location: 46.22665, -112.76017) was replaced by site LC-7.5 in 2013.

[37] Site RTC-1 (GPS Location: 46.28406, -112.74484) was replaced by site RTC-1.5 in 2013.

[38] Site LBR-CFR (GPS Location: 46.51964, -112.79312; co-located USGS gage: 12324590) was replaced by site LBR-CFR-02 in 2014.

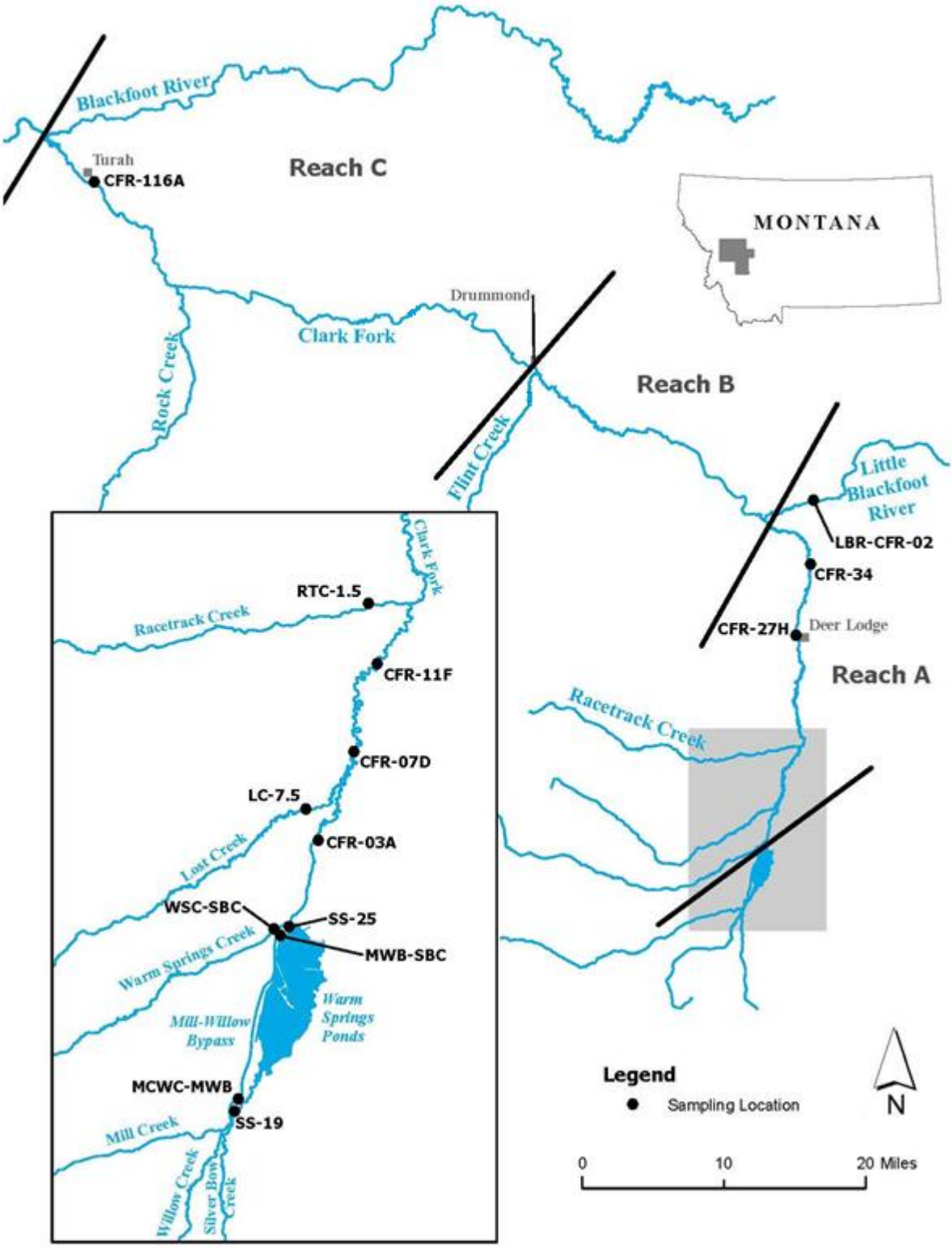

Figure 3-1. Instream sediment sampling locations in the Clark Fork River Operable Unit, 2018.

3.2.2 Monitoring Schedule

At least one surface water monitoring event occurred during each calendar quarter of 2018. Instream sediment samples were collected during the first quarter (Q1) and third quarter (Q3) surface water monitoring events. The first monitoring event (Q1) occurred in the late winter, prior to spring runoff from March 19-20. The late summer (Q3) monitoring event occurred during low streamflow conditions from September 10-11.

3.2.3 Monitoring Parameters

Instream sediment samples were analyzed for dry weight (DW) 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 DEQ standard operating procedure [DEQ, 2012a]. The fine fraction (particle diameter <0.065 mm) portion of each sample was isolated from each composite sample by wet sieving in the laboratory shortly after collection and retained for analysis of metal concentrations. Each sample was analyzed for total extractable 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.

Table 3-3. Analytes, methods, and reporting limits for instream sediment sampling in the Clark Fork River Operable Unit, 2018.

Analyte	Requested Method	Requested Reporting Limit (mg/kg-DW)	Holding Time (days)	Bottle	Preservative
Total Metals Digestion	EPA 3050	-	-	-	-
Arsenic	SW 6010B	5	180	1000 mL clear glass wide mouth jars	4 ± 2 C during shipment; -15 C in laboratory
Cadmium	SW 6010B	0.2			
Copper	SW 6010B	5			
Lead	SW 6010B	5			
Zinc	SW 6010B	5			

3.2.5 Data Analysis

Data were analyzed to assess spatial and temporal trends in sediment COC concentrations (for all samples collected during 2014-2018) and to evaluate the frequency and magnitude of TEC

and PEC reference value exceedances. To evaluate spatial trends, boxplots were created for each COC at each site. Statistics summarized in each boxplot include the median (midline of each box), quartiles (ends of each box), outlier extent (whiskers which extend 1.5 times the interquartile range), and outliers (circles above or below the whiskers which are any observations more than 1.5 times the interquartile range). Boxplots were only generated for data with at least five observations. If there were fewer than five observations at a site, a circle is displayed for each observation. Scatterplots of COC concentrations at each sample site were created to provide a cursory investigation of temporal trends.

The number of samples collected since 2014 differed between sites. We included all samples collected in the CFROU since 2014 to provide the most complete perspective on sediment COC concentrations even though two sites had different overall numbers of samples. First, at site SS-19, samples were collected during all sample quarters since 2014 whereas samples were collected only twice per year (Q1 and Q3) at other sites. We included all samples in the scatterplots and boxplots from site SS-19 (and all other sites) to provide the most complete data set at each site. Please note that differences in the timing of the samples collected at SS-19 and other sites could potentially confound statistical comparisons of median COC concentrations among sample sites. Second, at Flint Creek, only one sample was collected (mistakenly) in Q1 2014. We included the results of that one sample from Flint Creek because it provides valuable information since no other sediment samples had been collected at that site. In the report, we discuss the "median" COC concentrations at Flint Creek in comparison to other sites. Please note the Flint Creek median concentration is based on a sample size of one.

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" [Atkins, 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 2018 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, 2018.

Site ID	Site Location	Sample proportion (%)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	3.0	3.4
CFR-07D	Clark Fork River at Galen Road	16.0	7.2
CFR-11F	Clark Fork River at Gemback Road	2.3	2.2
CFR-27H	Clark Fork River at Deer Lodge	10.8	5.6
CFR-34	Clark Fork River at Williams-Tavenner Bridge	8.4	2.4
CFR-116A	Clark Fork River at Turah	52.6	8.3
Tributary Sites			
SS-19	Silver Bow Creek at Frontage Road	0.7	3.4
SS-25	Silver Bow Creek at Warm Springs	3.6	3.0
MCWC-MWB	Mill-Willow Creek at Frontage Road	13.9	7.1
MWB-SBC	Mill-Willow Bypass near mouth	1.5	2.1
WSC-SBC	Warm Springs Creek near mouth	13.8	24.9
LC-7.5	Lost Creek near mouth	27.9	11.5
RTC-1.5	Racetrack Creek near mouth	1.7	1.9
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	2.1	1.1

3.3.2 Contaminants of Concern

3.3.2.1 Arsenic

In the Clark Fork River mainstem, fine fraction (<0.065 mm) sediment arsenic concentrations ranged from 52-266 mg/kg-DW in 2018 (Table 3-5). Exceedances of the TEC and PEC reference values occurred at all sites during both sample periods in 2018 (Table 3-5). Arsenic concentrations at each site were similar in 2018 compared to prior monitoring years although there appears to be a high degree of variability at some sites (particularly near Galen, Galen Road, and Gemback Road) (**Figure 3-2**). However, longitudinally there is evidence that median sediment arsenic concentrations decrease, in approximately an exponential fashion, between Clark Fork River mainstem sites near Galen (river mile 0) and Turah (river mile 116) (**Figure 3-3**).

In the Clark Fork River tributaries, fine fraction (<0.065 mm) sediment arsenic concentrations ranged from 23-232 mg/kg-DW in 2018 (Table 3-5). Exceedances of the TEC, the PEC, or both reference values occurred at all sites during both sample periods in 2018 (Table 3-5) No PEC exceedances occurred in the Little Blackfoot River or in Racetrack Creek during Q3 (Table 3-5). Arsenic concentrations at each tributary site were similar in 2018 compared to prior monitoring years (**Figure 3-4**). Among paired tributary sites in Silver Bow Creek (at Frontage Road and at Warm Springs) and Mill-Willow Creek (at Frontage Road and near mouth), median arsenic concentrations over the 2014-2018 period were about twice as high in Silver Bow Creek at the downstream site (at Warm Springs) and about twice as high in Mill-Willow Creek at the downstream site (near mouth) (**Figure 3-5**). Among tributaries, the lowest median arsenic concentrations for 2014-2018 were in Racetrack Creek and the Little Blackfoot River (**Figure 3-5**).

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, 2018.

Site ID	Site Location	Sample concentration (mg/kg-DW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	139	242
CFR-07D	Clark Fork River at Galen Road	200	266
CFR-11F	Clark Fork River at Gemback Road	178	113
CFR-27H	Clark Fork River at Deer Lodge	121	184
CFR-34	Clark Fork River at Williams-Tavenner Bridge	127	117
CFR-116A	Clark Fork River at Turah	70	52
Tributary Sites			
SS-19	Silver Bow Creek at Frontage Road	77	64
SS-25	Silver Bow Creek at Warm Springs	147	111
MCWC-MWB	Mill-Willow Creek at Frontage Road	153	105
MWB-SBC	Mill-Willow Bypass near mouth	232	211
WSC-SBC	Warm Springs Creek near mouth	85	108
LC-7.5	Lost Creek near mouth	71	95
RTC-1.5	Racetrack Creek near mouth	26	33
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	23	37

Exceeds threshold effect concentration, 9.79 mg/kg [MacDonald et al., 2000].

Exceeds probable effect concentration, 33.0 mg/kg [MacDonald et al., 2000].

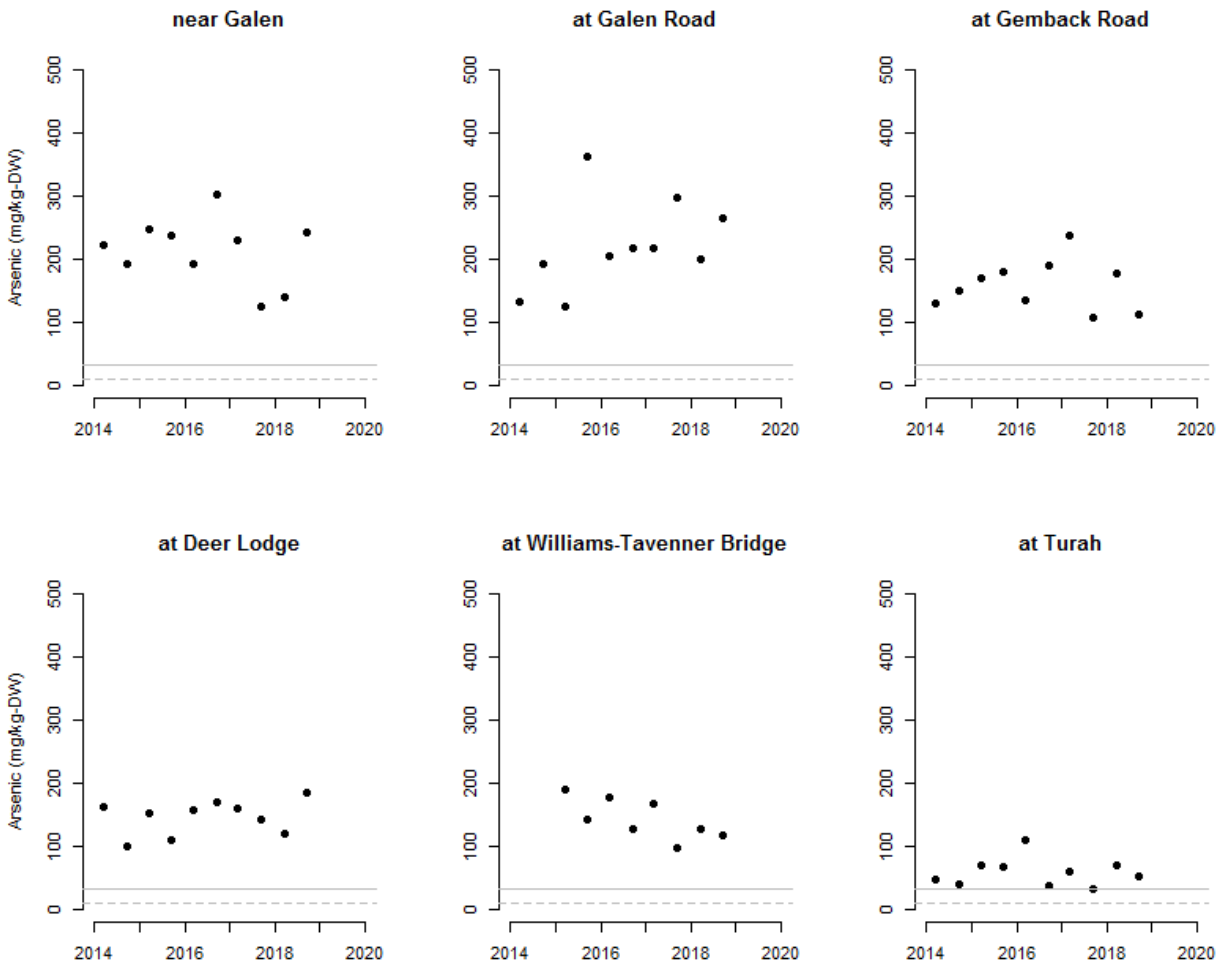

Figure 3-2. Time series of total arsenic concentrations (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 9.79 mg/kg and the "probable effect concentration" (PEC; solid line) at 33.0 mg/kg [MacDonald et al., 2000].

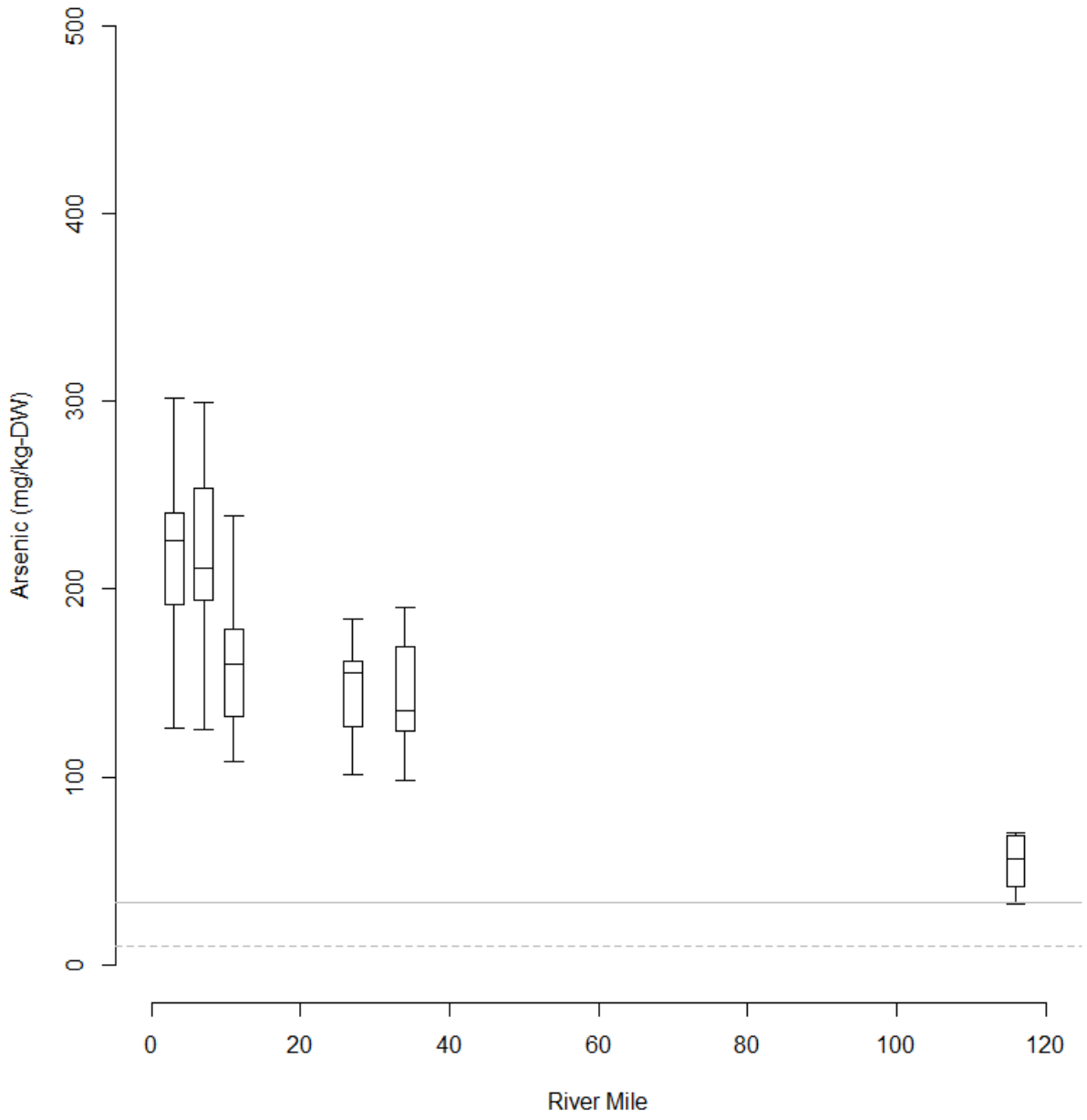

Figure 3-3. Boxplots of total arsenic concentration (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. River miles are measured downstream from the Silver Bow Creek-Warm Springs Creek confluence. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 9.79 mg/kg and the "probable effect concentration" (PEC; solid line) at 33.0 mg/kg [MacDonald et al., 2000].

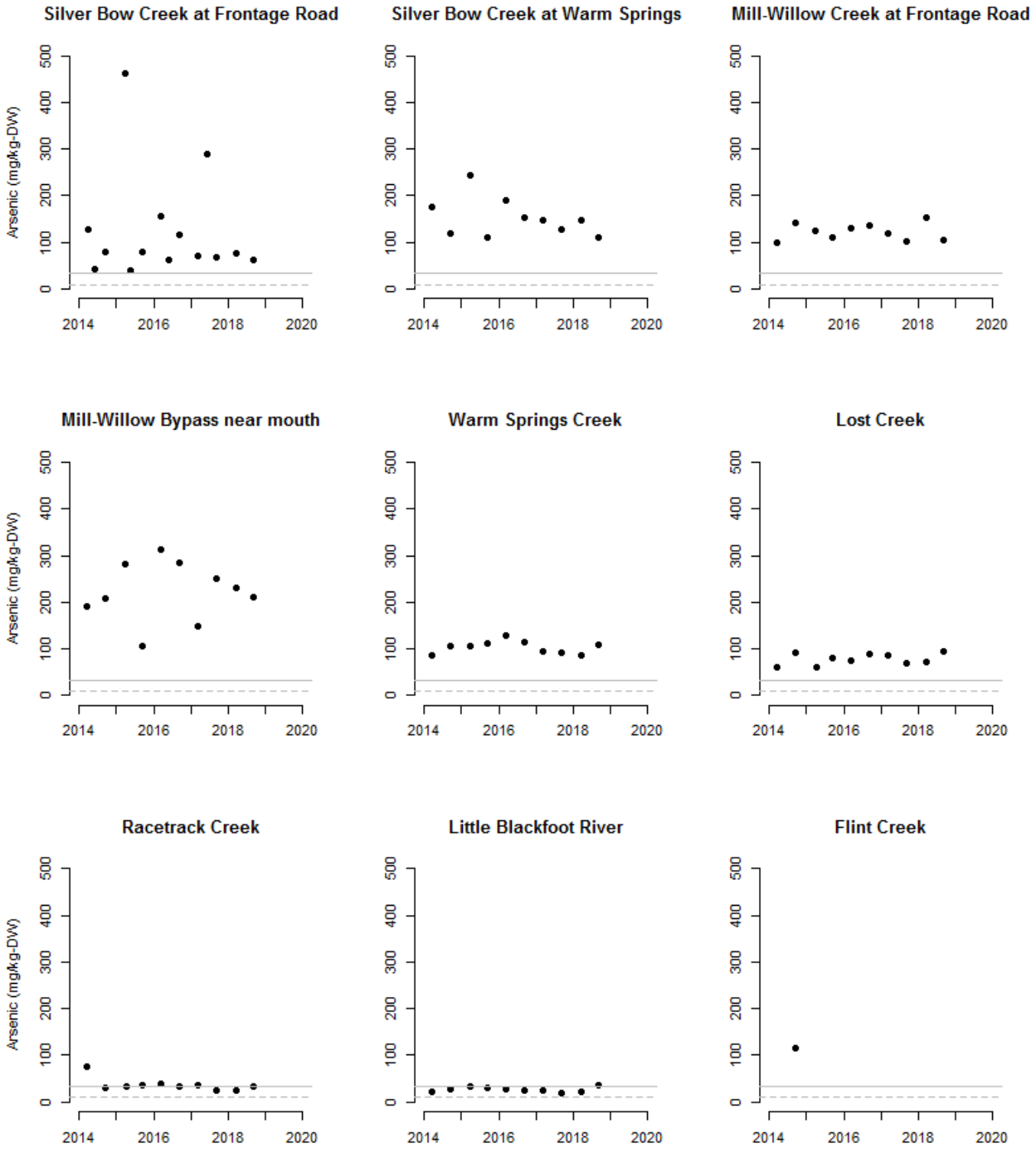

Figure 3-4. Time series of total arsenic concentrations (dry weight) in tributaries of the Clark Fork River, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 9.79 mg/kg and the "probable effect concentration" (PEC; solid line) at 33.0 mg/kg [MacDonald et al., 2000].

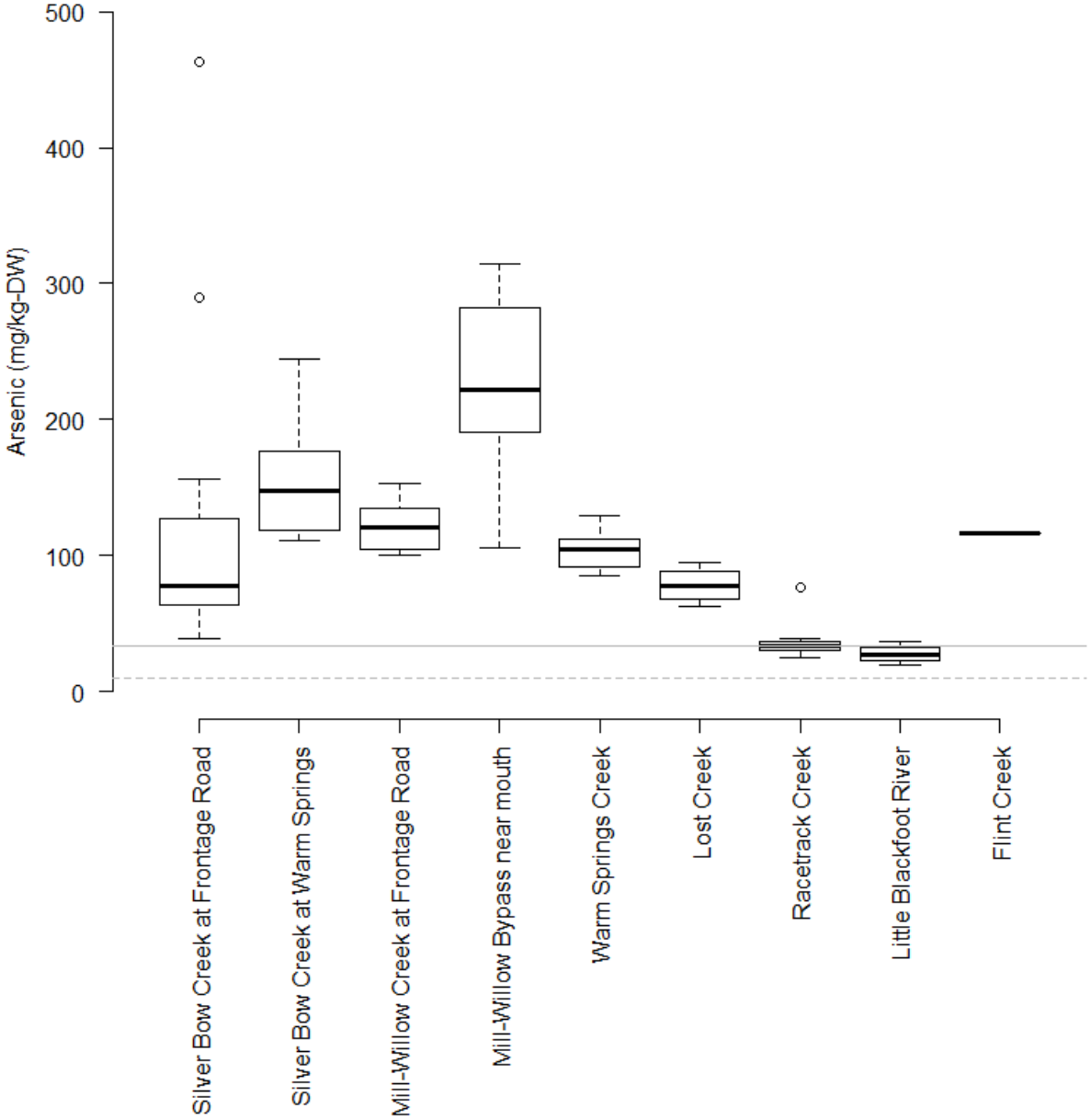

Figure 3-5. Boxplots of total arsenic concentration (dry weight) in Clark Fork River tributary monitoring sites, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 9.79 mg/kg and the "probable effect concentration" (PEC; solid line) at 33.0 mg/kg [MacDonald et al., 2000].

3.3.2.2 Cadmium

In the Clark Fork River mainstem, fine fraction (<0.065 mm) sediment cadmium concentrations ranged from 4.0-10.1 mg/kg-DW in 2018 (Table 3-6). Exceedances of the TEC and PEC reference values occurred at all sites during both sample periods in 2018 with two exceptions. Only the TEC was exceeded during Q1 at CFR-27H (at Deer Lodge), and during both sample periods at CFR-116A (at Turah) (Table 3-6). Cadmium concentrations at each site were similar in 2018 compared to prior monitoring years (**Figure 3-6**). Longitudinally on the Clark Fork River mainstem, there is a slight declining trend in median sediment cadmium concentrations between near Galen (river mile 0) and Turah (river mile 116) with the exception of the Williams-Tavenner Bridge site (river mile 34) where concentrations appear to be locally elevated (**Figure 3-7**).

In the Clark Fork River tributaries, fine fraction (<0.065 mm) sediment cadmium concentrations ranged from 1.5-70.2 mg/kg-DW in 2018 (Table 3-6). Exceedances of the cadmium TEC occurred in all tributary sites in both sample periods of 2018, but PEC exceedances occurred only at Silver Bow Creek and Mill-Willow Creek (Table 3-6). Cadmium concentrations in most tributary sites were similar in 2018 to prior monitoring years, although at some sites cadmium concentrations have been highly variable, particularly the Silver Bow Creek sites (**Figure 3-8**). Among paired tributary sites in Silver Bow Creek (at Frontage Road and at Warm Springs), median cadmium concentrations for the 2014-2018 period were about 50 percent higher above the Warm Springs Ponds (at Frontage Road) compared to downstream from the ponds (at Warm Springs) (**Figure 3-9**). However, median cadmium concentrations were similar between sites on Mill-Willow Creek (**Figure 3-9**). Median cadmium concentrations in Lost Creek, Racetrack Creek, the Little Blackfoot River, and Flint Creek have been well below the PEC since 2014 (**Figure 3-9**).

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, 2018.

Site ID	Site Location	Sample concentration (mg/kg-WW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	6.1	9.3
CFR-07D	Clark Fork River at Galen Road	7.4	9.0
CFR-11F	Clark Fork River at Gemback Road	5.8	8.0
CFR-27H	Clark Fork River at Deer Lodge	4.6	8.7
CFR-34	Clark Fork River at Williams-Tavenner Bridge	8.5	10.1
CFR-116A	Clark Fork River at Turah	4.2	4.0
Tributary Sites			
SS-19	Silver Bow Creek at Frontage Road	11.3	70.2
SS-25	Silver Bow Creek at Warm Springs	7.2	9.9
MCWC-MWB	Mill-Willow Creek at Frontage Road	7.6	5.1
MWB-SBC	Mill-Willow Bypass near mouth	5.3	6.6
WSC-SBC	Warm Springs Creek near mouth	4.3	3.5
LC-7.5	Lost Creek near mouth	2.4	2.6
RTC-1.5	Racetrack Creek near mouth	1.5	1.9
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	1.5	1.7

Exceeds threshold effect concentration, 0.99 mg/kg [MacDonald et al., 2000].

Exceeds probable effect concentration, 4.98 mg/kg [MacDonald et al., 2000].

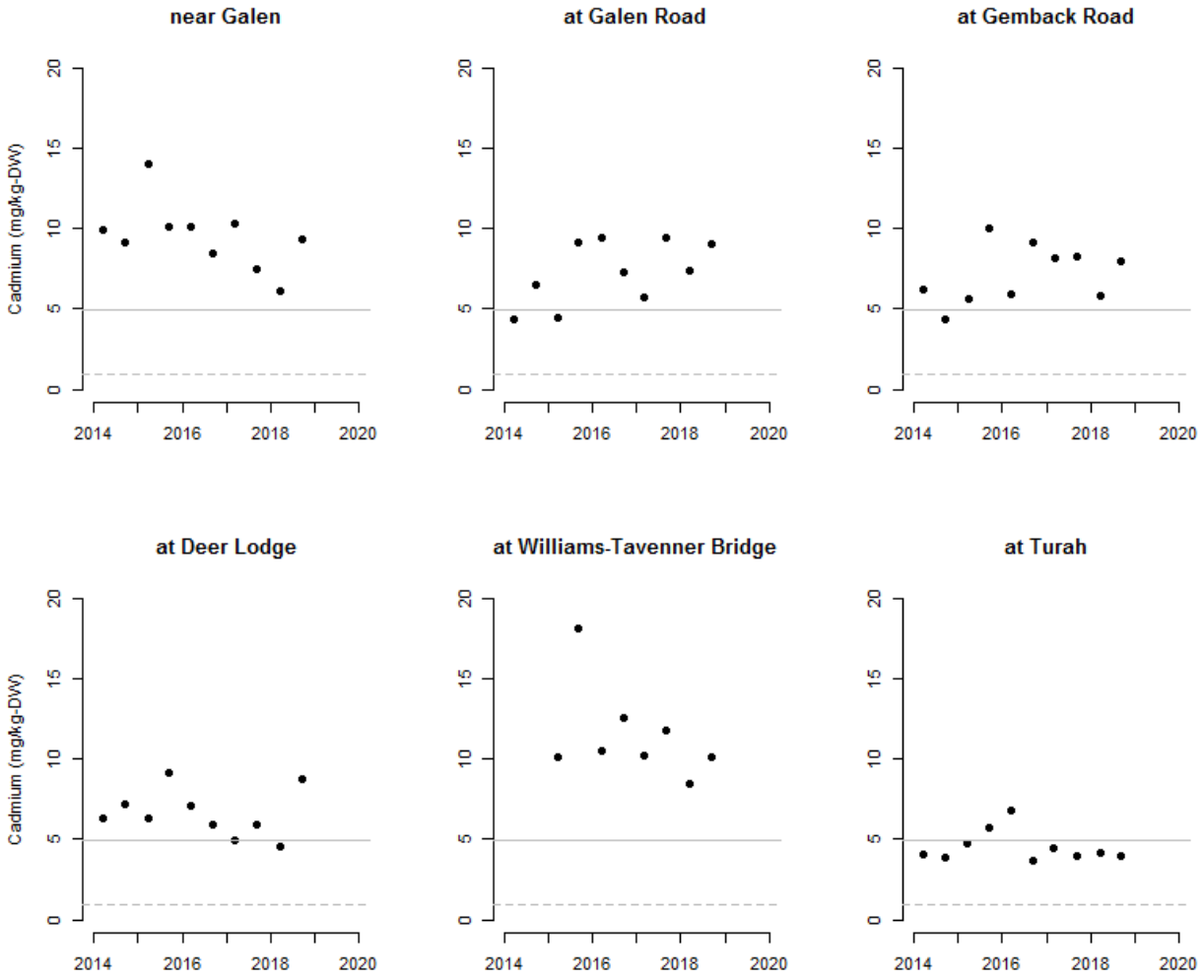

Figure 3-6. Time series of total cadmium concentrations (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 0.99 mg/kg and the "probable effect concentration" (PEC; solid line) at 4.98 mg/kg [MacDonald et al., 2000].

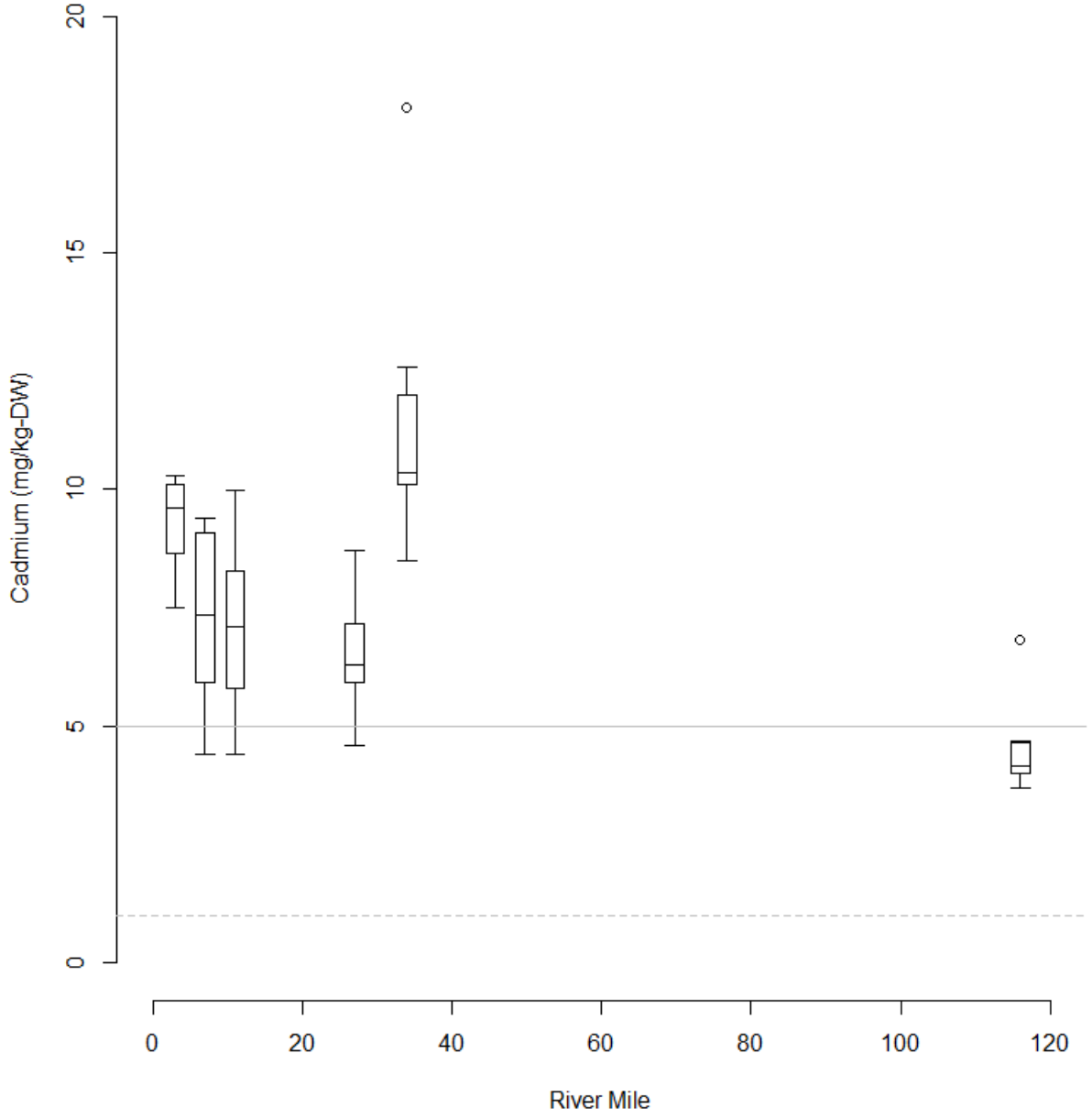

Figure 3-7. Boxplots of total cadmium concentration (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. River miles are measured downstream from the Silver Bow Creek-Warm Springs Creek confluence. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 0.99 mg/kg and the "probable effect concentration" (PEC; solid line) at 4.98 mg/kg [MacDonald et al., 2000].

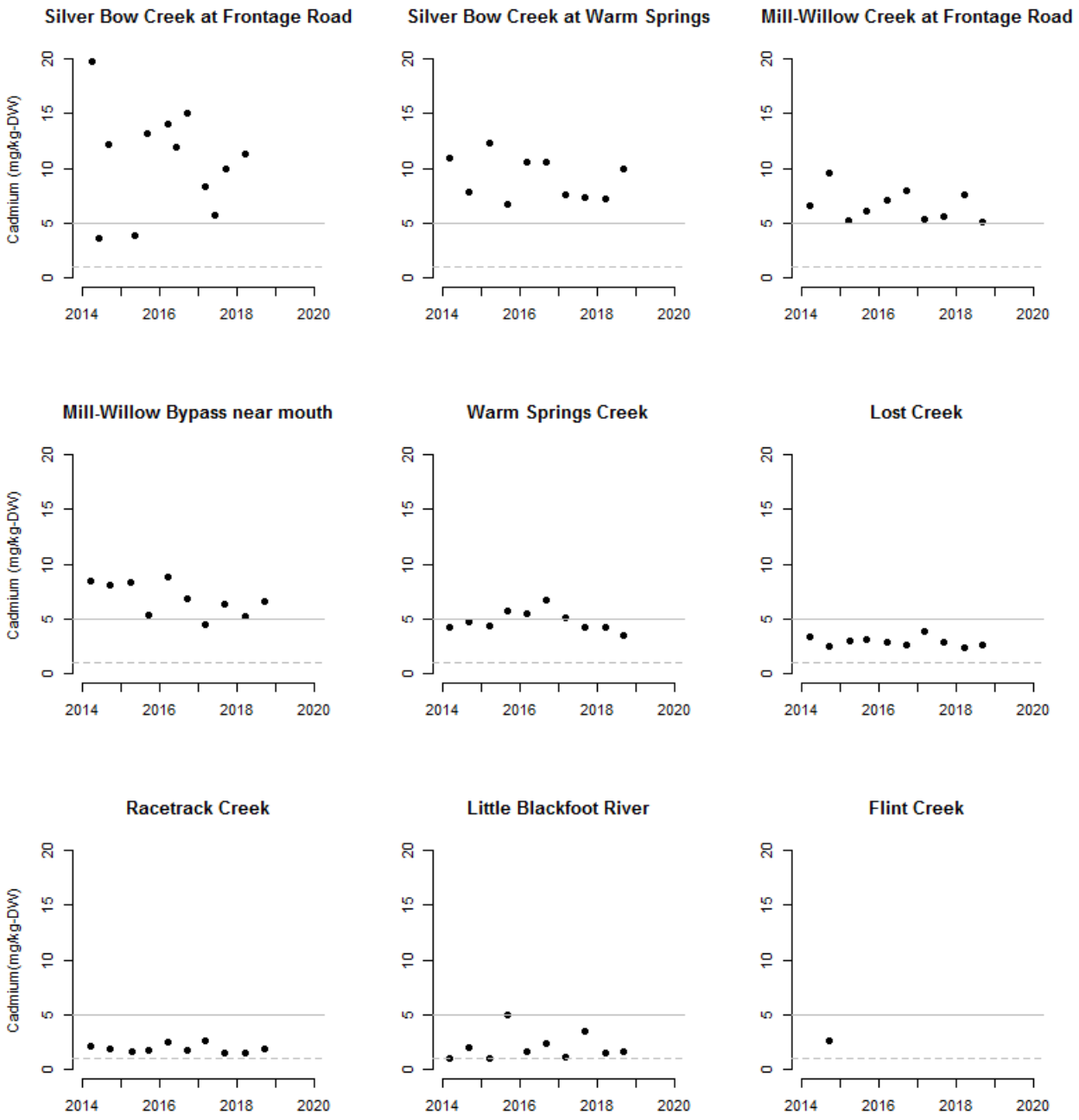

Figure 3-8. Time series of total cadmium concentrations (dry weight) in tributaries of the Clark Fork River, 2014-2018[39]. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 0.99 mg/kg and the "probable effect concentration" (PEC; solid line) at 4.98 mg/kg [MacDonald et al., 2000].

[39] Two samples from the Silver Bow Creek at Frontage Road site collected on March 26, 2015 and September 12, 2018 had unusually high cadmium concentrations (97 mg/kg-DW and 70 mg/kg-DW, respectively) and are not displayed.

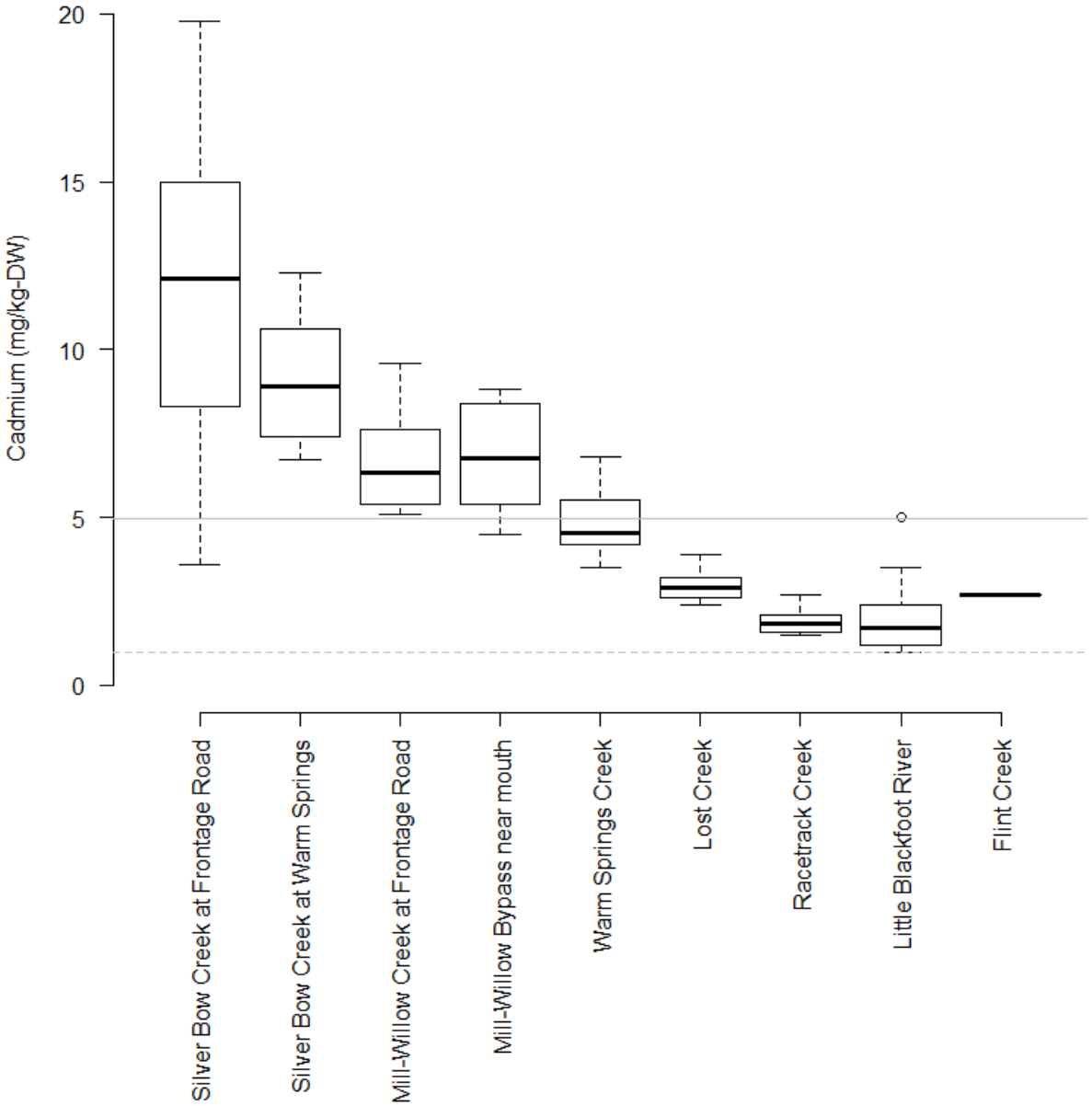

Figure 3-9. Boxplots of total cadmium concentration (dry weight) in Clark Fork River tributary monitoring sites, 2014-2018[40]. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 0.99 mg/kg and the "probable effect concentration" (PEC; solid line) at 4.98 mg/kg [MacDonald et al., 2000].

[40] Two samples from the Silver Bow Creek at Frontage Road site collected on March 26, 2015 and September 12, 2018 had unusually high cadmium concentrations (97 mg/kg-DW and 70 mg/kg-DW, respectively) and are not displayed.

3.3.2.3 Copper

In the Clark Fork River mainstem, fine fraction (<0.065 mm) sediment copper concentrations ranged from 561-2,170 mg/kg-DW in 2018 (Table 3-7). Exceedances of the TEC and PEC reference values occurred at all sites during both sample periods in 2018 (Table 3-7). Copper concentrations at each site were generally similar in 2018 compared to prior monitoring years (**Figure 3-10**). Longitudinally on the Clark Fork River mainstem, there is a declining trend in median sediment copper concentrations between near Galen (river mile 0) and Turah (river mile 116) with the exception of the Williams-Tavenner Bridge site (river mile 34) where concentrations appear to be locally elevated (**Figure 3-11**).

In the Clark Fork River tributaries, fine fraction (<0.065 mm) sediment copper concentrations ranged from 64-997 mg/kg-DW in 2018 (Table 3-7). Exceedances of the copper TEC and PEC occurred in all tributary sites except Racetrack Creek and the Little Blackfoot River (Table 3-7). In Racetrack Creek and the Little Blackfoot River, all samples exceeded the TEC in 2018 (Table 3-7). Copper concentrations in most tributary sites were similar in 2018 to prior monitoring years, although the Silver Bow Creek at Frontage Road copper concentrations have been quite variable (**Figure 3-12**). Among paired tributary sites in Silver Bow Creek, median copper concentrations for 2014-2018 were about 50 percent higher in Silver Bow Creek upstream from the ponds (at Frontage Road) compared to the site below the Warm Springs Ponds (at Warm Springs) (**Figure 3-13**). In Mill-Willow Creek, 2014-2018 median copper concentrations were higher at the upstream site (**Figure 3-13**). Median copper concentrations in Racetrack Creek, the Little Blackfoot River, and Flint Creek have been below the PEC since 2014 (**Figure 3-13**). The highest median copper concentrations in sediments since 2014 have occurred in Warm Springs Creek (**Figure 3-13**).

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, 2018.

Site ID	Site Location	Sample concentration (mg/kg-DW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	1220	1490
CFR-07D	Clark Fork River at Galen Road	1980	2170
CFR-11F	Clark Fork River at Gemback Road	1590[J]	1240
CFR-27H	Clark Fork River at Deer Lodge	1160[J]	1550
CFR-34	Clark Fork River at Williams-Tavenner Bridge	1230[J]	1420
CFR-116A	Clark Fork River at Turah	561[J]	567
Tributary Sites			
SS-19	Silver Bow Creek at Frontage Road	635	677
SS-25	Silver Bow Creek at Warm Springs	436	402
MCWC-MWB	Mill-Willow Creek at Frontage Road	499	323
MWB-SBC	Mill-Willow Bypass near mouth	198	230
WSC-SBC	Warm Springs Creek near mouth	862	997
LC-7.5	Lost Creek near mouth	410	409
RTC-1.5	Racetrack Creek near mouth	86	88
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	67[J]	64

J — Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (40%).

D — Result obtained from analysis of diluted sample.

Exceeds threshold effect concentration, 31.6 mg/kg [MacDonald et al., 2000].

Exceeds probable effect concentration, 149 mg/kg [MacDonald et al., 2000].

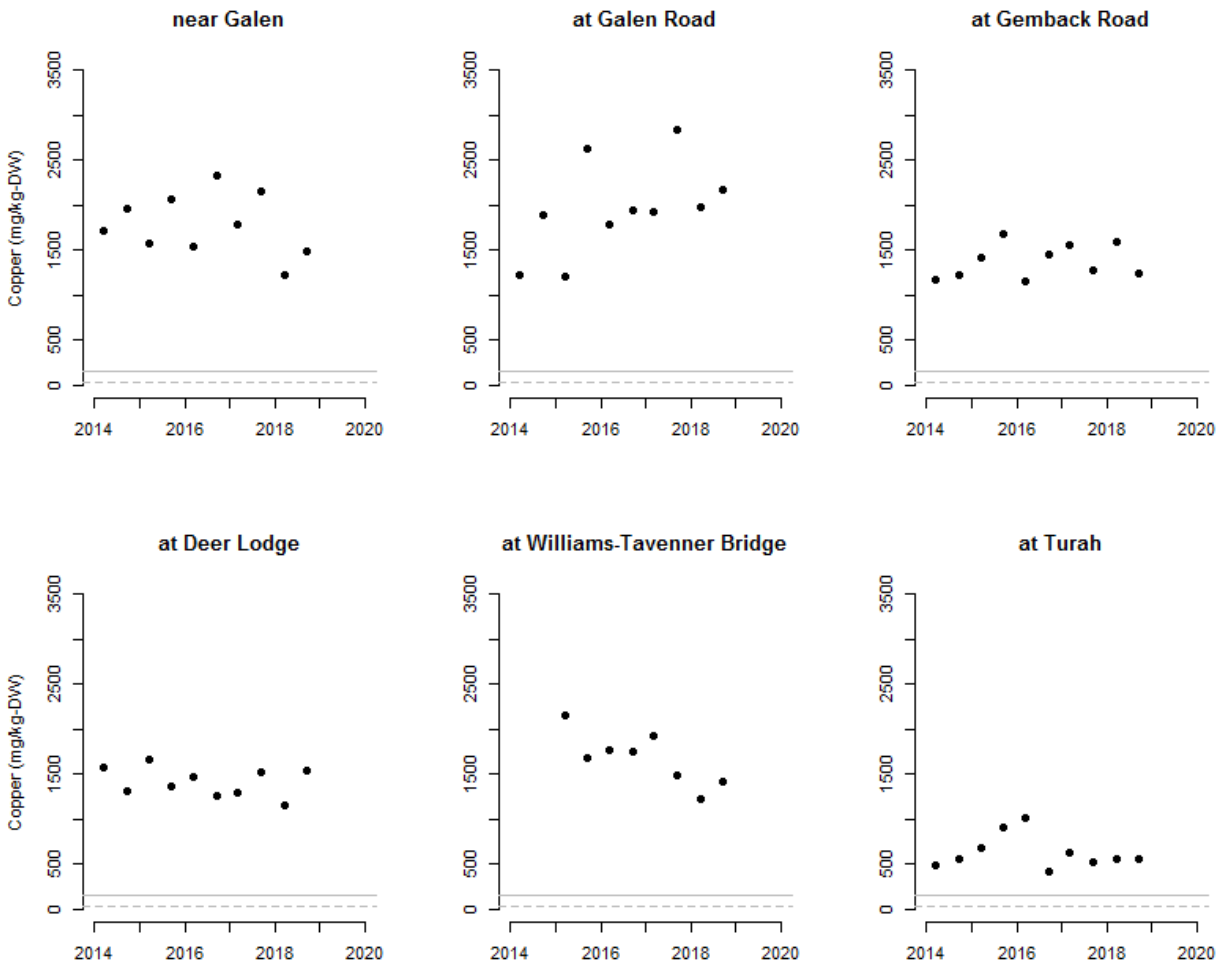

Figure 3-10. Time series of total copper concentrations (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 31.6 mg/kg and the "probable effect concentration" (PEC; solid line) at 149 mg/kg [MacDonald et al., 2000].

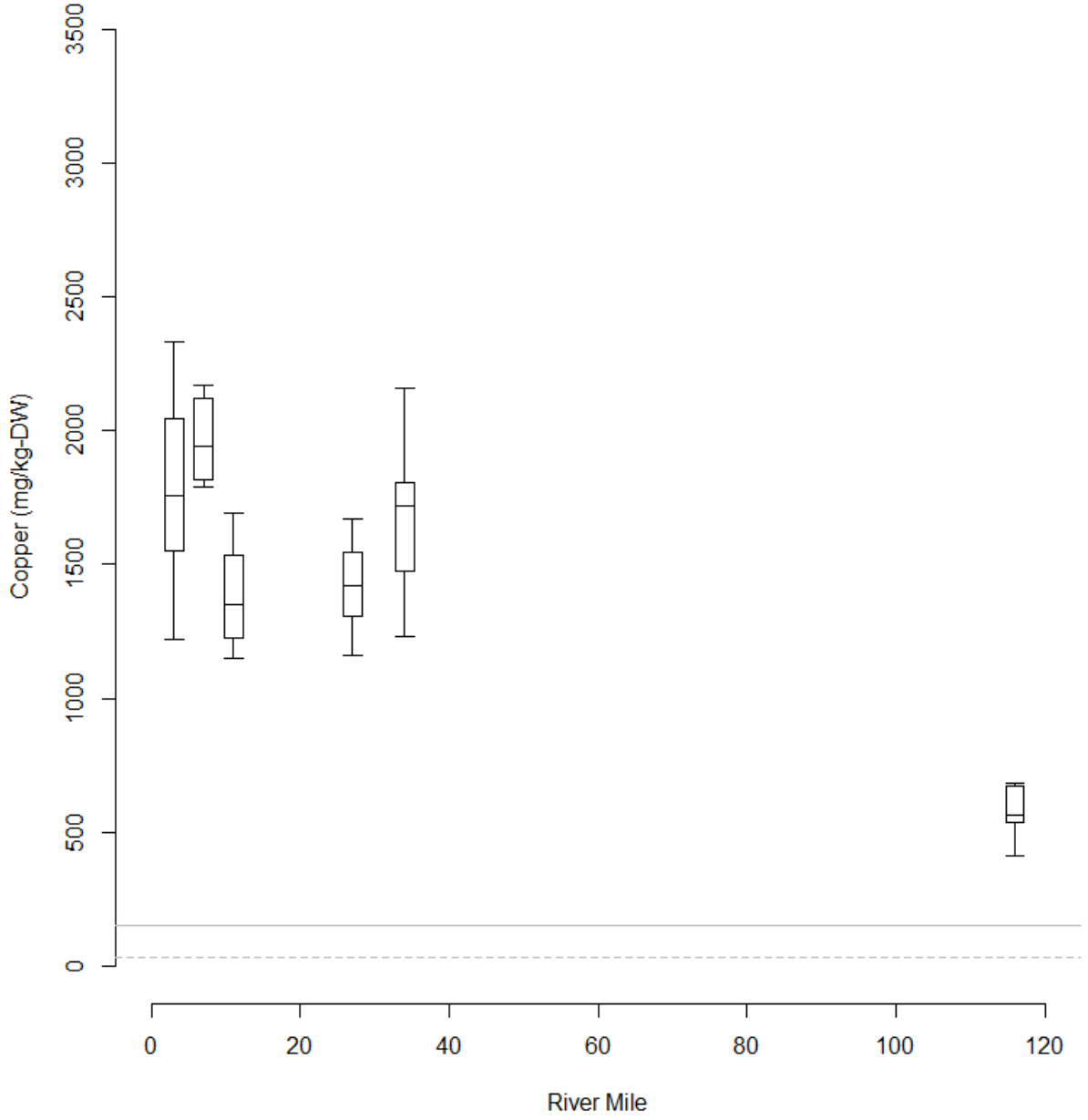

Figure 3-11. Boxplots of total copper concentration (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. River miles are measured downstream from the Silver Bow Creek-Warm Springs Creek confluence. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 31.6 mg/kg and the "probable effect concentration" (PEC; solid line) at 149 mg/kg [MacDonald et al., 2000].

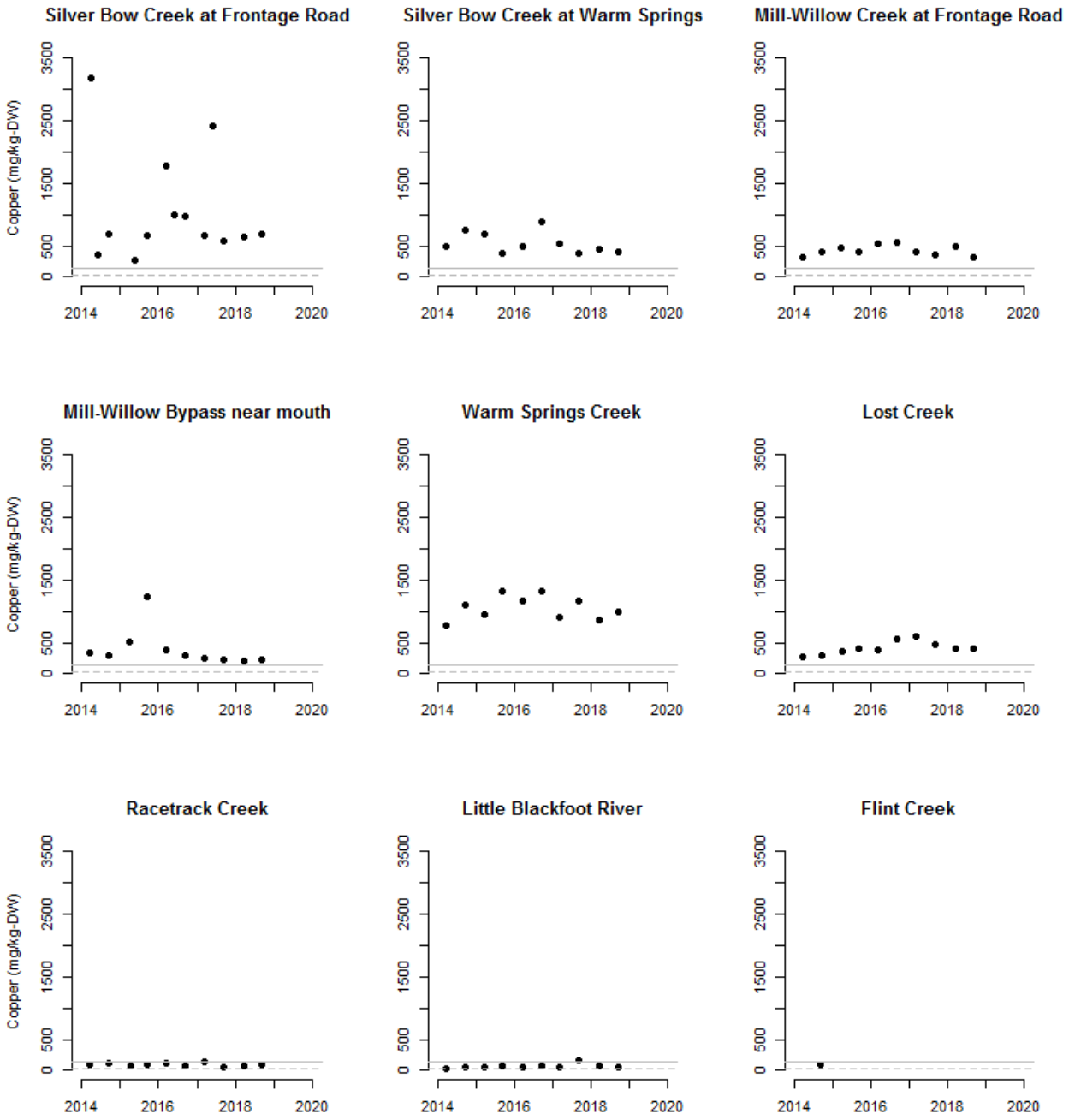

Figure 3-12. Time series of total copper concentrations (dry weight) in tributaries of the Clark Fork River, 2014-2018[41]. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 31.6 mg/kg and the "probable effect concentration" (PEC; solid line) at 149 mg/kg [MacDonald et al., 2000].

[41] One sample from the Silver Bow Creek at Frontage Road site collected on March 26, 2015 had an unusually high copper concentration (35,700 mg/kg-DW) and is not displayed.

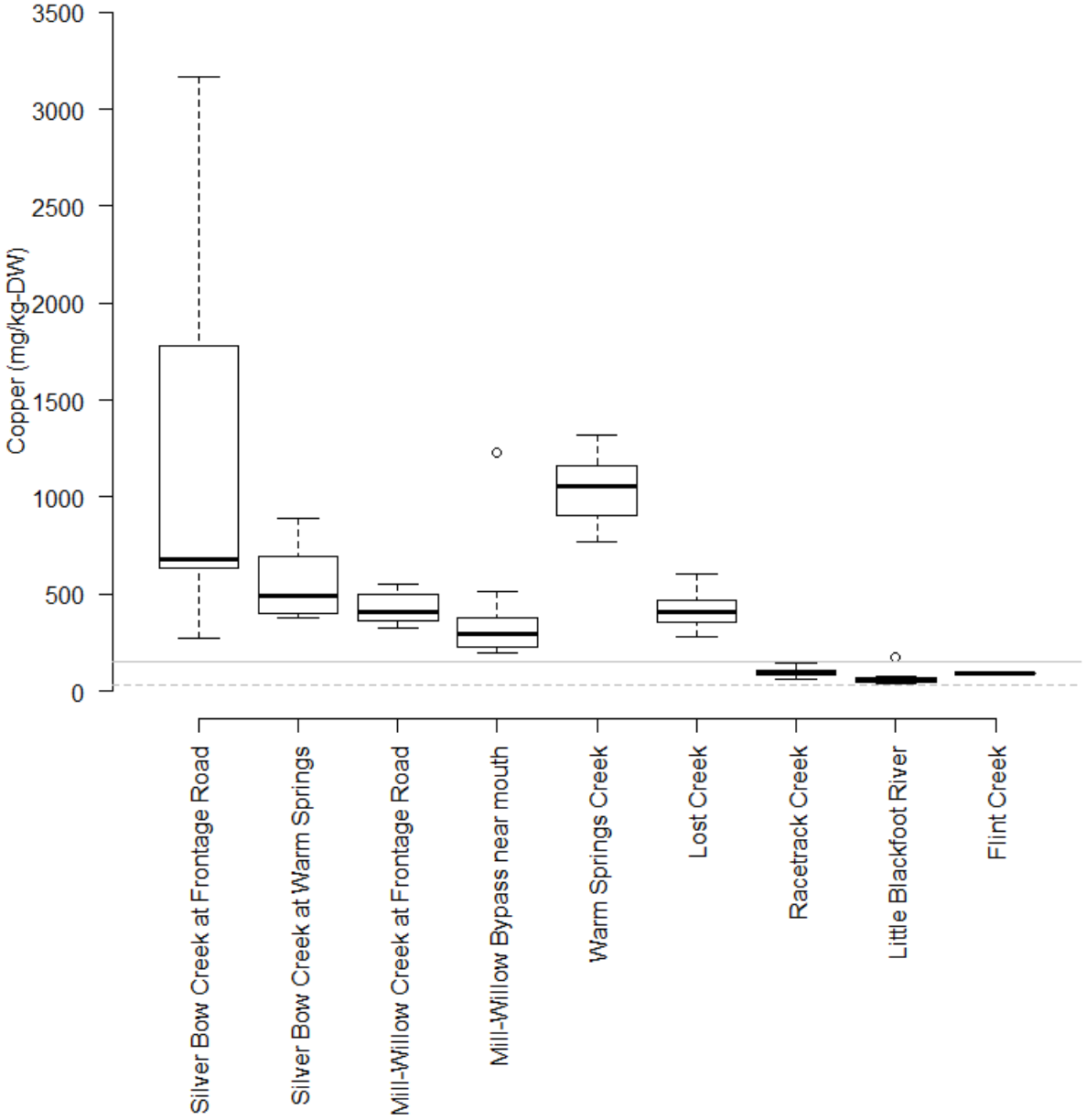

Figure 3-13. Boxplots of total copper concentration (dry weight) in Clark Fork River tributary monitoring sites, 2014-2018[42]. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 31.6 mg/kg and the "probable effect concentration" (PEC; solid line) at 149 mg/kg [MacDonald et al., 2000].

[42] One sample from the Silver Bow Creek at Frontage Road site collected on March 26, 2015 had an unusually high copper concentration (35,700 mg/kg-DW) and is not displayed.

3.3.2.4 Lead

In the Clark Fork River mainstem, fine fraction (<0.065 mm) sediment lead concentrations ranged from 95-395 mg/kg-DW in 2018 (Table 3-8). Exceedances of the TEC and PEC reference values occurred at all sites during both sample periods in 2018 (Table 3-8), except at Turah, where only the TEC was exceeded in Q3. Lead concentrations at each site were similar in 2018 compared to prior monitoring years (Figure 3-14). Longitudinally on the Clark Fork River mainstem, there is a slight declining trend in median sediment lead concentrations between sites near Galen (river mile 0) and Turah (river mile 116) except for the Williams-Tavenner Bridge site (river mile 34) where concentrations appear to be locally elevated (Figure 3-15).

In the Clark Fork River tributaries, fine fraction (<0.065 mm) sediment lead concentrations ranged from 92-397 mg/kg-DW in 2018 (Table 3-8). Exceedances of the lead PEC occurred in 2018 tributary samples for Silver Bow Creek, Mill-Willow Creek, and the Little Blackfoot River in Q1, and for all sites in Q3 (Table 3-8). All tributary samples exceeded the lead TEC (Table 3-8). Lead concentrations in most tributary sites were similar in 2018 compared to prior monitoring years, although at some sites lead concentrations have been highly variable, particularly the Silver Bow Creek sites (Figure 3-16). Among paired tributary sites in Silver Bow Creek and Mill-Willow Creek, lead concentrations were similar (Figure 3-17). The lowest median lead concentrations occurred in the Little Blackfoot River (Figure 3-17).

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, 2018.

Site ID	Site Location	Sample concentration (mg/kg-WW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	166	395[DJ]
CFR-07D	Clark Fork River at Galen Road	278	308[DJ]
CFR-11F	Clark Fork River at Gemback Road	215[J]	204[DJ]
CFR-27H	Clark Fork River at Deer Lodge	171[J]	248[DJ]
CFR-34	Clark Fork River at Williams-Tavenner Bridge	172[J]	288[DJ]
CFR-116A	Clark Fork River at Turah	135[J]	95[DJ]
Tributary Sites			
SS-19	Silver Bow Creek at Frontage Road	334	280
SS-25	Silver Bow Creek at Warm Springs	261	397[J]
MCWC-MWB	Mill-Willow Creek at Frontage Road	198	146[J]
MWB-SBC	Mill-Willow Bypass near mouth	151	160[J]
WSC-SBC	Warm Springs Creek near mouth	106	136[DJ]
LC-7.5	Lost Creek near mouth	92	131[J]
RTC-1.5	Racetrack Creek near mouth	125	145[J]
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	209[J]	227[DJ]

J — Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (40%).

D — Result obtained from analysis of diluted sample.

Exceeds threshold effect concentration, 31.6 mg/kg [MacDonald et al., 2000].

Exceeds probable effect concentration, 149 mg/kg [MacDonald et al., 2000].

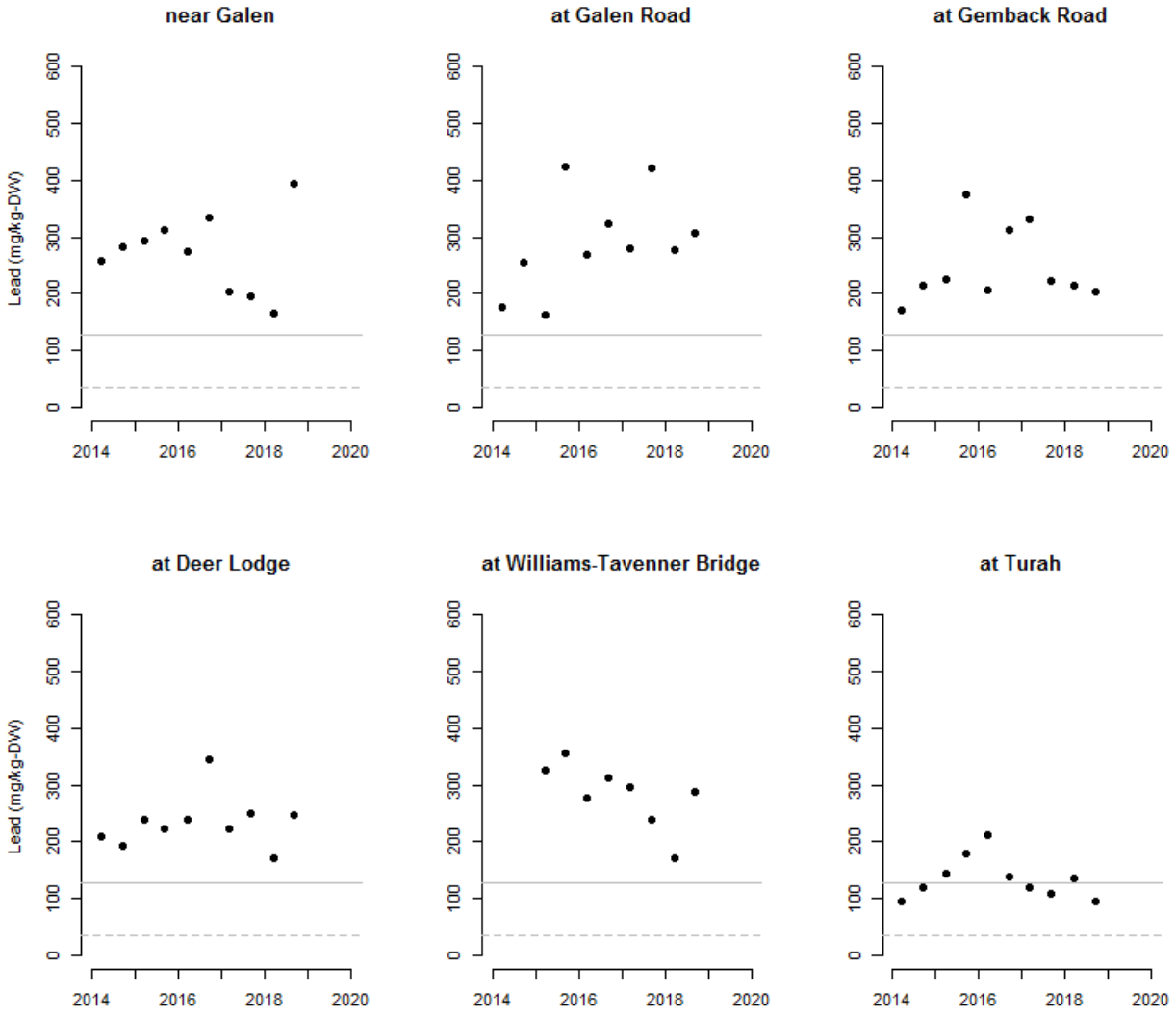

Figure 3-14. Time series of total lead concentrations (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 35.8 mg/kg and the "probable effect concentration" (PEC; solid line) at 128 mg/kg [MacDonald et al., 2000].

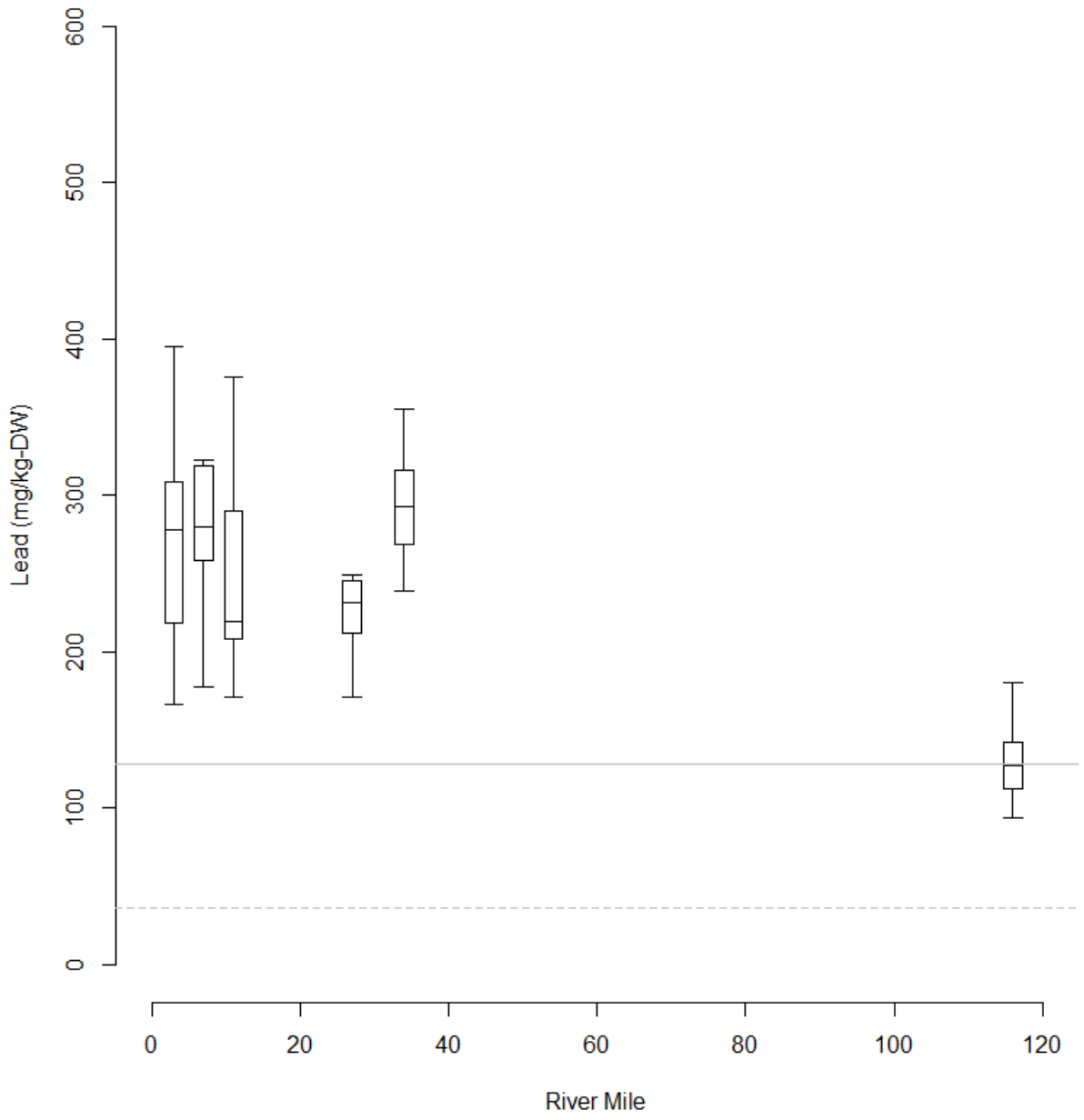

Figure 3-15. Boxplots of total lead concentration (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. River miles are measured downstream from the Silver Bow Creek-Warm Springs Creek confluence. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 35.8 mg/kg and the "probable effect concentration" (PEC; solid line) at 128 mg/kg [MacDonald et al., 2000].

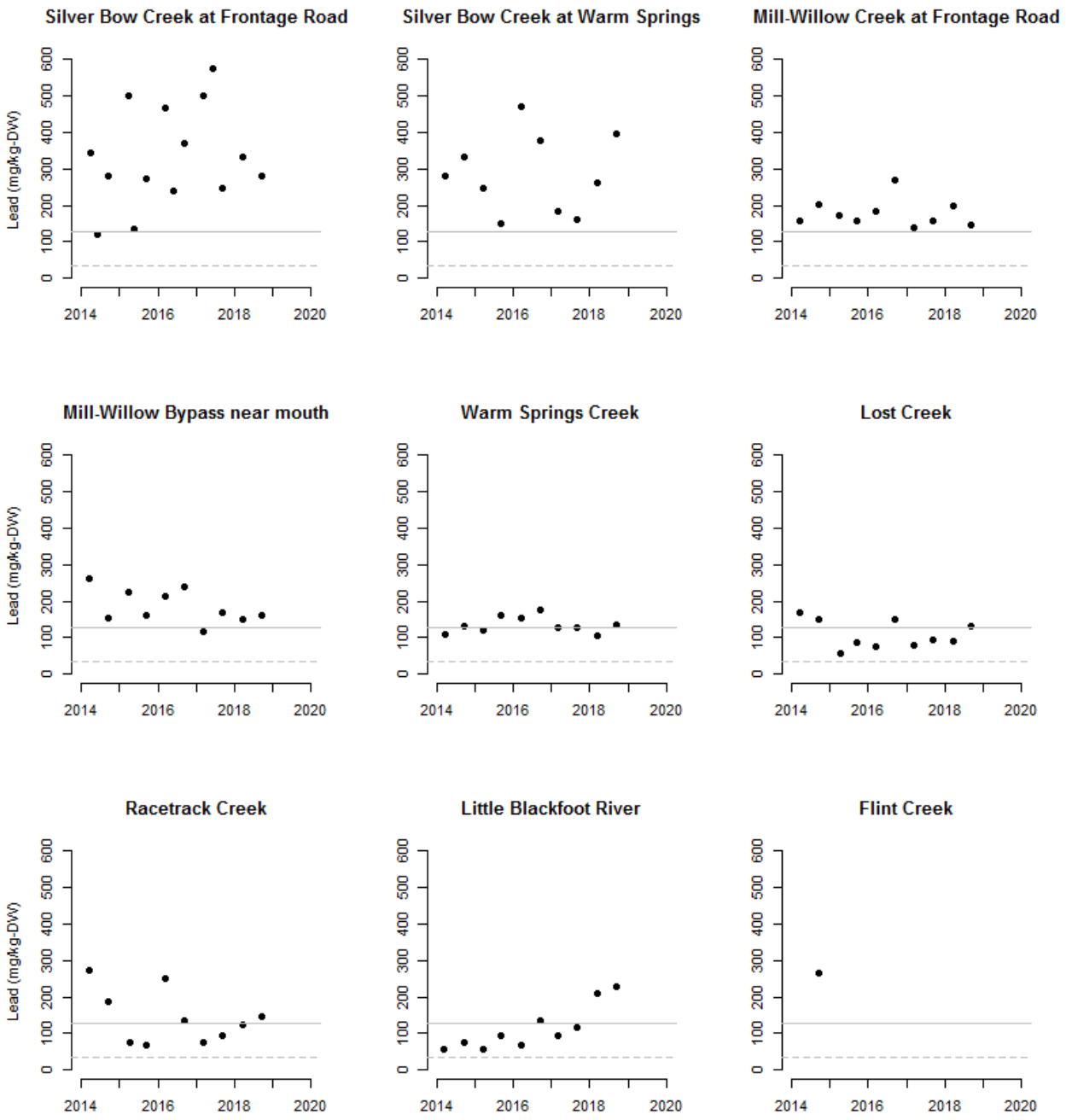

Figure 3-16. Time series of total lead concentrations (dry weight) in tributaries of the Clark Fork River, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 35.8 mg/kg and the "probable effect concentration" (PEC; solid line) at 128 mg/kg [MacDonald et al., 2000].

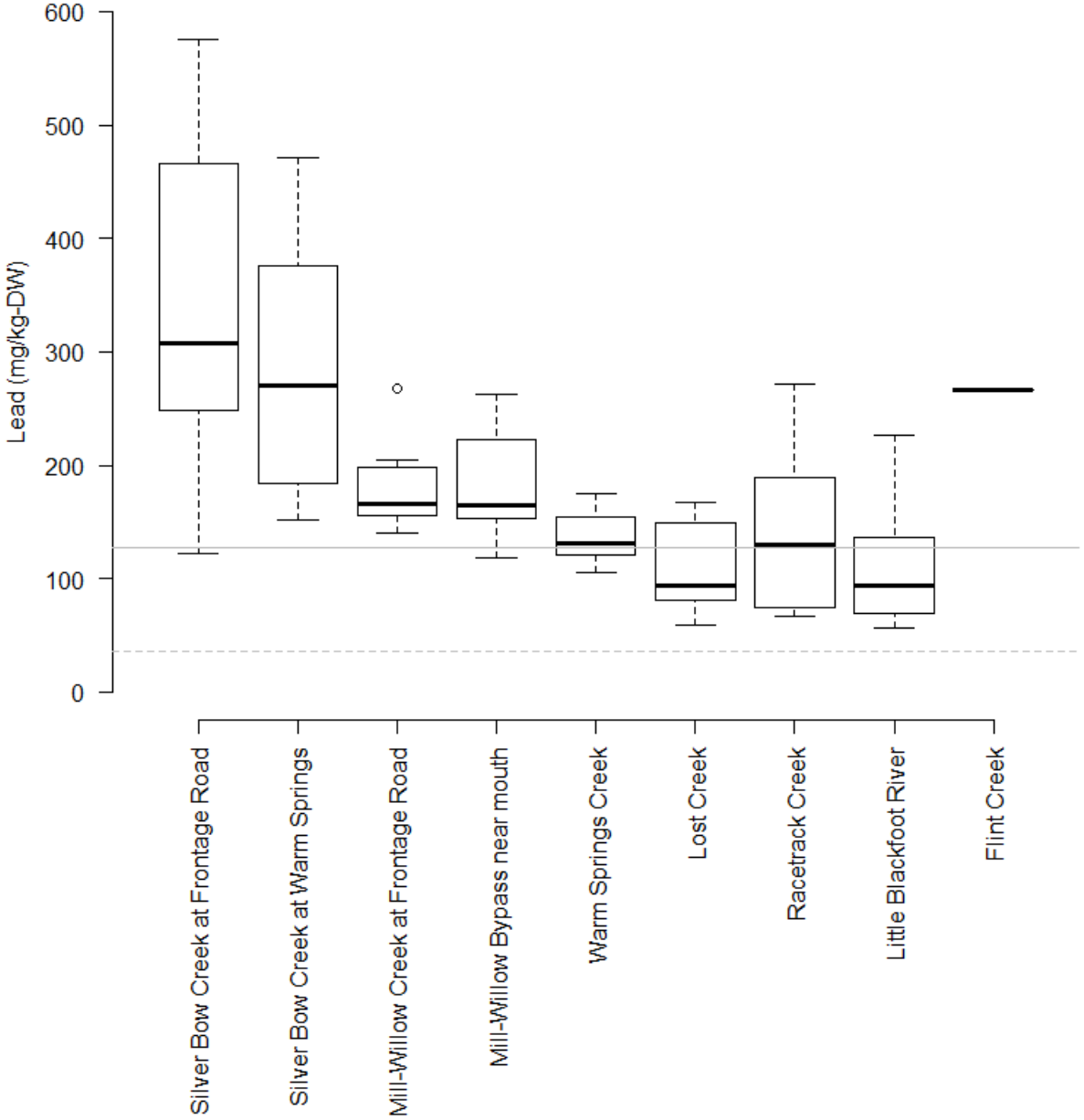

Figure 3-17. Boxplots of total lead concentration (dry weight) in Clark Fork River tributary monitoring sites, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 35.8 mg/kg and the "probable effect concentration" (PEC; solid line) at 128 mg/kg [MacDonald et al., 2000].

3.3.2.5 Zinc

In the Clark Fork River mainstem, fine fraction (<0.065 mm) sediment zinc concentrations ranged from 791-1,720 mg/kg-DW in 2018 (Table 3-9). Exceedances of the TEC and PEC reference values occurred at all sites during both sample periods in 2018 (Table 3-9). Zinc concentrations at each site were similar in 2018 compared to prior monitoring years (Figure 3-18). Longitudinally on the Clark Fork River mainstem, there is a slight declining trend in median sediment zinc concentrations between sites near Galen (river mile 0) and Turah (river mile 116) with the exception of the Williams-Tavenner Bridge site (river mile 34) where concentrations were elevated compared to upstream and downstream sites (Figure 3-19).

In the Clark Fork River tributaries, fine fraction (<0.065 mm) sediment zinc concentrations ranged from 137-1,690 mg/kg-DW in 2018 (Table 3-9). Exceedances of the zinc TEC occurred in all tributary sites in both sample periods of 2018 (Table 3-9). PEC exceedances occurred in the Silver Bow Creek, Mill-Willow Creek, and Warm Springs Creek sites (Table 3-9). Zinc concentrations in most tributary sites were similar in 2018 to prior monitoring years, although in the Silver Bow Creek sites, zinc concentrations have been highly variable (Figure 3-20). Among paired tributary sites in Silver Bow Creek, median zinc concentrations for 2014-2018 were slightly lower at the downstream site (at Warm Springs) (Figure 3-21). Median zinc concentrations were about 30 percent higher in Mill-Willow Creek at the downstream site (near mouth) (Figure 3-21). The lowest 2014-2018 median zinc concentrations occurred in Racetrack Creek and the Little Blackfoot River (Figure 3-21).

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, 2018.

Site ID	Site Location	Sample concentration (mg/kg-WW)	
		Q1	Q3
Mainstem Sites			
CFR-03A	Clark Fork River near Galen	1220	1720
CFR-07D	Clark Fork River at Galen Road	1250	1580
CFR-11F	Clark Fork River at Gemback Road	1070	1150
CFR-27H	Clark Fork River at Deer Lodge	822	1440
CFR-34	Clark Fork River at Williams-Tavenner Bridge	956	1550
CFR-116A	Clark Fork River at Turah	791	980
Tributary Sites			
SS-19	Silver Bow Creek at Frontage Road	1620	1510
SS-25	Silver Bow Creek at Warm Springs	962	1690
MCWC-MWB	Mill-Willow Creek at Frontage Road	681	608
MWB-SBC	Mill-Willow Bypass near mouth	642	666
WSC-SBC	Warm Springs Creek near mouth	431	499
LC-7.5	Lost Creek near mouth	249	290
RTC-1.5	Racetrack Creek near mouth	137	208
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	163	211

Exceeds threshold effect concentration, 121 mg/kg [MacDonald et al., 2000].

Exceeds probable effect concentration, 459 mg/kg [MacDonald et al., 2000].

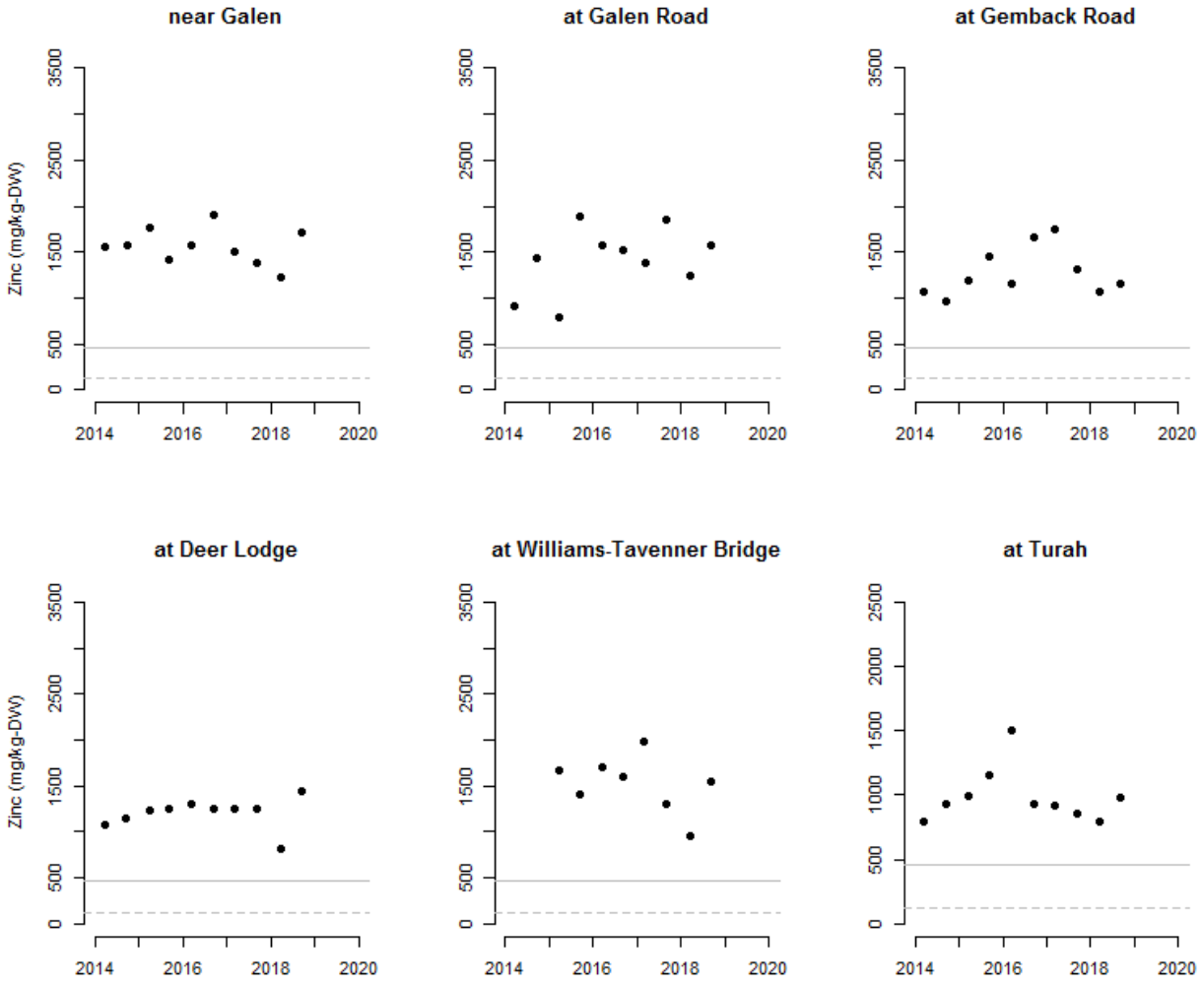

Figure 3-18. Time series of total zinc concentrations (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 121 mg/kg and the "probable effect concentration" (PEC; solid line) at 459 mg/kg [MacDonald et al., 2000].

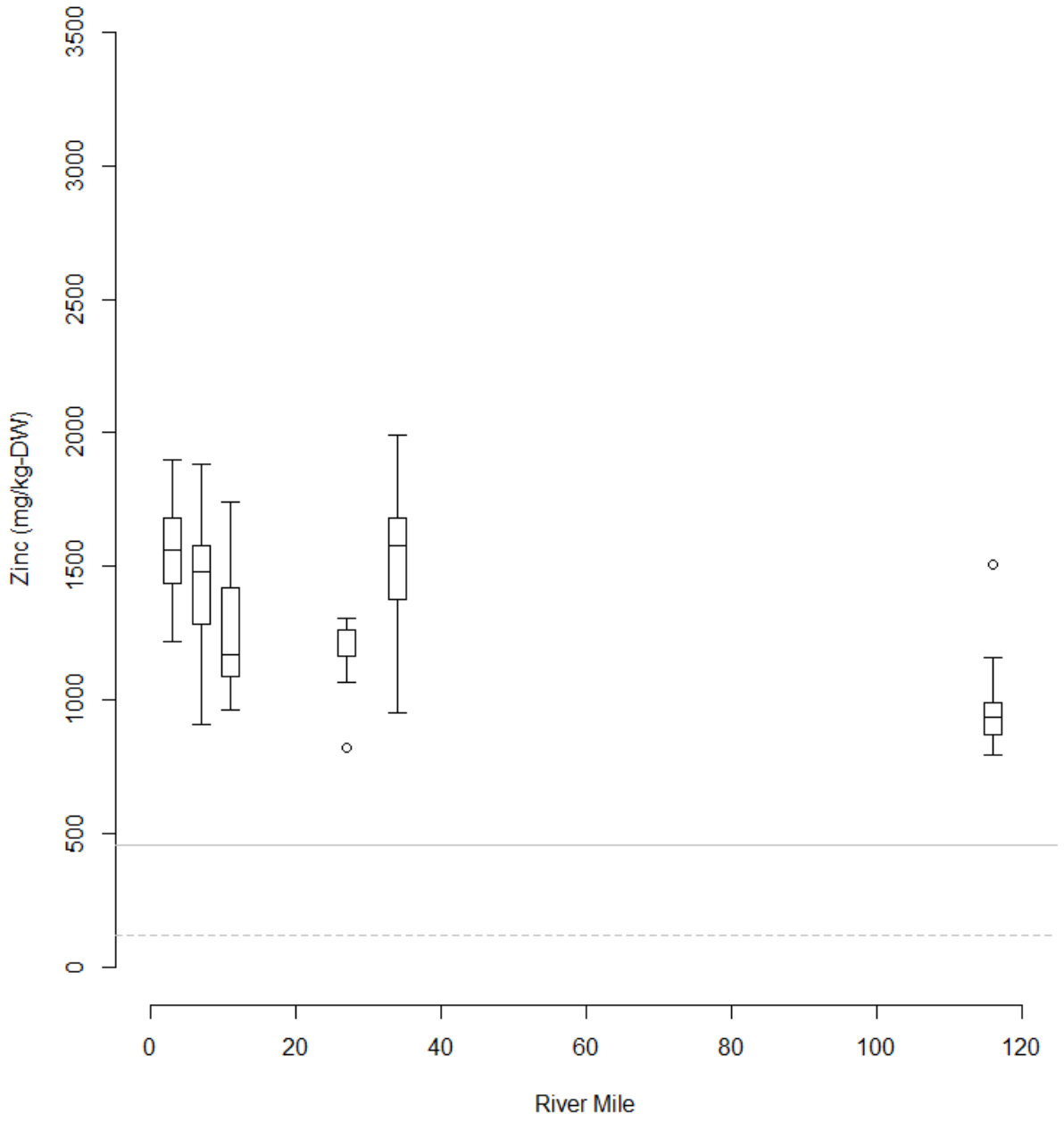

Figure 3-19. Boxplots of total zinc concentration (dry weight) at each Clark Fork River mainstem monitoring site, 2014-2018. River miles are measured downstream from the Silver Bow Creek-Warm Springs Creek confluence. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 121 mg/kg and the "probable effect concentration" (PEC; solid line) at 459 mg/kg [MacDonald et al., 2000].

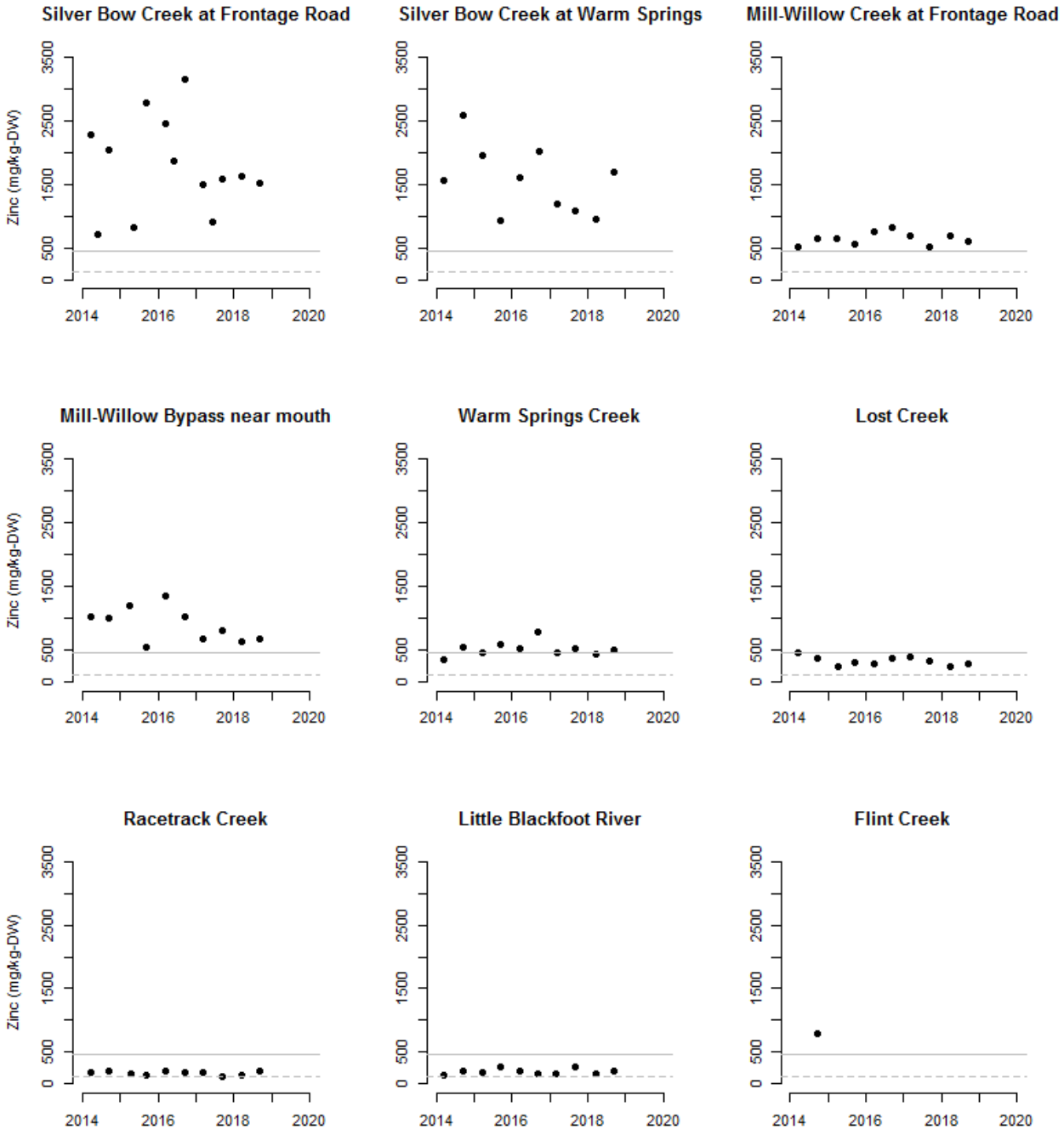

Figure 3-20. Time series of total zinc concentrations (dry weight) in tributaries of the Clark Fork River, 2014-2018[43]. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 121 mg/kg and the "probable effect concentration" (PEC; solid line) at 459 mg/kg [MacDonald et al., 2000].

[43] One sample from the Silver Bow Creek at Frontage Road site collected on March 26, 2015 had an unusually high zinc concentration (15,000 mg/kg-DW) and is not displayed.

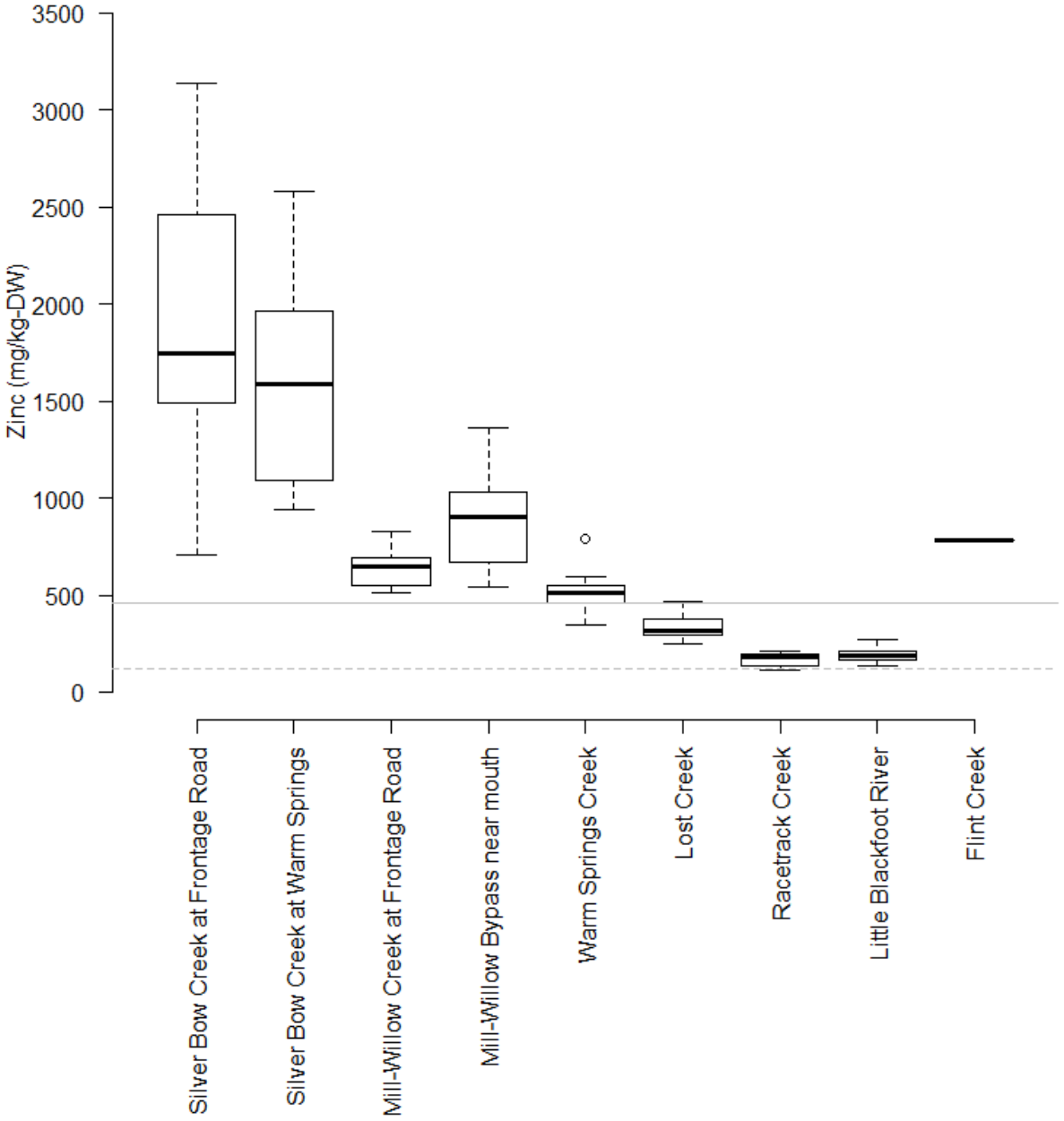

Figure 3-21. Boxplots of total zinc concentration (dry weight) in Clark Fork River tributary monitoring sites, 2014-2018[44]. Horizontal lines represent the "threshold effect concentration" (TEC; dashed line) at 121 mg/kg and the "probable effect concentration" (PEC; solid line) at 459 mg/kg [MacDonald et al., 2000].

[44] One sample from the Silver Bow Creek at Frontage Road site collected on March 26, 2015 had an unusually high cadmium concentration (15,000 mg/kg-DW) and is not displayed.

3.3.3 Data Validation

The quantitative portion of the data quality objectives (DQOs) for sampling precision consist of comparisons between field sample and field duplicate concentrations for each analyte in the monitoring program. In 2018, four field sample and field duplicate pairs were collected. In each pair, five comparisons were made, one for each metal in the fine fraction (<0.065 mm). In total, there were 20 analytes where field sample and duplicate relative percent difference (RPD) comparisons were made. Of those, 4 of 20 (20 percent) had an RPD greater than the DQO specified for sampling precision (40 percent). The range of RPD statistics among the 20 pairs was 0-118 percent (mean = 26percent; standard deviation [SD] = 27 percent).

3.4 DISCUSSION

3.4.1 Sample Size Fraction

Variability in sediment metals concentrations at any given monitoring site during any 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. 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

At each site, results of 2018 sediment sampling for dry weight sediment COC concentrations were generally consistent with previous dry weight results from 2014 through 2017. At this time, we do not believe temporal trends can be determined in COC concentrations with a reasonable level of confidence.

Exceedances of the more lenient reference value (the PEC) occurred in all 2018 CFROU mainstem and tributary samples for all COCs. Exceedances of the more restrictive reference value (the TEC) were quite common for all COCs. Most mainstem sites exceeded the PEC for each COC during both sample periods. Exceptions include Turah (CFR-116A) and Deer Lodge (CFR-27H). Turah did not exceed the PEC for cadmium in either sample period, and did not exceed the lead PEC during Q3. At Deer Lodge, the cadmium PEC was not exceeded during Q1. These non-exceedances mark an improvement over previous years when all mainstem sites exceeded PECs for each COC. In some tributaries, exceedances of the PEC were just as frequent as in the mainstem sites. All Silver Bow Creek and Mill-Willow Creek samples exceeded the PEC for each COC. Warm Springs Creek exceeded the PEC for each COC except lead and zinc during Q1 and

cadmium during both sampling periods. Exceedances of the PECs were less common in Lost Creek, Racetrack Creek, and the Little Blackfoot River.

In the Clark Fork River mainstem since 2014, the highest cationic COC concentrations (cadmium, copper, lead, zinc) have tended to occur in the upper-most portion of Reach A (near Galen). Cationic COC concentrations have generally decreased with downstream distance from the near Galen site (CF3-03A), except for the Williams-Tavenner Bridge site (CFR-34). At CFR-34, cationic COC concentrations were slightly higher than expected given the prevailing spatial trend. However, sampling at CFR-34 did not begin until 2015 and therefore the sample size at CFR-34 is lower (8) than at the other mainstem sites (10). Arsenic concentrations in the mainstem also decreased with downstream distance from site CFR-03A but the decrease with distance was even more pronounced. As with the cationic COCs, arsenic concentrations at CFR-34 were a bit higher than expected given the overall upstream-to-downstream trend.

Based on the median sediment COC concentrations observed in the tributaries and mainstem since 2014, certain tributaries may be sources of sediment-associated COCs; specifically, arsenic in the Mill-Willow Bypass, cadmium, lead and zinc in Silver Bow Creek, and copper in Warm Springs Creek. Median sediment arsenic concentrations in the Mill-Willow Bypass near mouth (MWB-SBC), and median sediment cadmium, lead and zinc concentrations in Silver Bow Creek at Warm Springs (SS-25) were higher than at any mainstem sites. Additionally, arsenic concentrations in Silver Bow Creek at Warm Springs and cadmium concentrations in the Mill-Willow Bypass have been similar to concentrations in the mainstem sites immediately downstream which indicates that those tributaries also likely contribute a substantial amount of contamination to the mainstem.

In addition to loading from the tributaries, sediment arsenic concentrations increased substantially in Silver Bow Creek between sites above and below the Warm Springs Ponds and between sites in Mill-Willow Creek above and below the Mill-Willow Bypass (adjacent to the Warm Springs Ponds). These results may warrant further investigation to evaluate linkages between arsenic contamination in surface water in the ponds, groundwater, and instream sediment.

3.4.3 Data Validation

Eighty percent of the field sample and field duplicate pairs in 2018 had RPD statistics within 40 percent and therefore satisfied the project goal for “overall precision”. A complete analysis of data validation procedures and results is described in Appendix A.

4.0 PERIPHYTON[45]

4.1 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.

Investigations of the character and extent of the contamination on the Clark Fork River began in 1995 subsequent to the EPA 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 [PBS&J, 2010]. The plan will be implemented over the next decade and includes monitoring techniques and remediation goals for surface water, ground water, in-stream sediment, vegetation and aquatic biota.

Periphyton (benthic algae) 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. This report describes results of periphyton monitoring within the Clark Fork River Operable Unit (CFROU) in 2018. Samples were taken from four Clark Fork River headwater sites, sixsites on the mainstem Clark Fork River, and three sites on tributaries of the Clark Fork.

Several approaches were used to examine the periphyton samples. The taxonomy and assemblage structure of non-diatom (soft-bodied) algae and diatom (silica-walled) algae were examined. 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 Montana Department of Environmental Quality (DEQ) as a periphyton standard operating procedure for determining the probability of sediment impairment [DEQ, 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]. These metrics were based on autecological preferences or requirements of freshwater diatoms [Lowe, 1974; van Dam et al., 1994; Bahls 2006]. Site-specific narratives were also used to describe probable stressors to water quality and habitat integrity. These

[45] Chapter 4 was prepared by Wease Bollman and Billie Kerans with Rhithron with minor editing and formatting by RESPEC.

narratives were based on taxonomic and functional composition of the benthic flora. Principal Components Analysis (PCA) was also used to examine similarities in diatom assemblage structure among sites.

4.2 METHODS

4.2.1 Sampling

Periphyton samples were collected at four Clark Fork River headwater sites, six sites on the mainstem Clark Fork River, and three sites on tributaries of the Clark Fork. (Data were added from one site that was sampled as part of the survey of the Streamside Tailings Operable Unit (SSTOU) on Silver Bow Creek.) One composite periphyton sample was collected from multiple substrates and habitat types at each site. Periphyton samples were collected following the DEQ PERI-1 method for flowing streams where a defined reach has not been established [DEQ, 2011]. Periphyton samples were preserved in the field with Lugols solution and were transported to the laboratory on ice. Sites are described in Table 4-1.

Table 4-1. Sampling sites, Clark Fork River basin, September 24-27, 2018.

Site Description	Site ID	USGS Site Number	Latitude	Longitude
Headwaters				
Mill -Willow Creek at Frontage Road	MCWC-MWB	NA	46.12649	-112.79876
Mill-Willow Creek Bypass near mouth	MWB-SBC	NA	46.17839	-112.78270
Warm Springs Creek near mouth	WSC-SBC	12323770	46.18041	-112.78592
Silver Bow Creek at Frontage Road[46]	SS-19	NA	45.98520	-112.50770
Silver Bow Creek at Warm Springs	SS-25	12323750	46.18123	-112.77917
Mainstem				
Clark Fork River near Galen	CFR-03A	12323800	46.20877	-112.76740
Clark Fork River at Galen Road	CFR-07D	NA	46.23725	-112.75302
Clark Fork River at Gemback Road	CFR-11F	NA	46.26520	-112.74430
Clark Fork River at Deer Lodge	CFR-27H	NA	46.39796	-112.74283
Clark Fork River at Williams-Tavenner Bridge	CFR-34	NA	46.39778	-112.74194
Clark Fork River at Turah	CFR-116A	12334550	46.82646	-113.81424
Tributaries				
Lost Creek at Frontage Road	LC-7.5	12323850	46.21862	-112.77384
Racetrack Creek at Frontage Road	RTC-1.5	NA	46.28395	-112.74921
Little Blackfoot River at Beck Hill Road	LBR-CFR-02	NA	46.51964	-112.79312

[46] Collected on September 20, 2018.

4.2.2 Laboratory Analysis

After the periphyton samples were preserved with Lugols solution and taken to the laboratory, initial sample volumes were measured and recorded. The samples were thoroughly mixed by shaking and split into two aliquots for analyses of soft-bodied algae and diatoms.

4.2.2.1 Non-Diatom Algae

For soft-bodied algal samples, the raw periphyton sample was manually homogenized and emptied into a porcelain evaporating dish. A small, random sub-sample of algal material was pipetted into a standard Palmer-Maloney counting chamber using a disposable Pasteur pipette. Visible (macroscopic) algae were also sub-sampled, in proportion to their estimated abundance relative to the total volume of algal material in the sample and added to the liquid fraction on the slide. The Palmer-Maloney cell was then covered with a 22x30 mm coverslip.

Soft-bodied (non-diatom) algae were identified to genus using a Leica DM 2500 compound microscope under 200X and 400X magnification. The relative abundance of each algal genus (and of all diatom genera collectively) was estimated for comparative purposes, according to the following system:

- rare (R): fewer than one cell per field of view at 200X, on the average;
- common (C): at least one but fewer than 5 cells per field of view;
- very common (VC): between 5 and 25 cells per field of view;
- abundant (A): more than 25 cells per field of view, but countable;
- very abundant (VA): number of cells per field of view too numerous to count.

Algae (all non-diatom genera and the diatoms as one unit) were also ranked according to their estimated contribution to the total algal biovolume present in the sample. The genus (or Division in the case of the diatoms) with the most biomass ranked number 1; the genus with the next most biomass ranked number 2, and so on. Rare (R) taxa were recorded with a biomass rank of 0.

4.2.2.2 Diatom Algae

Permanent diatom slides were prepared: subsamples were taken and treated with 70 percent nitric acid (HNO_3) and digested using a closed-vessel microwave digestion system (Milestone Ethos EZ), following the method developed by the Academy of Natural Sciences, Philadelphia [ANSP, 2002]. The samples were neutralized by rinses with distilled water, and subsample volumes were adjusted to obtain adequate densities for slide mounts. Dilution and concentration factors, as appropriate, were recorded for each sample. Subsamples were dried onto 22-mm square coverslips. Coverslips were mounted on slides using Naphrax diatom mount. To ensure a high-quality mount for identification and to make replicates available for archives, two slide mounts were made from each sample. One of the replicates was selected from each sample batch for identification. A diamond scribe mark was made to define a transect line on the cover slip, and a minimum of 800 diatom valves were identified along the transect mark. A Leica DM 2500 compound microscope, Nomarski contrast, and 1000x magnification were used for identifications. Diatoms were identified to the lowest possible taxonomic level, generally species.

4.2.3 Data Analysis

Results of periphyton taxonomic analyses are summarized using three general approaches: (1) taxa richness and diversity, (2) diatom bioassessment indices, and (3) site-specific narratives that include ecological interpretations of the taxa richness and diversity and bioassessment analyses as well as other pertinent information about the assemblages.

4.2.3.1 Taxa Richness and Diversity

Taxa richness for non-diatom taxa and diatom taxa richness and diversity were examined separately to provide a general understanding of the periphyton assemblages within each sample. Non-diatom taxa richness was summarized by genus within taxonomic division for each site. More detailed summaries of estimated relative abundance and generic diversity within each non-diatom sample are provided in Appendix A. Diatom taxa richness and Shannon diversity were compared among samples to evaluate general trends among sites. In the case of diatoms, species-level, including variants, were used. Detailed summaries of the diatom assemblages at each site can be found in Appendix B.

4.2.3.2 Diatom Bioassessment Indices

Taxonomic results for diatom sample analysis were used to calculate an array of bioassessment indices within each sample. Three general types of bioassessment tools were applied to each: Increaser Taxa bioindices [DEQ, 2011; Teply, 2010a], Diatom Association Metrics for Montana Mountain Streams [Bahls, 1993], and Ecological Indicator Values of Freshwater Diatoms [Van Dam et al., 1994]. Each bioassessment index generates a value summarizing the degree of impairment to the diatom assemblage at each site. Some indices are designed to represent impairment from specific environmental stressors (e.g., amount of dissolved oxygen) whereas others represent general impairment.

4.2.3.2.1 Increaser Taxa

Each periphyton sample was evaluated according to DEQ's current periphyton standard operating procedure [DEQ, 2011] using "pollutant-diagnosing biometrics based on stressor-specific increaser diatom taxa as described in Teply [2010a; 2010b]". The pollutant-diagnosing biometrics described in DEQ [2011] are known as "increaser taxa" and are specifically designed to diagnose stress from sediments and nutrients. According to DEQ [2011], "the assessment tools have been designed to function properly in the presence (or absence) of the other stressor types". For the Middle Rockies ecoregion, the DEQ has adopted only the sediment biometric. Teply [2010a] also provides guidance for a metal-increaser taxon biometric to diagnose stress from metal contamination although that metal-specific biometric was not adopted by DEQ [2011]. However, because each increaser taxa biometric provides estimates of the probability of impairment for each specific stressor of interest, the impairment probabilities for all three biometrics are summarized in this report.

4.2.3.2.2 Diatom Association Metrics for Montana Mountain Streams

In addition to the diatom bioassessment indices, we used seven diatom association metrics to augment assessments of impairment (Table 4-2). Each of these seven diatom association metrics provides a general measure of environmental impairment to the diatom assemblage. Results from each site were tabulated and sites were rated on impairment based on the criteria listed in Table 4-2. We also combined these additional metrics into an index that evaluates overall biointegrity at each site. The following paragraphs summarize each metric.

Species richness is a common measure of environmental impairment with greater richness generally reflecting more heterogeneous environmental conditions. Low taxa richness generally reflects environmental homogeneity, which may be the result of several specific stressors such as metal contamination or nutrient enrichment. Bahls [1979] used species richness as a measure of diatom biointegrity.

The Diversity Index is based on the Shannon diversity index which includes measures of species evenness and taxa richness and is sensitive to variation in water quality [Bahls, 1993].

Pollution tolerance groups, defined by Lange-Bertalot [1979], diatom autecological profiles described by Lowe [1974] and unpublished Montana diatom data described in Bahls [2006] were combined in the Pollution Index [Bahls, 1993]. This index rates diatom tolerance to nutrient enrichment, minerals, elevated temperatures, or metal toxicity. Diatom species are assigned a score from 1-3: a score of 1 corresponds to "most-tolerant", a score of 2 corresponds to "less-tolerant", and a score of 3 corresponds to "sensitive."

The Siltation Index examines the percentage of diatom taxa associated with fine sediments [Bahls, 1993; taxa list in Teply and Bahls [2005] Appendix C), Many diatom species are motile. Motility is thought to be an adaptation to siltation whereby individual diatom cells can move to avoid inundation by deposited sediment. 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.

The Disturbance Index [Barbour et al., 1999] is based on the percent relative abundance of the diatom *Achnanthidium 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 stream flows, water velocities, and water temperatures at a site. Care must be taken in the interpretation of this metric because this diatom may also be the dominant species in swiftly flowing mountain streams because of the naturally occurring disturbances there.

The relative abundance of the dominant diatom [Teply and Bahls, 2005] in an assemblage is a measure of the evenness; the greater the percentage of organisms in the dominant taxon, the more skewed is the assemblage. The underlying principle is that a healthy and stable assemblage will be more even with a relatively consistent division of its organisms into taxa.

The percentage of abnormal diatom valves examines the relative abundance of diatom valves with irregular outlines and abnormal ornamentation. McFarland et al. [1997] examined the percentage of abnormal diatom (*Fragilaria* species) valves in a Rocky Mountain river in Colorado. Abnormal valves ranged from 0.2-12.0 percent and the percentage was positively correlated to the amounts of metals (cadmium, copper, iron, and zinc) found in the river. These data suggested that morphologically abnormal diatoms may be an indicator of elevated dissolved metal concentrations in streams.

An overall biointegrity rating was assigned for each monitoring site based on the individual bioassessment metrics (Table 4-2; RESPEC [2018b]). This overall rating was determined using a series of steps. First, at each site, scores were assigned for each diatom association metric on an ordinal scale: "excellent" = 3, "good" = 2, "fair" = 1, and "poor" = 0. Second, the mean score of those seven metrics at each site was calculated. The mean score of the seven metrics was then used as the overall biointegrity rating on another ordinal scale: "excellent" = more than 2.7, "good" = 1.7-2.7, "fair" = 0.7-1.7, and "poor" = less than 0.7.

Table 4-2. Summary of diatom association metrics to evaluate biological integrity in mountain streams: references range of values, expected response to increasing impairment or stress.

Metric	Biological Integrity				Range	Expected Response	Reference
	Excellent	Good	Fair	Poor			
Species Richness	>29	20-29	19-10	<10	0-100+	decrease	Bahls, 1993
Diversity Index	>2.99	2.00-2.99	1.00-1.99	<1.00	0-5+	decrease	Bahls, 1993
Pollution Index	>2.50	2.01-2.50	1.50-2.00	<1.5	1-3	decrease	Bahls, 1993
Siltation Index	<20.0	20.0-39.9	40.0-59.9	>59.9	0-90+	increase	Bahls, 1993
Disturbance Index	<25.0	25.0-49.9	50.0-74.9	>74.9	0-100	increase	Barbour et al., 1999
Dominant Species (%)	<25.0	25.0-49.9	50.0-74.9	>74.9	~5-100	increase	Barbour et al., 1999
Abnormal Valves (%)	0	>0.0, <3.0	3.0-9.9	>9.9	0-30+	increase	McFarland et al., 1997

4.2.3.2.3 Freshwater Diatoms as Ecological Indicators

Van Dam et al. [1994] identified diatom taxa considered to be indicators of specific conditions. Conditions identified by the Van Dam et al. [1994] indicator taxa included organic nitrogen tolerance and hypoxia tolerance.

Most diatoms are nitrogen-autotrophs and are unable to directly utilize organic nitrogen. For some nitrogen-autotrophs, organic nitrogen may be toxic. Some diatoms directly assimilate organic nitrogen in addition to, or as an alternative to, inorganic nitrogen (i.e., facultative nitrogen heterotrophs). Van Dam et al. [1994] classified diatom species by trophic state, either as nitrogen-autotrophs or nitrogen heterotrophs. Nitrogen-heterotroph relative abundance is

expected to generally increase in relation to organic nitrogen concentrations and the opposite relationship is expected for nitrogen-autotrophs intolerant of organic nitrogen. Relative abundances of diatoms in each group were quantified for each site. Means and standard deviations were calculated and used for comparisons. Means were calculated separately for mainstem sites and combined headwater and tributary sites.

Some diatoms are intolerant of saprobic conditions (i.e., waters with excessive organic materials in various states of decomposition resulting in high biochemical oxygen demand and less than 75 percent dissolved oxygen saturation) [Van Dam et al., 1994]. Diatoms with such sensitivities are referred to as oligosaprobous or ß-mesosaprobous and would likely be found in low relative abundance in water with excessive organic pollution. Similarly, water with low dissolved oxygen saturation would likely have few species sensitive to hypoxia. The relative abundance oligosaprobous or ß-mesosaprobous diatoms and oxygen-sensitive diatoms were summarized by site with means and standard deviations calculated as in the previous paragraph.

4.2.3.3 Ecological Interpretations

Narrative interpretations were used to investigate and describe metric and taxonomic signals for water quality, sediment deposition and habitat indicators. These interpretations of the taxonomic and functional composition of the diatom assemblage were based on demonstrated associations between assemblage components and habitat and water quality variables gleaned from the published literature and professional judgment, and those of other expert sources (e.g., Teply and Bahls [2005]; [2006]; [2007a]). Often canonical procedures have been 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, attributes of the periphyton taxa that have been well-substantiated in diverse literature, including both published and unpublished research, and that have been generally accepted by regional aquatic ecologists, were combined into descriptions of probable water quality and instream and reach-scale habitat conditions. The approach to this analysis used some assemblage attributes that were interpreted as evidence of water quality and other attributes that were interpreted as evidence of habitat integrity.

Stevenson (2014) reviews the use of periphyton assemblages as indicators of water quality [Stevenson, 2014]. Algal assemblages are especially sensitive to nutrient enrichment (e.g., Black et al. [2011]; Waite [2014]; Piggott et al. [2015]) and nutrient tolerance values have been established for many taxa (e.g., Van Dam et al. [1994]; Fairchild et al. [1985]; Carrick et al. [1988]; Teply and Bahls [2006]; Bahls [2004]; [2005]; [2006]). Worldwide diatom taxa with specific tolerances to saprobity (e.g., Van Dam et al. [1994]), organic pollution (e.g., Lange-Bertalot [1979]), salinity (e.g., Van Dam et al. [1994]), conductivity and ionic composition (Potapova and Charles [2003]), and fine sediment and adaptations to sediment (e.g., Lowe [1974]; Lowe [2003]; Stoermer and Smol [1999]) and general habitat disturbance (e.g., Lange-Bertalot [1996]) have been identified.

In the site-specific narratives, we compiled the information from the indices and metrics described above with ecological and autecological characteristics which were established specifically for taxa of the northwestern United States and Montana [Bahls, 2004; 2005; 2006]. The narratives also examined two metrics that have been studied in Montana streams. These include the relative abundance of metals-tolerant taxa (taxa list in Teply and Bahls [2005]; Appendix C) and the percentage of motile and highly motile taxa ([Teply and Bahls, 2005]; taxa from J. Stevenson, *personal communication*; Hannaea). These metrics were examined to suggest the potential stressors (nutrients, metals, sediment) that may be influential at the specific sites.

In addition, we explored similarities and differences in diatom assemblage structure among sites. We did this by using a Principal Components Analysis (PCA) using the covariance matrix of diatom species-level data. We removed diatoms that were identified only to genus if species level data were available in the data. In a few samples, a single species in a genus was identified along with some specimens that were left at the generic level: in these cases, data was collapsed into the genus name.

4.3 RESULTS

4.3.1 Taxa Richness and Diversity

4.3.1.1 Non-Diatoms

A total of 30 genera, representing four divisions, were identified in the Clark Fork River watershed in 2018 (Figure 4-1). These included: one genus (*Chantransia*) of Rhodophyta (red algae), 11 genera of the Cyanophyta (blue-green algae), 17 genera of the Chlorophyta (green algae) and one genus (*Tribonema*) of the Chrysophyta (the yellow-green algae).

Generic richness of non-diatom algae ranged from 4 to 13 among the Clark Fork River watershed sites (Figure 4-1). In general, mainstem and tributary sites exhibited higher taxa richnesses than headwater sites: the highest taxa richness of non-diatom algae were recorded at mainstem Sites CFR-03A (10), CFR-27H (10), and CFR-116A (13) and tributary Sites RTC-1.5 (10) and LBR-CFR-02 (12). Interestingly, the increase in taxa richness at mainstem sites compared to headwater sites appeared to be related to an increase in the diversity of blue-green algae, whereas in the tributaries it was related to an increase in diversity of the green algae.

Green and blue-green algae were present at all sites (Figure 4-1). The chrysophytes were collected at only one site (Site RTC-1.5). The red algae were collected at four sites (Sites WSC-SBC, CFR-116A, LC-7.5 and LBR-CFR-2). The green algae were the most taxonomically rich division in the tributaries, whereas blue-green algae were more diverse in the mainstem (3 of 6 sites had higher diversity of green algae than of blue-green algae and in three sites the diversity of green and blue-green algae were the same). However, in the headwaters, sites varied concerning whether green or blue-green algae were the more diverse division.

The relative abundance of each soft-bodied algal genus (and of all diatoms collectively) for each site is presented in Appendix A.

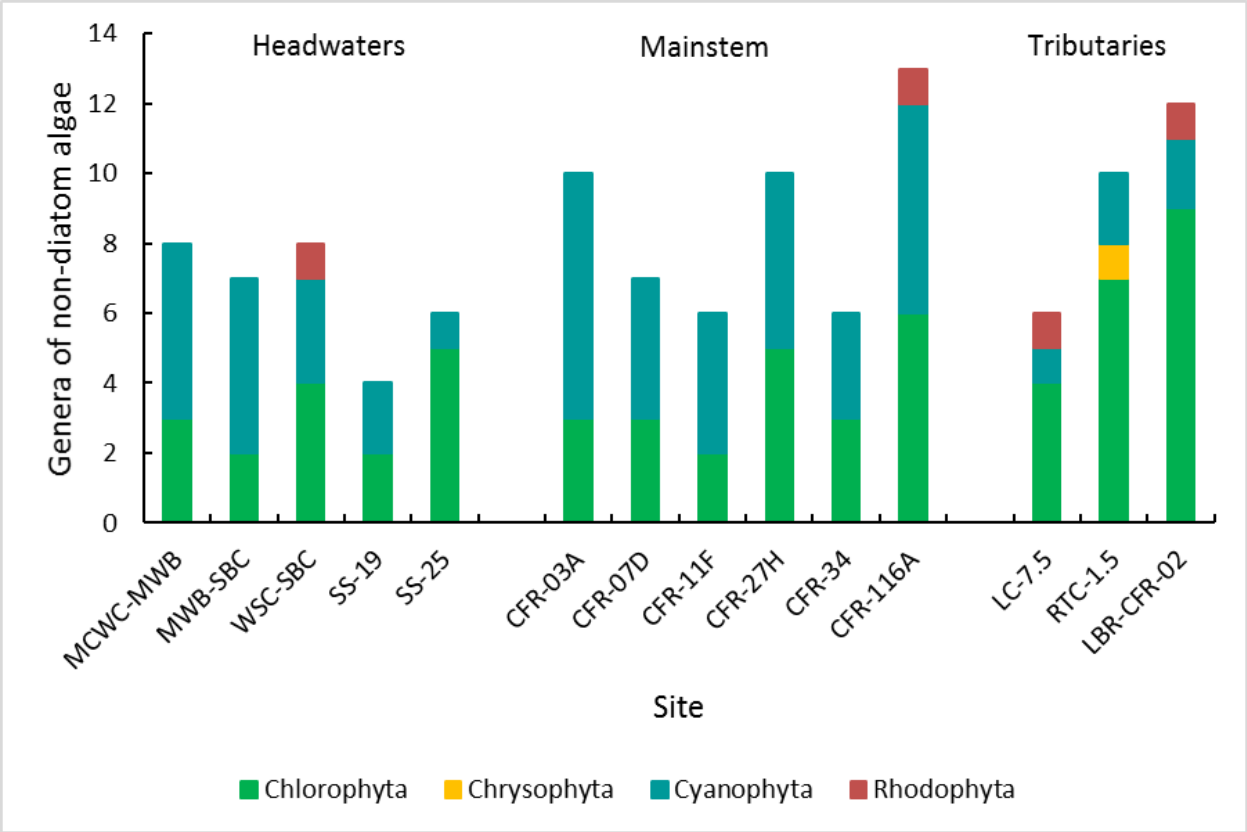

Figure 4-1. Taxonomic richness of non-diatom algae genera in the Clark Fork River watershed, 2018.

4.3.1.2 Diatoms

A total of 161 diatom taxa, mostly species and including varieties and subspecies, in 53 genera were identified in the 2018 periphyton samples. Diatom genera that were commonly observed at a relative abundance of at least three percent across all samples included: *Achnanthidium* (23.3 percent), *Amphora* (3.8 percent), *Nitzschia* (16.2 percent), *Cocconeis* (11.1 percent), *Cymbella* (4.4 percent), *Encyonema* (5.9 percent), *Diatoma* (7.2 percent), and *Navicula* (7.7 percent).

Among all sites, diatom taxa richness varied between 74 and 37 (Figure 4-2). Both lowest and highest taxa richnesses were in the headwaters: Sites SS-19 (37) and MCWC-MWB (74). In mainstem sites, Site CFR-03A (65) had the highest, and Site CFR-34 (53) had the lowest taxa richness. Taxa richness varied between 41 (Site RTC-1.5) and 55 (Site LBR-CFR-02) in the tributaries.

Shannon diversity varied between 4.77 (Site MCWC-MWB) and 2.63 (Site RTC-1.5) across all sites (Figure 4-2). In the headwaters, Site WSC-SBC (2.86) had the lowest and Site MCWC-MWB (4.77) had the highest diversity. In the tributaries, diversity ranged between 2.63 at Site RTC-1.5

and 4.31 at Site LBR-CFR-02. Thus, tributary and headwaters sites had both the lowest and the highest diversity values in 2018. The index varied little in the mainstem sites: the lowest diversity was at Site CFR-27H (4.08) and the highest diversity was at Site CFR-03A (4.53).

Both taxa richness and Shannon Diversity were more variable in the headwaters and tributary sites than they were in the mainstem sites. Trends in taxa richness and Shannon Diversity were generally similar although they did diverge somewhat, probably because Shannon Diversity also considers taxa evenness as well as taxa richness.

Complete lists of species observed and counts for each species within each sample are provided in Appendix B.

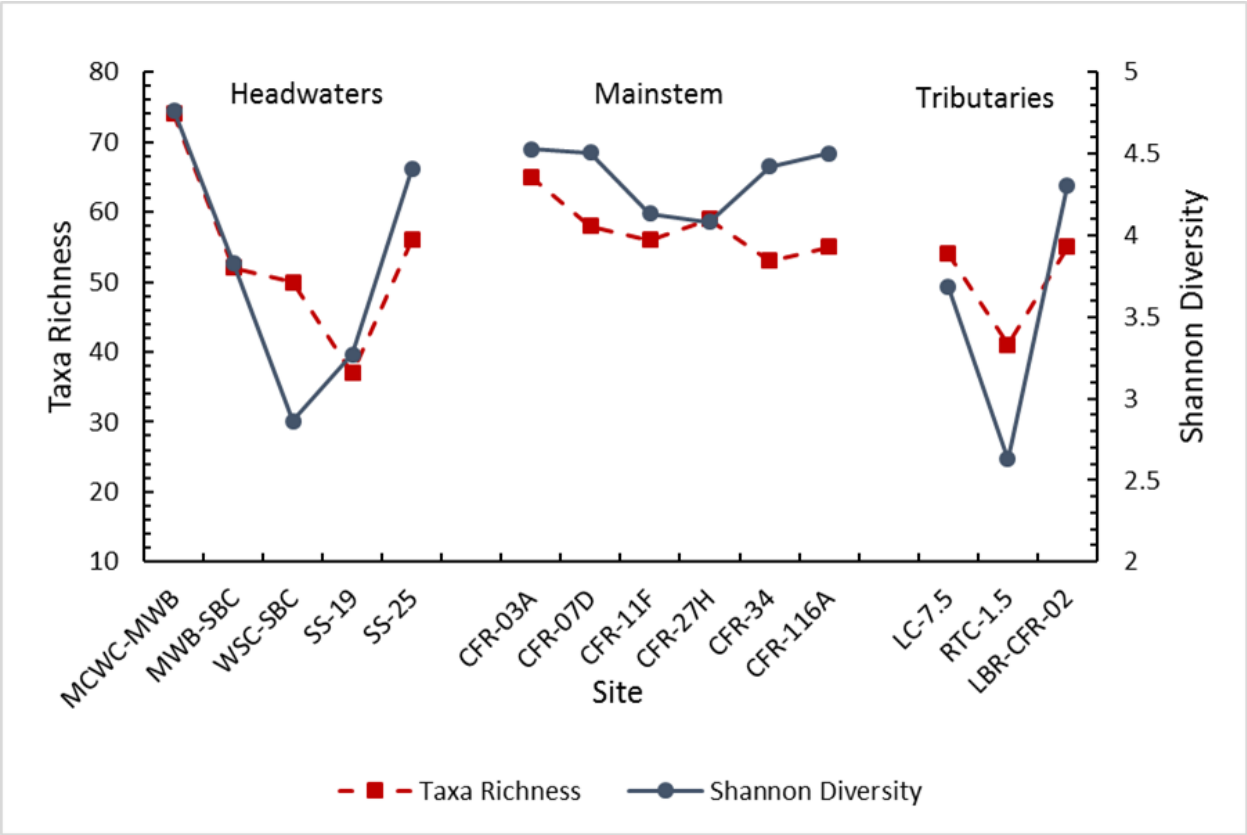

Figure 4-2. Diatom species richness and Shannon Diversity values in the Clark Fork River watershed, September 24-27, 2018.

4.3.2 Diatom Bioassessment Indices

4.3.2.1 Increaser Taxa

Impairment probabilities derived from increaser taxa bioindices are presented in Figure 4-3.

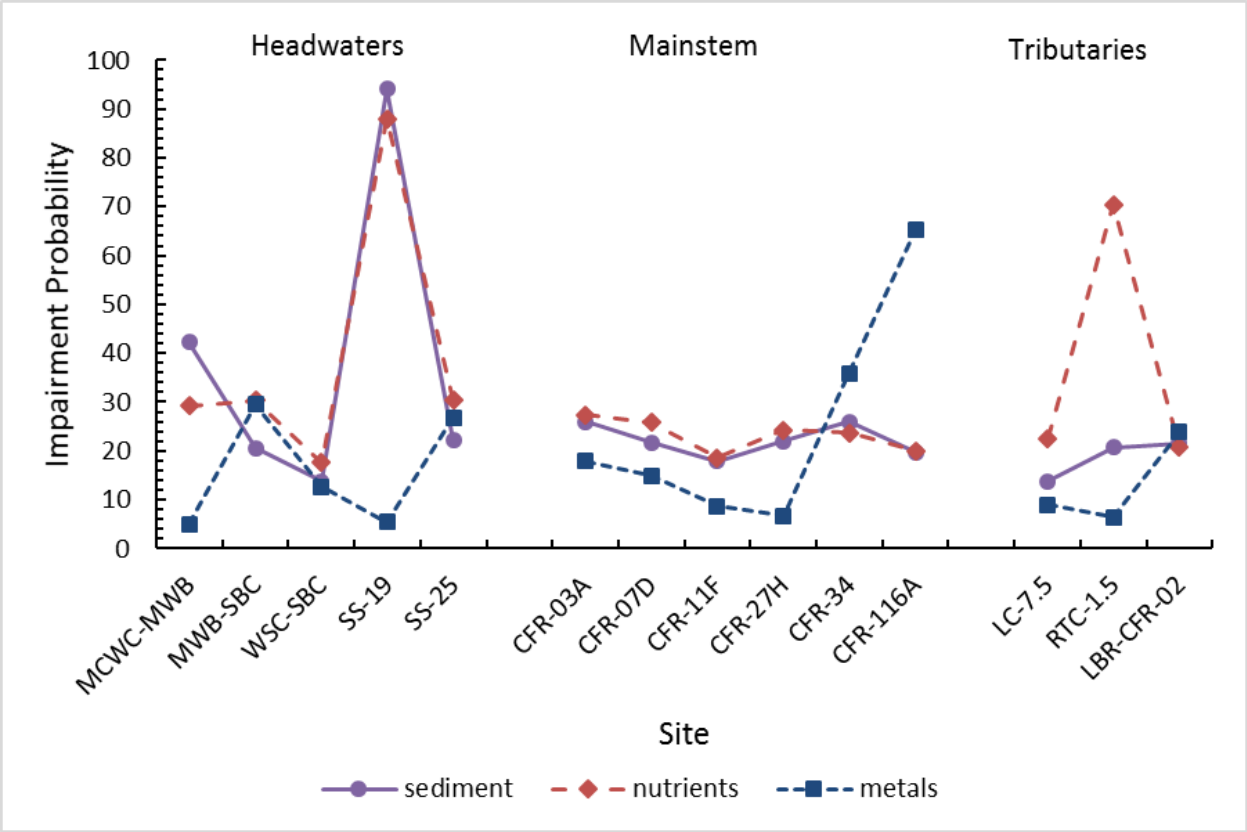

Figure 4-3. Impairment probabilities (expressed as a percentage) from specific environmental stressors at each site in the Clark Fork River watershed in 2018 based on relative abundances of specific diatom increaser taxa.

4.3.2.1.1 Sediment

The probability of impairment from sediments in the Clark Fork River watershed ranged between 13.8 percent at Sites WSC-SBC and LC-7.5 to a high of 94.1 percent at Site SS-19. (All probabilities in this report are expressed as a percentage rather than proportions.) Interestingly, the probability of impairment due to sediment was not more than 26.0 percent at all but two sites both of which were in the headwaters. These high probabilities were 94.1 percent at Site SS-19 and 42.3 percent at Site MCWC-MWB. Consequently, the probability of impairment due to fine sediments was more variable in the headwaters and tributaries than it was in the mainstem.

4.3.2.1.2 Metals

Based on the relative abundance of diatom metals increaser taxa, the probability of impairment from metals in the CFROU ranged from 5.1 percent at Site MCWC-MWB to 65.2 percent at Site CFR-116A (Figure 4-3). The general trend was for most sites to have a probability of impairment due to metals of less than 30.0 percent. This was true of all headwaters and tributary sites. However, the downstream-most mainstem sites, Sites CFR-34 and CFR-116A, had probabilities of impairment of 35.9 percent and 65.2 percent, respectively.

4.3.2.1.3 Nutrients

Based on the relative abundance of diatom nutrient increaser taxa, the probability of impairment from nutrients ranged from 17.7 percent at Site WSC-SBC to 88.0 percent at Site SS-19 (Figure 4-3). Thus, the headwaters sites exhibited both the high and low values found in 2018. The only other value greater than 35 percent was at Site RTC-1.5, which had a probability of impairment of 70.4 percent. Consequently, the patterns for the probability of impairment by nutrients and the probability of impairment by sediments across sites were very similar with the headwaters and tributaries exhibiting much more variability than the mainstem sites.

4.3.2.2 Diatom Association Metrics for Montana Mountain Streams

Overall biological integrity, based on the mean value of the scores for all seven metrics in Table 4-2 using the scoring criteria listed in the methods, was classified as "good" at six sites and "excellent" at eight sites (Table 4-3). Despite the "good" and "excellent" classifications, every site had at least "minor" impairment for at least one of Bahls' [1993] metrics (Table 4-3). Of the eight sites with an "excellent" classification, five sites had only slight impairment for one metric, two sites had slight impairment for two metrics and one site had moderate impairment for one metric. However, several sites were rated as "good" even though several metrics indicated minor or moderate impairment (e.g., Sites CFR-27H and WSC-SBC). In addition, Site SS-19 was rated as having "good" biological integrity even though the Siltation Index indicated severe impairment and two other metrics indicated minor impairment.

The diatom species richness metric indicated excellent water quality and no impairment at all sites (Table 4-3), alone among the association metrics for Montana mountain streams. Based on the Shannon Diversity Index, two sites (Sites WSC-SBC and RTC-1.5) appeared to have only minor impairment and good water quality: all other sites appeared to have no impairment and excellent water quality. The Pollution Index rated Sites MCWC-MWB, SS-19, and RTC-1.5 as slightly impaired and all other sites as non-impaired. The Siltation Index suggested impairment at most sites. Only four sites (Sites MWB-SBC, WSC-SBC, LC-7.5 and RTC-1.5) were unimpaired based on the Siltation Index (Table 4-3) and these occurred in the headwaters and tributaries. In the headwaters, Sites MCWC-MWB, SS-19 and SS-25 were rated by the Siltation Index as moderately, severely and slightly impaired, respectively. All but one site in the mainstem were rated as slightly impaired: Site CFR-07D was rated as moderately impaired. In the tributaries the Siltation Index indicated that Site LBR-CFR-02 was slightly impaired. The Disturbance Index indicated minor impairment at three sites (Sites CFR-27H, LC-7.5, LBR-CFR-02) and moderate impairment at Site WSC-SBC. The Dominant Taxon percentage metric indicated stress at seven sites (4 headwaters, one mainstem, two tributaries) suggesting that diatom assemblage structure was impaired at these sites. Sites CFR-27H and LBR-CFR-02 were the only reaches where abnormal diatom valves were collected.

As mentioned in the previous paragraph, all sites appeared to be impacted to some degree based on the criteria in Table 4-2. Fine sediments appeared to be a stress factor at most sites. In addition, the diatom assemblage structure appeared to be modified at several sites.

Table 4-3. Diatom association metrics and biological integrity and impairment ratings for individual metrics and an overall score and rating for each site in the Clark Fork River watershed. September 24-27, 2018. Highlighting: yellow, minor impairment; orange, moderate impairment; red, severe impairment; none, unimpaired. Metric classifications were based on criteria in Table 4-2. Overall biological integrity scores were based on the techniques as described in the methods where scores were assigned for each diatom association metric on an ordinal scale: "excellent" = 3, "good" = 2, "fair" = 1, and "poor" = 0. The mean score of the seven metrics at each site was used to assign the overall biointegrity rating: "excellent" more than 2.7, "good" = 1.7-2.7, "fair" = 0.7-1.7, and "poor" less than 0.7.

Site	Site description	Diatom Species Richness	Shannon Diversity Index	Pollution Index	Siltation Index (%)	Disturbance Index (%)	Dominant Taxon (%)	Abnormal Cells (%)	Biological Integrity Score	Biological Integrity Rating
Headwaters										
MCWC-MWB	Mill-Willow Creek at Frontage Road	74	4.77	2.45	40.22	19.55	19.55	0	2.57	good
MWB-SBC	Mill-Willow Creek Bypass near mouth	52	3.83	2.85	17.47	9.29	30.98	0	2.86	excellent
WSC-SBC	Warm Springs Creek near mouth	50	2.86	2.71	7.43	57.50	57.50	0	2.29	good
SS-19	Silver Bow Creek at Frontage Road	37	3.27	2.20	81.15	0.12	28.09	0	2.29	good
SS-25	Silver Bow Creek at Warm Springs	56	4.40	2.60	26.30	4.57	29.38	0	2.71	excellent
Mainstem										
CFR-03A	Clark Fork near Galen	65	4.53	2.62	29.22	15.65	20.42	0	2.86	excellent
CFR-07D	Clark Fork at Galen Road	58	4.51	2.59	42.14	14.99	17.69	0	2.71	excellent
CFR-11F	Clark Fork at Gemback Road	56	4.13	2.52	34.98	11.87	20.02	0	2.86	excellent
CFR-27H	Clark Fork River at Deer Lodge	59	4.08	2.63	30.80	30.05	30.05	0.12	2.43	good
CFR-34	Clark Fork River at Williams-Tavenner Bridge	53	4.42	2.57	35.72	11.12	14.09	0	2.86	excellent
CFR-116A	Clark Fork at Turah	55	4.50	2.63	27.81	5.86	17.58	0	2.86	excellent
Tributaries										
LC-7.5	Lost Creek at Frontage Road	54	3.68	2.86	12.72	32.96	32.96	0	2.71	excellent
RTC-1.5	Racetrack Creek at Frontage Road	41	2.63	2.86	3.37	48.50	48.50	0	2.57	good
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	55	4.31	2.46	27.83	2.48	20.62	0.25	2.57	good

4.3.2.3 Freshwater Diatoms as Ecological Indicators

4.3.2.3.1 Trophic State

The relative abundance of nitrogen-autotrophic diatoms intolerant of organic nitrogen ranged from 22.7 percent at Site SS-19 to 87.7 percent at Site WSC-SBC (Figure 4-4). In the mainstem, mean relative abundance of nitrogen-autotrophs was 79.0 percent (standard deviation [SD] = 2.9 percent). In the headwaters and tributary sites combined, mean relative abundance of nitrogen-autotrophs was 70.0 percent (SD = 21.6 percent). In the mainstem, all sites had relative abundance of nitrogen-autotrophs within one SD of the mean except Site CFR-11F (83.4 percent), which was above the threshold of 1 SD above the mean, and Site CFR-116A (75.4 percent), which was below the threshold of 1 SD below the mean. Site SS-19 (22.7 percent) was the only site where the percentage of nitrogen-autotrophs fell outside of the range of the mean plus or minus one SD in the headwaters and tributaries.

The relative abundance of nitrogen-heterotrophic diatoms ranged from 0.3 percent at Site LC-7.5 to 13.5 percent at MCWC-MWB (Figure 4-4). Mean relative abundance of nitrogen-heterotrophs was 5.5 percent (SD = 2.5 percent) in mainstem sites and 4.8 percent (SD = 4.9 percent) in headwaters and tributaries combined. In the mainstem, only Site CFR-116A (10.0 percent) had a value that fell outside of the range of the mean plus or minus one SD. In the tributaries and headwater sites, only Site MCWC-MWB (13.5 percent) had a value that fell outside the range of the mean plus or minus one SD.

Like other metrics, the relative abundances of nitrogen-autotrophic and nitrogen-heterotrophic diatoms were more variable in the headwaters and tributaries than in the mainstem.

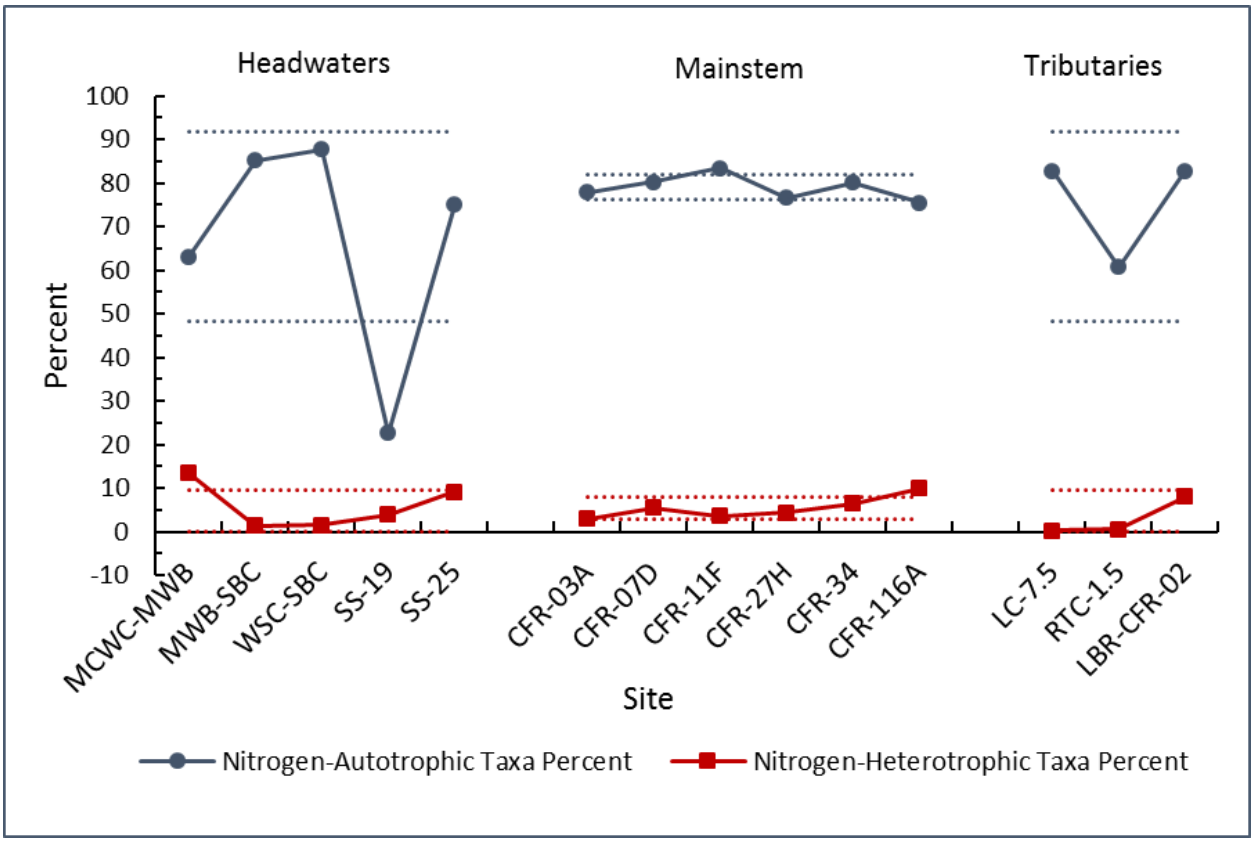

Figure 4-4. Relative abundance of diatoms classified in relation to trophic state (after Van Dam et al. [1994]) in the Clark Fork River watershed, 2018. Dotted lines represent (mean plus one standard deviation [SD]) and (mean minus one SD) for respective metrics and are provided as an aid to interpretation. Means and standard deviations were calculated separately for mainstem sites and combined headwater and tributary sites.

4.3.2.3.2 Saprobity and Hypoxia

The relative abundance of oligosaprobous or ß-mesosaprobous diatoms [Van Dam et al., 1994] varied between 10.5 percent at Site SS-19 and 85.0 percent at Site MWB-SBC (Figure 4-5). Mean relative abundances of these taxa were 58.9 percent (SD = 23.3 percent) in tributaries and headwaters and 66.5 percent (SD = 4.4 percent) in the mainstem. Site CFR-11F (61.6 percent) was below one SD below the mean and Site CFR-27H (73.4 percent) was one SD above the mean in the mainstem. In the tributary and headwaters site, Site MWB-SBC (85.0 percent) was above one SD above the mean, whereas Site SS-19 (10.5 percent) was below one SD below the mean.

The relative abundance of diatoms with high oxygen demand (continuously high and fairly high oxygen-demand categories based on the classification of van Dam et al. (1994)) varied between 9.9 percent (Site SS-19) and 77.2 percent (Site LC-7.5) (Figure 4-5). Mean relative abundances of these taxa were 53.4 percent (SD = 6.9 percent) across the mainstem sites and 48.7 percent (SD = 22.1 percent) across the headwaters and tributary sites. The relative abundances of diatoms with high oxygen demand were higher than the mean +1 SD at Site LC-7.5 (77.2 percent) in the headwaters and tributaries and Site CFR-27H (62.7 percent) in the mainstem.

The relative abundances of these diatoms were lower than the mean -1 SD at Site SS-19 (9.9 percent) in headwaters and tributaries and Site CFR-03A (43.9 percent) in the mainstem.

The pattern of the relative abundance of diatoms with high oxygen demand was very similar to the patterns of the relative abundance of oligosaprobous or ß-mesosaprobous diatoms. Like many other metrics, mainstem sites were less variable than tributary and headwater sites.

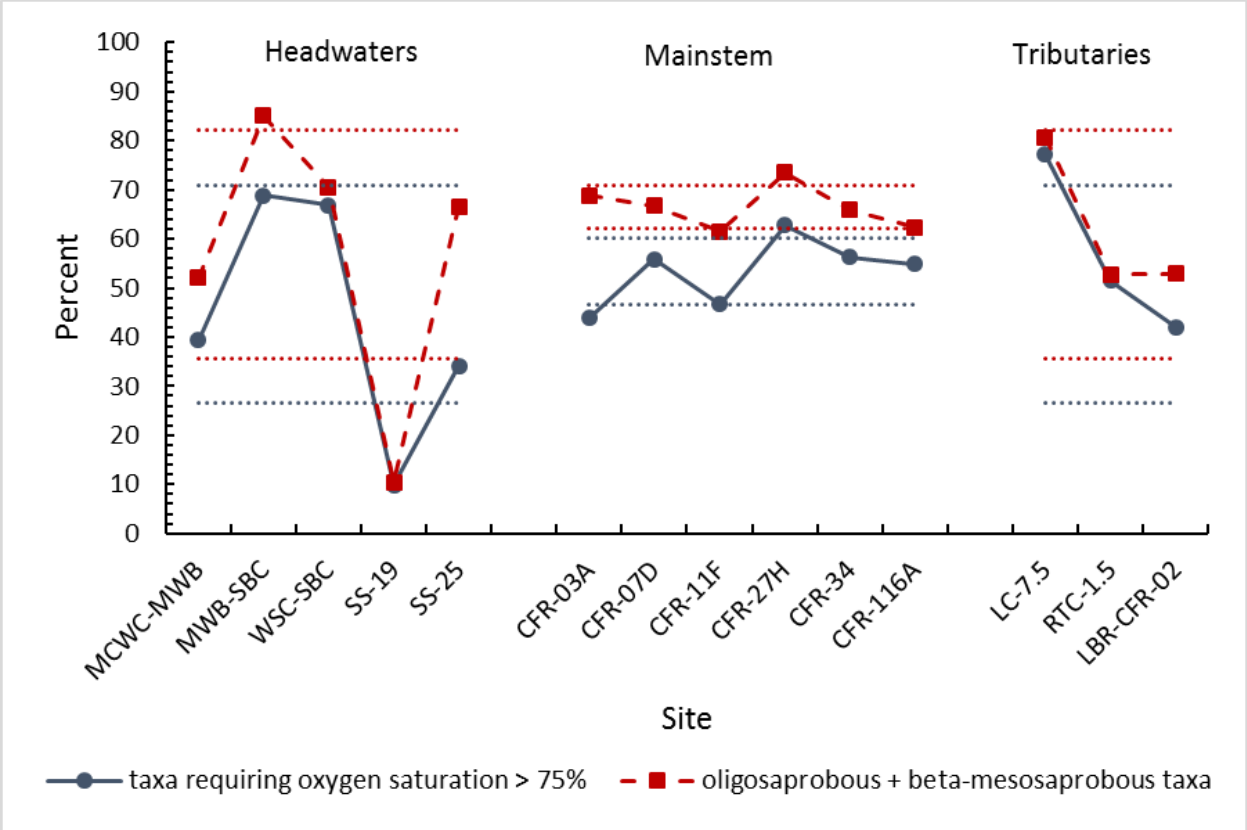

Figure 4-5. The relative abundance oligosaprobous or ß-mesosaprobous diatoms and oxygen-sensitive diatoms (after Van Dam et al. [1994]) in the Clark Fork River watershed, 2018. Dotted lines represent (mean plus one standard deviation [SD]) and (mean minus one SD) for respective metrics and are provided as an aid to interpretation. Means and standard deviations were calculated separately for mainstem sites and combined headwater and tributary sites.

4.3.2.4 Ecological Interpretations - Site Specific Narratives

4.3.2.4.1 Headwater Sites

4.3.2.4.1.1 Mill-Willow Creek at Frontage Road

The taxa that were abundant or common and contributed most to algal biovolume in order of their estimated contributions were: (1) the diatoms (very common) and (2) the blue-green alga *Homoeothrix* (common). Several other blue-green algal genera (*Komvophoron, Leptolyngbya, Phormidium, Pseudanabaena*) and green algal genera (*Cosmarium, Scenedesmus, Stigeoclonium*) were present, but rare. *Achnanthidium minutissimum* (19.6 percent) was the most abundant

diatom followed by *Cocconeis placentula* sensu lato (10.9 percent) and *Navicula reichardtiana* (6.3 percent). Both diatom taxa richness (74, the highest number of taxa found in 2018) and Shannon Diversity (4.77) were high, suggesting an even and taxa-rich assemblage (the dominant taxon made up only 19.6 percent of the assemblage) and good water quality. However, the Pollution Tolerance Index (2.45) indicated minor impairment. Slight impairment due to nutrients cannot be ruled out here: the relative abundances of nitrogen-autotrophs (63.1 percent), diatoms with high oxygen demand (39.4 percent), and diatoms intolerant to saprobic conditions (52.1 percent) were lower than their respective mean values in headwaters and tributaries, although not outside of the mean plus or minus one SD boundaries. However, the relative abundance of nitrogen-heterotrophs (13.5 percent) was the highest value found in 2018 at any site. The probability of impairment by nutrients, as measured by the relative abundance of nutrient increaser taxa, was 29.2 percent. The probability of impairment by metals was low (5.1 percent) and metals-tolerant taxa made up 16.1 percent of the assemblage suggesting little likelihood that metals contamination was influential here. Fine sediment appeared to have impacted the diatom assemblage. The probability of impairment by fine sediment was 42.3 percent. This assessment was reinforced by the percentages of siltation indicator taxa (40.2 percent, Siltation Index) and of motile and highly motile taxa (40.8 percent), which were both large components of the diatom assemblage.

4.3.2.4.1.2 Mill-Willow Creek Bypass near mouth

The taxa that were abundant or common and contributed most to algal biovolume in order of their estimated contributions were: (1) the diatoms (very abundant), (2) the green alga *Cladophora* (common), the blue-green algae (3) *Tolypothrix* (common) and (4) *Phormidium* (common), (5) the green alga *Scenedesmus* (common), and (6) the blue-green alga *Leptolyngbya* (common). The blue-green algae *Pseudanabaena* and *Calothrix* were also collected but they were rare. Diatoms that were most abundant included *Cymbella affinis* (31.0 percent), *Cocconeis placentula* sensu lato (12.4 percent) and *Diatoma vulgaris* (11.2 percent). No impairment was indicated by diatom taxa richness (52) although taxa richness was well below the high value found at Site MCWC-MWB. Shannon Diversity (3.83); was also lower than at Site MCWC-MWB, presumably because of the lower number of taxa collected and the percentage of the dominant taxon (31.0 percent), which indicated mild impairment. The Pollution Tolerance Index (2.85) indicated no impairment. Most evidence suggested that water quality impairment as a result of nutrients did not occur here. Nitrogen-autotrophs (85.3 percent, the second highest value found in 2018), diatoms intolerant to saprobic conditions (85.0 percent, the highest value found in 2018), and diatoms with high oxygen demand (68.9 percent) were all large components of the assemblage. In addition, the percentage of nitrogen-heterotrophs (1.5 percent) was low. The relative abundance of nutrient-increaser taxa indicated that the probability of impairment by nutrients was 30.4 percent. The probability of impairment by metals was 29.5 percent, but metals-tolerant taxa made up only 1.5 percent of the assemblage, suggesting that metals contamination cannot be ruled out at this site. Little stress on the diatom assemblage from fine sediment appeared to have occurred here. The probability of impairment by fine sediment was only 20.6 percent, the Siltation Index (17.5 percent) was low, and motile and highly motile taxa made up only 20.9 percent of the diatom assemblage.

4.3.2.4.1.3 Warm Springs Creek near mouth

The most common algae, ranked in order of biovolume, were (1) the diatoms (abundant), (2) the cyanophyte *Leptolyngbya* (very abundant), (3) the rhodophyte *Chantransia* (very common), the chlorophytes (4) *Cladophora* (common) and (5) *Oedogonium* (common) and (6) the cyanophyte *Homoeothrix* (common). The chlorophytes *Stigeoclonium* and *Tetraspora* and the cyanophyte *Phormidium* were also collected, but were rare. *Achnanthidium minutissimum* (57.5 percent), *Encyonema minutum* 8.8 percent), and *Encyonema silesiacum* (6.9 percent) were the most abundant diatoms that were collected at this site. Although diatom taxa richness (50) was not low enough to indicate that the site was impaired, it was lower than most of the headwater and tributary sites suggesting that some slight impairment cannot be ruled out here. This conjecture was supported by the low Shannon Diversity Index (2.86), which indicated mild impairment. The Dominant Taxon (57.5 percent) and Disturbance Indices (57.5 percent) both indicated moderate impairment; however, care must be taken in interpretation here as *A. minutissimum* was the dominant taxon and is the basis of the Disturbance Index. This diatom species may dominate assemblages as the result of natural seasonal scour and not because of any anthropogenic disturbances. It appeared unlikely that nutrients negatively influenced water quality here. The relative abundances of nitrogen-autotrophs (87.7 percent, the highest value found in 2018), diatoms intolerant to saprobic conditions (70.5 percent), and diatoms with high oxygen demand (66.8 percent) were all high and the relative abundance of nitrogen-heterotrophs (1.6 percent) was low. The relative abundance of nutrient-increaser taxa indicated that the probability of impairment by nutrients was 17.7 percent. The probability of impairment by metals was 12.7 percent and metals-tolerant taxa made up 17.8 percent of the assemblage, suggesting that metals contamination cannot be ruled out at this site. Impairment as a result of fine sediment appeared unlikely: the probability of impairment by sediment (13.8 percent), the Siltation Index (7.4 percent) and the percentage of motile taxa (8.3 percent) were all low.

4.3.2.4.1.4 Silver Bow Creek at Frontage Road

At Site SS-19, the most common algae, ranked in order of biovolume, were (1) the chlorophyte *Ulva* (very abundant), (2) the diatoms (very abundant), (3) the chlorophyte *Stigeoclonium* (very abundant), and (4) the cyanophyte *Homoeothrix* (very common). The cyanophyte *Phormidium* was rare. The three most common diatoms were *Sellaphora atomoides* (28.1 percent), *Mayamaea permitis* (22.2 percent), and *Nitzschia soratensis* (18.6 percent). Diatom taxa richness (37) and Shannon diversity (3.27) did not indicate impairment; however, both were lower than at many other sites, and the relative abundance of the most common diatom taxon (28.1 percent) as well as the Pollution Tolerance Index (2.20) indicated mild impairment. The relative abundance of nitrogen-autotrophs (22.7 percent), high oxygen-demand taxa (9.9 percent) and oligosaprobous or ß-mesosaprobous diatoms (10.5 percent) were all low and the probability of impairment by nutrients (88.0 percent) was the highest of any site in 2018. It appeared that this site was moderately impaired by nutrients. Impairment by metals appeared to be unlikely here: metals-tolerant taxa made up 13.6 percent of the diatom assemblage, and the probability of impairment by metals was only 5.4 percent. Fine sediment appeared to influence the diatoms at this site. The Siltation Index (81.2 percent) indicated severe impairment, and the calculated probability of

impairment by fine sediment was 94.1 percent (the highest value in this study in 2018). However, motile diatom taxa made up only 13.9 percent of the assemblage.

4.3.2.4.1.5 Silver Bow Creek at Warm Springs

Like all headwater sites except Site SS-19, the diatoms (abundant) contributed most to algal biovolume. Diatoms were followed in their contribution to algal biovolume by the green algae (2) *Stigeoclonium* (very common), (3) *Oedogonium* (common), and (4) *Cladophora* (common) and the blue-green alga (5) *Leptolyngbya* (very common). The green algae *Ankistrodesmus* and *Cosmarium* were rare. The three most common diatoms in order of their relative abundances were *Cocconeis placentula* sensu lato (29.4 percent), *Nitzschia fonticola* (5.9 percent), and *Achnanthidium minutissimum* (4.6 percent). Taxa richness (56), the Shannon Diversity Index (4.40), and Pollution Index (2.60) all indicated no impairment; however, the Dominant Taxon metric (29.4 percent) indicated mild impairment. The relative abundances of nitrogen-autotrophs (75.1 percent), diatoms with high oxygen demand (34.2 percent), diatoms intolerant to saprobic conditions (66.5 percent), and the relative abundance of nitrogen-heterotrophs (9.1 percent) suggested that mild nutrient enrichment cannot be ruled out here. In addition, the probability of impairment by nutrients, as measured by the relative abundance of nutrient increaser taxa, was 30.4 percent. The probability of impairment by metals was 26.8 percent and metals-tolerant taxa made up 9.1 percent of the assemblage suggesting that metals contamination cannot be ruled out at this site. Mild stress from fine sediment also cannot be ruled out here: the probability of impairment by fine sediment was 22.1 percent, the Siltation Index (26.3 percent) indicated mild impairment, and motile and highly motile taxa made up 32.0 percent of the diatom assemblage.

4.3.2.4.2 Mainstem Sites

4.3.2.4.2.1 Clark Fork River near Galen

The (1) diatoms (very common) and (2) the blue-green algae *Aphanocapsa* (common) were the only taxa that were at least common and thus, could be ranked. Other taxa that were collected, but were rare included the cyanophytes *Calothrix, Chamaesiphon, Homoeothrix, Komvophoron, Phormidium,* and *Pseudanabaena,* and the chlorophytes *Cladophora, Oedogonium* and *Scenedesmus*. *Cocconeis placentula* sensu lato (20.4 percent), *Achnanthidium minutissimum* (15.7 percent) and *Encyonema minutum* (5.6 percent) were the most common diatom taxa. The high diatom taxa richness (65) and Shannon Diversity (4.53) and the low Pollution Index (2.62), Disturbance Index (15.7 percent) and Dominant Taxon metric (20.4 percent) all suggested little impairment at this site. The probability of impairment by nutrients, as measured by the relative abundance of nutrient increaser taxa, was 27.4 percent. The relative abundances of nitrogen-autotrophs (77.9 percent), diatoms with high oxygen demand (43.9 percent), diatoms intolerant to saprobic conditions (68.8 percent), and the relative abundance of nitrogen-heterotrophs (3.1 percent) suggested that nutrient enrichment was unlikely here. Contamination by metals cannot be ruled out as the probability of impact from metals was 17.9 percent and the percentage of metals tolerant taxa was 11.5 percent. Mild stress from fine sediment also cannot be dismissed: the probability of impairment by fine sediment was 26.0 percent, the Siltation Index (29.2 percent) indicated mild impairment, and motile and highly motile taxa made up 35.8 percent of the diatom assemblage.

4.3.2.4.2.2 Clark Fork River at Galen Road

The most common algae, ranked in order of biovolume, were (1) the diatoms (abundant), (2) the green alga *Cladophora* (common), (3) the blue-green alga *Pseudanabaena* (common), and (4) the green alga *Scenedesmus* (common). Also collected, but rare, were the blue-green algae *Calothrix, Komvophoron,* and *Phormidium* and the green alga *Pediastrum*. *Nitzschia dissipata* (17.7 percent), *Achnanthidium minutissimum* (15.0 percent), and *Diatoma moniliformis* (7.5 percent) were the most common diatom species. Taxa richness (58), Shannon Diversity Index (4.51), the Pollution Index (2.59), the Disturbance Index (15.0 percent) and percentage of the dominant taxon (17.7 percent) all indicated no impairment. There was little indication of stress on the diatom assemblage through nutrient enrichment. The relative abundance of nitrogen-autotrophs was 80.2 percent, diatoms with high oxygen demand accounted for 55.9 percent of the assemblage, the relative abundance of oligosaprobous or ß-mesosaprobous was 66.7 percent, the relative abundance of nitrogen-heterotrophs was 5.5 percent and the probability of impact by nutrients as measured by nutrient increaser taxa was 25.8 percent. Contamination by metals cannot be ruled out, as the probability of impact from metals was 14.9 percent and the percentage of metals tolerant taxa was 12.4 percent. Fine sediment appeared to add stress at this site, as the probability of the negative effects of fine sediments on the diatom assemblage was 21.7 percent, the Siltation Index was 42.1 percent (indicating moderate stress due to fine sediment), and motile taxa were abundant (50.0 percent).

4.3.2.4.2.3 Clark Fork River at Gemback Road

The (1) diatoms (very abundant), (2) the chlorophyte *Cladophora* (common), and the cyanophytes (3) *Nostoc* (common) and (4) *Pseudanabaena* (common) all made substantial contributions to the algal assemblage at Site CFR-11F. The cyanophytes *Chamaesiphon* and *Leptolyngbya,* and the chlorophyte *Scenedesmus* were also collected but were rare. *Diatoma moniliformis* (20.0 percent), *Cocconeis placentula* sensu lato (12.4 percent), *Achnanthidium minutissimum* (11.9 percent), and *Nitzschia dissipata* (11.9 percent) were the four most abundant diatom taxa. Similar to Site CFR-07D, metrics responsive to general impacts all indicated nonimpaired conditions (taxa richness, 56; Shannon Diversity Index, 4.13; the Pollution Index, 2.52; the Disturbance Index, 11.9 percent; the Dominant Taxon Index, 20.0 percent). Also, like Site CFR-07D, nutrient enrichment did not appear to affect the assemblage. The relative abundances of nitrogen-autotrophs was 83.4 percent, of diatoms with high oxygen demand was 46.7 percent, taxa intolerant of saprobic conditions was 61.6 percent, the relative abundance of nitrogen-heterotrophs was 3.6 percent, and the probability of impact by nutrients as measured by nutrient increaser taxa was 18.6 percent. Contamination by metals seemed to be unlikely as the probability of impact from metals was only 7.8 percent, and the percentage of metals tolerant taxa was only 5.6 percent. However, fine sediment appeared to negatively influence the diatom assemblage as the Siltation Index was 35.0 percent (indicating mild stress due to fine sediment), motile taxa were abundant (40.4 percent), and the probability of the negative effects of fine sediments on the diatom assemblage was 18.0 percent.

4.3.2.4.2.4 Clark Fork River at Deer Lodge

The most common algae, ranked in order of biovolume, were (1) the diatoms (abundant), (2) the green algae (2) *Cladophora* (common) and (3) *Oedogonium* (common), the blue-green algae (4) *Aphanocapsa* (common), (5) *Phormidium* (common), (6) *Chamaesiphon* (common) and (7) *Leptolyngbya* (common). The green algae *Kirchneriella, Microspora*, and *Scenedesmus* and the blue-green alga *Pseudanabaena* were collected but were rare. The three most abundant diatoms were *Achnanthidium minutissimum* (30.1 percent), *Amphora pediculus* (12.1 percent), and *Nitzschia dissipata* (7.6 percent). Taxa richness (59), the Shannon Diversity index (4.08) and the Pollution Index (2.63) suggested the site was unimpaired. However, of the general impact metrics, the Disturbance Index (30.1 percent) and the Dominant Taxon Index (30.1 percent) indicated minor impairment. Care must be taken in interpretation of these metrics because *Achnanthidium minutissimum* was the dominant taxon and the basis of the Disturbance Index. This species is common in mountain streams and may respond to natural disturbances. Also, like Site CFR-07D and Site CFR-11F nutrients did not appear to affect the assemblage. The relative abundances of nitrogen-autotrophs was 76.7 percent, diatoms with high oxygen demand was 62.7 percent, oligosaprobous or ß-mesosaprobous taxa was 73.4 percent, the relative abundance of nitrogen-heterotrophs was 4.5 percent, and the probability of impact by nutrients as measured by nutrient increaser taxa was 24.3 percent.

Site CFR-27H was one of two sites where abnormal diatom valves were found. Abnormal valves may be related to metals contamination. However, abnormal cells can be caused by other stressors, so given that the probability of impact by metals (6.7 percent) and the percentage of metals tolerant taxa (9.9 percent) were low, metals contamination appeared unlikely here. Fine sediment appeared to negatively influence the diatom assemblage as motile taxa were abundant (42.5 percent), mild stress due to fine sediment was indicated by the Siltation Index (30.8 percent), and the probability of the negative effects of fine sediments on the diatom assemblage was 21.9 percent.

4.3.2.4.2.5 Clark Fork River at Williams-Tavenner Bridge

Similar to all mainstem sites, diatoms (abundant) dominated algal biovolume. Other taxa that were abundant or common included: (2) the chlorophyte *Cladophora (common)* and the cyanophytes (3) *Leptolyngbya* (very common) and (4) *Aphanocapsa* (common). Other non-diatom taxa that were collected but were rare included the cyanophyte *Chamaesiphon* and the chlorophytes *Cosmarium* and *Scenedesmus*. *Nitzschia dissipata* (14.1 percent), *Encyonema minutum* (13.4 percent) and *Amphora pediculus* (12.1 percent) were the dominant diatoms. The site was rated as having excellent condition by taxa richness (53), the Shannon Diversity Index (4.42), the Pollution Index (2.57), Disturbance Index (11.1 percent) and the Dominant Taxon Index (14.1 percent). Nutrients did not appear to influence the diatom assemblage like all the other mainstem sites: nitrogen-autotrophs (80.1 percent), diatoms that cannot tolerate low oxygen levels (56.2 percent), and oligosaprobous or ß-mesosaprobous taxa (65.9 percent) were all large parts of the diatom assemblage, whereas nitrogen-heterotrophs (6.4 percent) were only a small part of the assemblage. The probability of impact by nutrients as measured by nutrient increaser

taxa was 23.7 percent. However, mild impairment as a result of metals may be indicated here because the probability of impairment due to metals was 35.9 percent and metals tolerant taxa made up 20.0 percent of the assemblage. Fine sediments appeared to have had a mild negative impact on the assemblage because the Siltation Index (35.7 percent) indicated slight impairment, motile taxa made up 49.1 percent of the assemblage, and the probability of impacts from fine sediment was 25.9 percent.

4.3.2.4.2.6 Clark Fork River at Turah

The most common algae, ranked in order of their biovolume, were: (1) the diatoms (abundant), (2) the green alga *Cladophora* (common), (3) the red alga *Chantransia* (common) the blue-green algae, (4) *Leptolyngbya* (common) and (5) *Chamaesiphon* (common). Other taxa that were reported but were rare included the blue-green algae *Calothrix, Homoeothrix, Pseudanabaena*, and *Phormidium,* and the green algae *Cosmarium, Klebsormidium, Scenedesmus, Stigeoclonium*, and *Ulothrix*. The most abundant diatoms were *Epithemia sorex* (17.6 percent), *Nitzschia dissipata* (8.1 percent) and *Cymbella affinis* (7.2 percent). Diatom taxa richness (55), the Shannon Diversity Index (4.50), the Pollution Index (2.63) were high, and the Disturbance Index (5.9 percent) and Dominant Taxon percentage (17.6) were low—all indicating unimpaired conditions. Nutrient enrichment did not appear to influence the diatom assemblage, similar to all the other mainstem sites. Nitrogen-autotrophs (75.4 percent), diatoms requiring high oxygen levels (54.9 percent), and oligosaprobous or ß-mesosaprobous taxa (62.3 percent) were all large contributors to the diatom assemblage, whereas nitrogen-heterotrophs (10.0 percent) were only a small part of the assemblage. The probability of impact by nutrients as measured by nutrient increaser taxa was 20.0 percent. However, impairment as a result of metals may be indicated: the probability of impairment due to metals was 65.2 percent and metals tolerant taxa made up 14.5 percent of the assemblage. Fine sediments appeared to have had a mild negative impact on the assemblage because the Siltation Index (27.8 percent) indicated slight impairment, motile taxa made up 44.9 percent of the assemblage, and the probability of impacts from fine sediment was 19.8 percent.

4.3.2.4.3 Tributary Sites

4.3.2.4.3.1 Lost Creek at Frontage Road

The most common algae, ranked in order of biovolume, were: (1) the diatoms (very abundant), (2) the blue-green alga *Phormidium* (common), (3) the red alga *Chantransia* (common), and (4) the green alga *Scenedesmus* (common). Other genera that were collected but were uncommon were the green algae *Cosmarium, Pediastrum* and *Stigeoclonium*. The three most abundant diatoms were *Achnanthidium minutissimum* (33.0 percent), *Encyonopsis microcephala* (23.0 percent), and *Staurosira construens v. venter* (6.3 percent). Unimpaired conditions were indicated by diatom taxa richness (54), the Shannon Diversity Index (3.68), and the Pollution Index (2.86); however, both the Disturbance Index (33.0 percent) and the Dominant Taxon Index (33.0 percent) suggested mild impairment. Like other sites where it occurred in high numbers, the diatom species *Achnanthidium minutissimum* was the basis of both metrics. It can be found naturally in mountain streams in high numbers and may not indicate anthropogenic impairment. No stress from nutrients, metals or sediments were suggested at this site. Nutrients did not appear to

influence the diatom assemblage: nitrogen-autotrophs (82.8 percent), diatoms intolerant of low oxygen levels (77.2 percent), and oligosaprobous or ß-mesosaprobous taxa (80.7 percent) were all large parts of the diatom assemblage, whereas nitrogen-heterotrophs (0.3 percent) were a very small part of the assemblage. The probability of impact by nutrients as measured by nutrient increaser taxa was 22.5 percent. Metals stress also appeared unlikely because the probability of impairment due to metals was only 9.0 percent and metals tolerant taxa made up only 1.1 percent of the assemblage. Finally, impact from fine sediments was also unlikely the Siltation Index (12.7 percent) indicated no impairment, motile taxa made up only 14.0 percent of the assemblage, and the probability of impacts from fine sediment was only 13.8 percent.

4.3.2.4.3.2 Racetrack Creek at Frontage Road

Similar to other sites in 2018, diatoms (abundant) dominated algal biovolume. Other taxa that were abundant or common included the chlorophytes (2) *Cladophora* (common), (3) *Microspora* (very common) and (4) *Mougeotia* (common) and (5) the cyanophyte *Phormidium* (common). The green algae *Ankistrodesmus, Scenedesmus, Staurastrum,* and *Stigeoclonium,* the blue-green alga *Leptolyngbya,* and the chrysophyte *Tribonema* were all reported but were rare. Interestingly, all three dominant diatom taxa were members of the genus *Achnanthidium*: *A. minutissimum* (48.5 percent), *A. deflexum* (20.2 percent), and *A. pyrenaicum* (12.8 percent). The Shannon Diversity Index (2.63) indicated slight impairment because Taxa Richness (41, still above the value indicating impairment) was lower than all but one other site and the Dominant Taxon Index (48.5 percent, also the value of the Disturbance Index) was high and indicated mild impairment. However, like other sites the dominant diatom taxon was *Achnanthidium minutissimum*, which may occur naturally in high abundance in montane and foothill streams. The Pollution Index (2.86) indicated excellent conditions. Nutrients may have had a slight impact on the flora at this site. The probability of impact by nutrients as measured by nutrient increaser taxa was 70.4 percent, which was the second highest value recorded in 2018. This contention is supported by the nitrogen-autotrophs (60.7 percent), diatoms intolerant of low oxygen levels (51.5 percent), and oligosaprobous or ß-mesosaprobous taxa (52.7 percent), which were all lower than most other sites. However, nitrogen-heterotrophs (0.6 percent) were a very small part of the assemblage. Metals seemed unlikely as a stressor because the probability of impairment due to metals was only 6.4 percent and metals tolerant taxa made up only 8.0 percent of the assemblage. Impact from fine sediments was also unlikely because the Siltation Index (3.4 percent) indicated no impairment, motile taxa made up only 3.1 percent of the assemblage, and the probability of impacts from fine sediment was 20.7 percent.

4.3.2.4.3.3 Little Blackfoot River at Beck Hill Road

The most common algae, ranked in order of biovolume, were (1) the diatoms (abundant), (2) the green alga *Spirogyra* (very common), (3) the red alga *Chantransia* (very common), the green algae (4) *Oedogonium* (common) and (5) *Microspora* (common), and the blue-green algae (6) *Anabaena* (common) and (7) *Leptolyngbya* (common). Other taxa that were rare included the green algae *Cladophora, Closterium, Cosmarium, Scenedesmus, Sphaerocystis*, and *Stigeoclonium*. The three most common diatom species were *Diatoma moniliformis* (20.6

percent), *Cocconeis placentula* sensu lato (14.4 percent), and *Nitzschia dissipata* (9.4 percent). Unimpaired conditions were indicated by diatom taxa richness (55), the Shannon Diversity Index (4.31), the Disturbance Index (2.48 percent) and the Dominant Taxon (20.6 percent); however, the Pollution Index (2.46) suggested mild impairment. Nutrients did not appear to influence the diatom assemblage. The probability of impact by nutrients as measured by nutrient increaser taxa was 20.7 percent. Nitrogen-autotrophs (82.9 percent) were a large component of the diatom assemblage, and nitrogen-heterotrophs (8.1 percent) were a small part of the assemblage. Diatoms intolerant of low oxygen levels (42.0 percent), and oligosaprobous or ß-mesosaprobous taxa (52.9 percent) were both substantial parts of the diatom assemblage. On the other hand, metals contamination cannot be ruled out here because even though metals tolerant taxa made up only 9.8 percent of the assemblage, the probability of impairment due to metals was 23.9 percent. Fine sediments appeared to have a mild negative impact on the assemblage because the Siltation Index (27.8 percent) indicated slight impairment, motile taxa made up 38.5 percent of the assemblage, and the probability of impacts from fine sediment was 21.6 percent.

Table 4-4. Summary of the potential stressors in the Clark Fork River watershed based on the narrative interpretations, September 24-27, 2018.

Site	Site Description	Nutrients	Metals	Sediment
	Headwaters			
MCWC-MWB	Mill-Willow Creek at Frontage Road	?		+
MWB-SBC	Mill-Willow Creek Bypass near mouth		?	
WSC-SBC	Warm Springs Creek near mouth		?	
SS-19	Silver Bow Creek at Frontage Road	++		+++
SS-25	Silver Bow Creek at Warm Springs	?	?	?
	Mainstem			
CFR-03A	Clark Fork near Galen		?	?
CFR-07D	Clark Fork at Galen Road		?	+
CFR-11F	Clark Fork at Gemback Road			+
CFR-27H	Clark Fork River at Deer Lodge			+
CFR-34	Clark Fork River at Williams-Tavenner Bridge		+	+
CFR-116A	Clark Fork at Turah		+	+
	Tributaries			
LC-7.5	Lost Creek at Frontage Road			
RTC-1.5	Racetrack Creek at Frontage Road	+		
LBR-CFR-02	Little Blackfoot River at Beck Hill Road		?	+

(blank)	No impairment suggested.
?	Overall evidence suggested some impairment, but the evidence was inconclusive.
+	Overall evidence suggested minor impairment.
++	Overall evidence suggested moderate impairment.
+++	Overall evidence suggested severe impairment.

4.3.2.5 Comparisons of Diatom Assemblage Structure Across Sites: Principal Components Analysis

The diatom assemblages from the Clark Fork River sites appeared to cluster into two distinct groups with the other sites spread widely in the principal components space (Figure 4-6). The first cluster included tributary Site LBR-CFR-02, headwaters Site MCWC-MWB, and all mainstem sites except Site CFR-27H. The second group included Sites RTC-1.5 and WSC-SBC. Sites MWB-SBC, SS-25, CFR-27H, and LC-7.5 all appeared to have diatom assemblages that were dissimilar to other sites.

Achnanthidium minutissimum (0.20499 loading) correlated the most strongly with PC1 whereas *Cymbella affinis* (0.1645 loading) correlated most strongly with PC2. Thus, the first group (most mainstem sites and Sites LBR-CFR-02 and MCWC-MWB), which was in the lower left-hand quadrat of Figure 4-6, tended to have assemblages with low relative abundances of *A. minutissimum* and *C. affinis*. The second group, Sites RTC-1.5 and WSC-SBC, were characterized by a large relative abundance of *A. minutissimum*. Other sites fell in between these two extremes (Sites LC-7.5 and CFR-27H) or had assemblage that were distinctive (e.g., Site MWB-SBC, high relative abundance of *C. affinus* and low relative abundance of *A. minutissimum).*

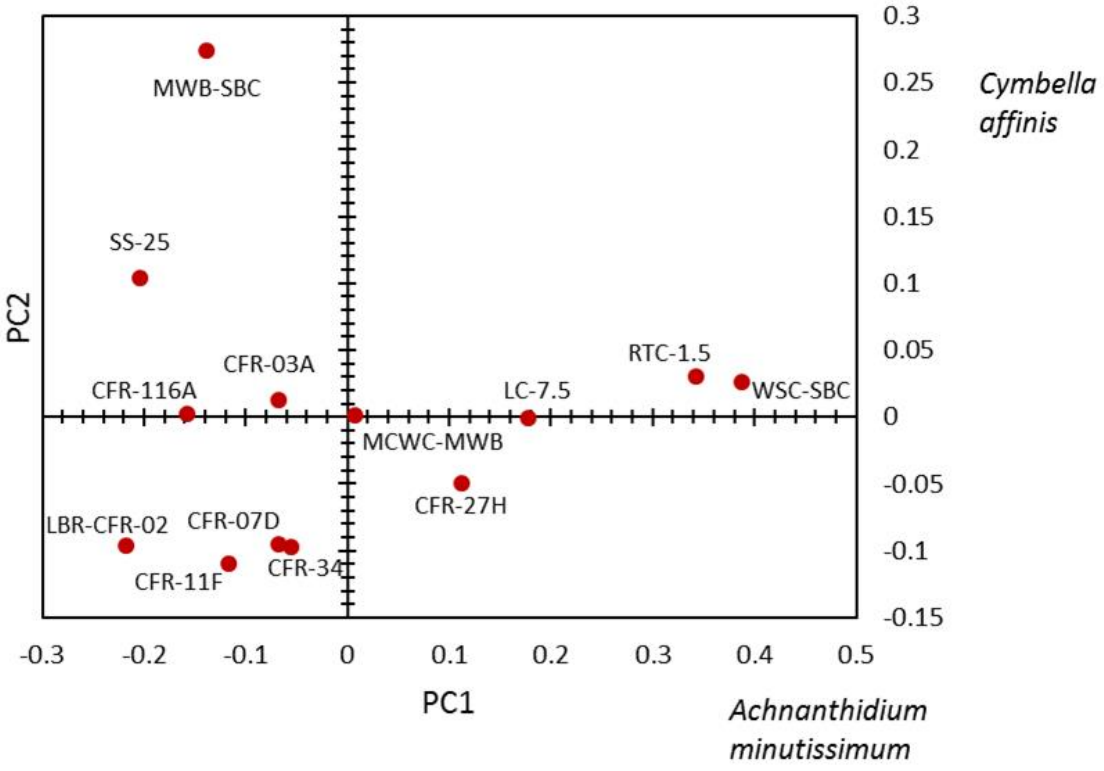

Figure 4-6. Results of Principal Components Analysis (PCA) examining diatom taxa across sites. The first two PCA axes are shown. These axes explain 66.3 percent of the variation in species relative abundance across sites. The ordination did not include data from Site SS-19.

4.4 DISCUSSION

All sites were assessed as in either "good" (6 sites) or "excellent" (8 sites) condition based on the overall Biological Integrity Score in Table 4-3. This score was based on the combination of the all metrics in Table 4-3. Of the individual metrics, only Diatom Species Richness rated all sites as unimpaired. On the opposite end of the spectrum, the Siltation Index rated ten sites as impaired.

Specific stressors included nutrients, fine sediment and metals. Based on our interpretation of the nutrient metrics (relative abundances of nitrogen-autotrophs, nitrogen-heterotrophs, high oxygen-demand taxa, oligosaprobous or ß-mesosaprobous diatoms, and the probability of impairment by nutrients) two sites were impaired (Sites SS-19 and RTC-1.5) and impairment could not be ruled out at two sites (Sites MCWC-MWB and SS-25). Consequently, all sites with a suggestion of nutrient impairment were in headwaters or tributaries. Based on our interpretation of the diatom metrics associated with fine sediment (Siltation Index, relative abundance of motile taxa, and probability of impairment as a result of fine sediment), most sites (8) were mildly or severely impaired, and at two sites impacts from sediment could not be ruled out. Only at headwater Sites MWB-SBC and WSC-SBC, and tributary Sites LC-7.5 and RTC-1.5, was evidence for sediment impairment weak enough to suggest no impact. Thus, several headwater and tributary sites appeared to be unaffected by fine sediments, whereas all mainstem sites had some suggestion of impact. Suggestion of impairment by metals (metrics included relative abundance of metals-tolerant taxa, abnormal cell valves, and probability of impairment by metals) was widespread but patchy. Only at Sites CFR-34 and CFR-116, was slight metals contamination detected; however, at six sites contamination by metals could not be ruled out.

5.0 MACROINVERTEBRATES[47]

5.1 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 1800's and early 1900's 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.

Investigations of the character and extent of the contamination on the Clark Fork River began in 1995, subsequent to the EPA 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 [PBSJ, 2010]. The plan will be implemented over the next decade and includes monitoring techniques and remediation goals for surface water, ground water, in-stream 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 goal of the 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 this goal will be reflected by progressive increases in biological integrity [PBSJ, 2010].

This report describes the analysis of a subset of the benthic macroinvertebrate monitoring program, namely the samples collected in the Clark Fork drainage in 2018. Prior to 2017, the benthic invertebrate fauna was analyzed using an index developed specifically for the Clark Fork drainage [McGuire, 2010]. This index had been applied over a long course of sampling dating from 1986. However, in 2017 both the indices used to investigate the assemblage and the sampling and laboratory methods (see below) were changed. Beginning in 2017, the benthic invertebrate fauna were analyzed with a number of biointegrity metrics which were combined into four indices: (1) the MVFP bioassessment index that was developed to evaluate the biological integrity of montane streams [Bollman, 1998]; (2) a predictive model (O/E) that compares the observed assemblage

[47] Chapter 5 was prepared by Billie Kerans and Wease Bollman with Rhithron with minor editing and formatting by RESPEC.

composition collected at a site (O) to the assemblage expected (E) given undisturbed conditions [Hawkins, 2005; DEQ, 2012]; (3) the modified Hilsenhoff Biotic Index [Hilsenhoff, 1987], which has a long history in biomonitoring studies; and (4) a metals tolerance index [McGuire, 2010], which is specifically designed to examine metal pollution. 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.

5.2 METHODS

5.2.1 Sampling

Benthic macroinvertebrates were sampled at five Clark Fork River headwater sites, five sites on the mainstem Clark Fork River, and three sites on tributaries of the Clark Fork, from September 24 to September 27, 2018. Sites are described in Table 5-1. Sampling methods were changed for the 2017 sampling event. Prior to the 2017 sampling event, four sample replicates were collected at each site using a Hess sampling device. The total area sampled in the four replicates was 3.44 m^2 at each location. In 2017, the sampling method was changed to a traveling kick net method that sampled approximately 1 m^2 and only one replicate sample was collected at each site. This method was used for samples taken in 2018. Samples were delivered to Rhithron Associates, Inc. (Rhithron) for processing and identification. Like 2017, data were included in this report for one site (Silver Bow Creek at Frontage Road, Site SS-19) that was sampled on September 20, 2018 using the kick net method as part of the survey of the Streamside Tailings Operable Unit on Silver Bow Creek.

Table 5-1. Macroinvertebrate sampling sites in the Clark Fork River basin, September 24-27 2018.

Site description	Site ID	Co-located USGS gage	Latitude (NAD 83)	Longitude (NAD 83)
Mill-Willow Creek at Frontage Road	MCWC-MWB	NA	46.12649	-112.79876
Mill-Willow Creek Bypass near mouth	MWB-SBC	NA	46.17839	-112.78270
Warm Springs Creek near mouth	WSC-SBC	12323770	46.18041	-112.78592
Silver Bow Creek at Frontage Road[48]	SS-19	NA	45.98520	-112.50770
Silver Bow Creek at Warm Springs	SS-25	12323750	46.18123	-112.77917
Clark Fork River near Galen	CFR-03A	12323800	46.20877	-112.76740
Clark Fork River at Galen Road	CFR-07D	NA	46.23725	-112.75302
Clark Fork River at Gemback Road	CFR-11F	NA	46.26520	-112.74430
Clark Fork River at Williams-Tavenner Bridge	CFR-34	NA	46.39778	-112.74194
Clark Fork River at Turah	CFR-116A	12334550	46.49340	-113.48480
Lost Creek at Frontage Road	LC-7.5	12323850	46.21862	-112.77384
Racetrack Creek at Frontage Road	RTC-1.5	NA	46.28395	-112.74921
Little Blackfoot River at Beck Hill Road	LBR-CFR-02	NA	46.51964	-112.79312

5.2.2 Laboratory Analysis

Laboratory procedures followed those that were first instituted in 2017. Subsamples of 500 (±10 percent) organisms were obtained. In previous years of the study, all organisms were removed from the samples. Caton sub-sampling devices [Caton, 1991], divided into 30 grids, each approximately 6 cm by 6 cm, were used. Each individual sample was thoroughly mixed in its jar(s), poured out and evenly spread into the Caton tray, and individual grids were randomly selected. The contents of each grid were examined under stereoscopic microscopes (Leica S6) using 10x-30x magnification. All aquatic invertebrates from each selected grid were sorted from the substrate and placed in 80 percent ethanol for subsequent identification. Grid selection, examination, and sorting continued until at least 500 (±10 percent) organisms were sorted. The final grid was completely sorted of all organisms. All unsorted sample fractions were retained and stored at the Rhithron laboratory.

Organisms were individually examined by certified taxonomists, using 10x – 80x stereoscopic dissecting scopes (Leica S8E) and identified to the lowest practical level consistent with DEQ [DEQ, 2012] data requirements, using appropriate published taxonomic references and keys. After slide mounting, representative specimens of midges and worms were further examined at 200x – 1000x magnification using Leica DM1000 or Olympus BX 51 compound microscopes.

Identification, counts, life stages, and information about the condition of specimens were recorded on electronic bench sheets. Organisms that could not be identified to the taxonomic targets because of immaturity, poor condition, or lack of complete, current, and/or regionally-

[48] Collected September 20, 2018 as part of the survey of the Streamside Tailings Operable Unit on Silver Bow Creek.

applicable published keys, were left at appropriate taxonomic levels that were coarser than those specified. 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 80 percent ethanol in labeled vials or, when appropriate, slide mounted and archived at the Rhithron laboratory.

5.2.3 Quality Assurance Systems

Quality control (QC) procedures for initial sample processing and subsampling involved checking sorting efficiency. These checks were conducted on two of the samples by independent technicians who microscopically re-examined 100 percent of sorted substrate from each sample. Quality control procedure for each sample proceeded as follows:

The quality control technician poured the sorted substrate from a processed sample out into a Caton tray. Portions of substrate were systematically removed and re-examined until 100 percent of the substrate was re-sorted. All organisms that were missed were counted and this number was added to the total number obtained in the original sort. 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 obtained 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. Routinely, discrepancies between the original identifications and the QC identifications are discussed among the taxonomists, and necessary rectifications to the data are made. Discrepancies that cannot be rectified by discussions are routinely sent out to taxonomic specialists for identification. However, taxonomic certainty for identifications in this project was high and no external verifications were necessary.

5.2.4 Bioassessment

The bioassessment tools that were used were also changed in 2017. In the past, the benthic invertebrate fauna was analyzed using an index developed specifically for the Clark Fork drainage [McGuire, 2010]. The index was divided into three parts: a general subset, an organic pollution subset and a metals subset. This index had been applied over a long course of sampling dating from 1986. In 2017, new bioassessment tools were used: the Montana Valley and Foothill Prairies (MVFP) bioassessment index, a predictive model (O/E), the Hilsenhoff Biotic Index (HBI),

and the Metals Tolerance Index (MTI). To calculate these tools, taxa lists and counts for each sample were constructed. Approximately 72 standard metric expressions of taxonomic, function and habit characters, and tolerance attributes were calculated, using a customized laboratory information system application.

A multimetric bioassessment index (MVFP) was used to examine the data [Bollman, 1998]. Six calculated metrics (Table 5-2) are the index components. The MVFP index is a quantitative measure which may be useful in assessing progress toward attainment of the general remediation goal of a "balanced, integrated, adaptive community" of aquatic invertebrates, as envisioned by Karr and Dudley [1981]. To arrive at an MVFP index score and impairment classification, each component metric value was calculated, based on the taxonomic, functional, and tolerance attributes of the aquatic invertebrate assemblage, and categorical scores were assigned to each metric. Metric scores were summed for a total score, which was expressed as a percentage of the maximum total score. The percentages were then used to classify sites into impairment categories according to the following scenario: at least 83 percent, unimpaired; 54 percent to 83 percent, slightly impaired; 21 percent to 50 percent, moderately impaired; not more than 17 percent, severely impaired. In addition, the sites were evaluated using the Montana O/E model where O represents the taxa collected in a sample and E is the probability of capture for taxa expected at a site of similar type that has not been negatively impacted by environmental stressors. Thus, the O/E model was used to test how far a given macroinvertebrate community (O) deviates from those sampled at reference sites (E). To derive the O/E ratio, the model application R code [DEQ, 2012] was used. The O/E index varies between zero (no organisms are collected) and one (the observed number of taxa is equal to the number of taxa expected at reference sites). In Montana, the O/E index is scored as pass/fail. In montane and transition zones, an O/E score of at least 0.90 is a pass and a score less than 0.90 is a "fail." An explanation of the theory and processes of the model is included in DEQ [2012b].

Indices also included the Hilsenhoff Biotic Index (HBI), with tolerance values and impact threshold modified for Montana fauna [McGuire, 2010], and the Metals Tolerance Index (MTI) that was developed by McGuire [2010] for the Clark Fork River watershed. Table 5-3 shows scoring criteria applied by McGuire for these metrics.

Because of the myriad changes made in 2017, only the 2017 and 2018 years were directly comparable. We did a preliminary examination of how the changes influenced the indices in our 2017 report using data from 2016 (prior to the changes) and the 2017 (after the changes) data. No clear patterns emerged reflecting the complexity of the issue of disentangling the effects of changing protocols from actual changes in water quality.

We compared how the above indices varied among sites graphically for the 2018 data. In addition, we displayed index performance differences between 2017 and 2018.

Table 5-2. Component metrics and scoring scheme for the aquatic invertebrate-based Montana Valley and Foothill Prairies (MVFP) bioassessment index [Bollman, 1998].

Metric	Metric score			
	3	2	1	0
	Metric values			
Ephemeroptera richness	>5	5 – 4	3 – 2	<2
Plecoptera richness	>3	3 – 2	1	0
Trichoptera richness	>4	4 – 3	2	<2
Number of sensitive taxa	>3	3 – 2	1	0
Percent filterers	0 - 5	5.01 – 10	10.01 – 25	>25
Percent tolerant taxa	0 - 5	5.01 - 10	10.01 - 35	>35

Table 5-3. Hilsenhoff Biotic Index (HBI) and Metals Tolerance Index (MTI): metrics modified and developed by McGuire [2010] for assessing biological integrity in the Clark Fork River basin.

Metric	"no impact" ----------"severe impact"						
HBI	<4.0	4.0 – 4.5	4.6 – 5.1	5.2 – 5.7	5.8 – 6.3	6.4 – 6.9	>6.9
MTI	<4.0	4.0 – 4.9	5.0 – 5.9	6.0 – 6.9	7.0 – 7.9	8.0 – 8.9	>8.9

5.2.5 Ecological Interpretations

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 (e.g., 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. 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., Wisseman [1996]; Hellawell [1986]; 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]).

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 deposition 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]. We also used two indices to examine the presence of fine sediment. The first is an index developed by Relyea et al., [2000]. We include this index for comparative purposes because it has been used in past reports. It uses habitat associations of the biota to characterize the assemblage. The index, which we call the FSBI-2000, varies between one and 10.5 with lower scores indicating assemblages that are tolerant of fine sediment and higher scores indicating assemblages that are intolerant of fine sediment. The FSBI-2000 should now be

replaced by a newer index. Relyea and colleagues [Relyea et al., 2012] have developed a new index that is also called a fine sediment biotic index (we refer to this index as the FSBI-2012). This index was developed based on data from benthic macroinvertebrate assemblages and substrate particle size data collected from 1,139 streams in the northwestern US. Taxa were given an FSBI-2012 score based on their relationship to fine particles. The FSBI-2012 varies between 0 and 400 with high scores indicating habitats with fewer fine sediments. The interpretations of these indices are modified in this report, based on the authors' professional judgment, to more effectively characterize the CFROU in the sampled reaches. In addition, characteristics of assemblages can suggest whether other disturbances might influence stream-side vegetation, if disturbances other than sedimentation could influence stream fauna, or if stream bottoms have diverse habitats that support diverse invertebrate assemblages.

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].

5.3 RESULTS

5.3.1 Quality Assurance Systems

Results of internal quality control procedures for subsampling and taxonomy for aquatic invertebrate samples are given in Table 5-4. Sorting efficiency averaged 98.9 percent over the 12 samples in this project. The similarity between original identifications and enumerations for the two quality control samples averaged 96.6 percent. Percent taxonomic disagreement (PTD) averaged 3.6 percent, and the percent difference in enumeration (PDE) averaged 0.2 percent. Rhithron's internal quality standards, consistent with industry norms are: for sorting efficiency, at least 95 percent; for Bray-Curtis similarity, at least 95 percent; for PTD, not more than 5 percent; and for PDE, not more than 5 percent [Stribling et al., 2003].

Table 5-4. Results of quality assurance systems parameters for aquatic invertebrate samples. Clark Fork River watershed, September 24-27, 2018.

Site ID	Station name	Sorting efficiency (%)	Bray-Curtis similarity (%)	PTD (%)	PDE (%)
MCWC-MWB	Mill -Willow Creek at Frontage Road				
MWB-SBC	Mill-Willow Creek Bypass near mouth				
WSC-SBC	Warm Springs Creek near mouth				
SS-19[49]	Silver Bow Creek at Frontage Road[a]				
SS-25	Silver Bow Creek at Warm Springs		95.90	4.46	0.37
CFR-03A	Clark Fork River near Galen	98.35			
CFR-07D	Clark Fork River at Galen Road	99.45			
CFR-11F	Clark Fork River at Gemback Road				
CFR-34	Clark Fork River at Williams-Tavenner Bridge				
CFR-116A	Clark Fork River at Turah		97.33	2.76	0.09
LC-7.5	Lost Creek at Frontage Road				
RTC-1.5	Racetrack Creek at Frontage Road				
LBR-CFR-02	Little Blackfoot River at Beck Hill Road				

5.3.2 Bioassessment

Values for the six MVFP aquatic invertebrate metrics are shown in Table 5-5. MVFP scores and associated impairment classifications are given in Table 5-6. Figure 5-1 graphs the 2018 MVFP scores, as percent of maximum possible score, for all sites in the study. Of the 13 sites visited, five were rated slightly impaired, six were rated moderately impaired, and two were rated nonimpaired by the MVFP. Three headwater sites, Mill-Willow Creek Bypass near mouth (Site MWB-SBC), Silver Bow Creek at Frontage Road (Site SS-19), and Silver Bow Creek at Warm Springs (Site SS-25) were rated moderately impaired and one site, Mill-Willow Creek at Frontage

[49] Collected September 20, 2018 as part of the survey of the Streamside Tailings Operable Unit on Silver Bow Creek.

Road (Site MCWC-MWB), was rated slightly impaired. Only Warm Springs Creek near the mouth (Site WSC-SBC) was rated nonimpaired. All mainstem sites were rated moderately or slightly impaired. The MVFP rated one tributary site, Lost Creek at Frontage Road (Site LC-7.5), as moderately impaired; one site, Little Blackfoot River at Beck Hill Road (Site LBR-CFR-02), as slightly impaired; and Racetrack Creek at the Frontage Road (Site RTC-1.5) as nonimpaired.

The results from the predictive model (O/E) are shown in Figure 5-2 and Table 5-6. All sites failed the test for applicability of the model to the sites, indicating that predictor variables for each site were outside of the the experience of the model. The predictive model rated all sites as impaired.

In 2018, HBI metric values were elevated relative to the impact threshold for nutrients determined by McGuire [2010] at eight sites (two headwater, four mainstem, two tributaries) (Table 5-6; Figure 5-3). The highest HBI value occurred at Site LC-7.5 where the score was more than 5.0 indicating moderate impairment by organic nutrients [McGuire, 2010]. The scores at all the other sites that scored over the threshold suggested slight impairment by nutrient enrichment. Headwaters Sites MCWC-MWB, MWB-SBC and SS-19, mainstem Site CFR-116A, and tributary Site RTC-1.5 were below the threshold value.

MTI metric values for nine sites were elevated relative to the impact threshold for metals determined by McGuire [2010] (Figure 5-4). These sites included three headwaters sites (Sites MWB-SBC, WSC-SBC and SS-25), four mainstem sites (Sites CFR-07D, CFR-11F, CFR-34 and CFR-116A) and two tributary sites (Sites LC-7.5 and LBR-CFR-02). All other sites generated MTI values that indicated no impact from metals contamination, according to McGuire's guidance.

Table 5-5. Montana Valley and Foothill Prairies [Bollman, 1998] metric results: Clark Fork River, September 24-27, 2018.

Site ID	Site Location	Metric					
		Ephemeroptera richness	Plecoptera richness	Trichoptera richness	Number of sensitive taxa	Percent tolerant taxa	Percent filterers
MCWC-MWB	Mill-Willow Creek at Frontage Road	6	4	8	1	34.6	18.7
MWB-SBC	Mill-Willow Creek Bypass near Mouth	5	3	7	1	37.9	12.2
WSC-SBC	Warm Springs Creek near Mouth	6	5	6	2	4.3	23.4
SS-19[50]	Silver Bow Creek at Frontage Road	3	2	7	0	31.8	17.0
SS-25	Silver Bow Creek at Warm Springs	3	1	8	0	50.2	25.0
CFR-03A	Clark Fork River Near Galen	3	1	12	1	28.8	19.0
CFR-07D	Clark Fork River at Galen Road	4	2	9	0	46.2	16.5
CRF-11F	Clark Fork River at Gemback Road	4	4	9	0	46.9	7.7
CFR-34	Clark Fork River at Williams-Tavenner Bridge	4	6	8	1	35.9	31.7
CFR-116A	Clark Fork River at Turah	9	3	8	1	23.2	10.3
LC-7.5	Lost Creek at Frontage Road	5	1	5	1	30.0	24.9
RTC-1.5	Racetrack Creek at Frontage Road	5	6	7	2	2.0	4.1
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	5	5	10	3	33.1	11.8

[50] Collected September 20, 2018 as part of the survey of the Streamside Tailings Operable Unit on Silver Bow Creek.

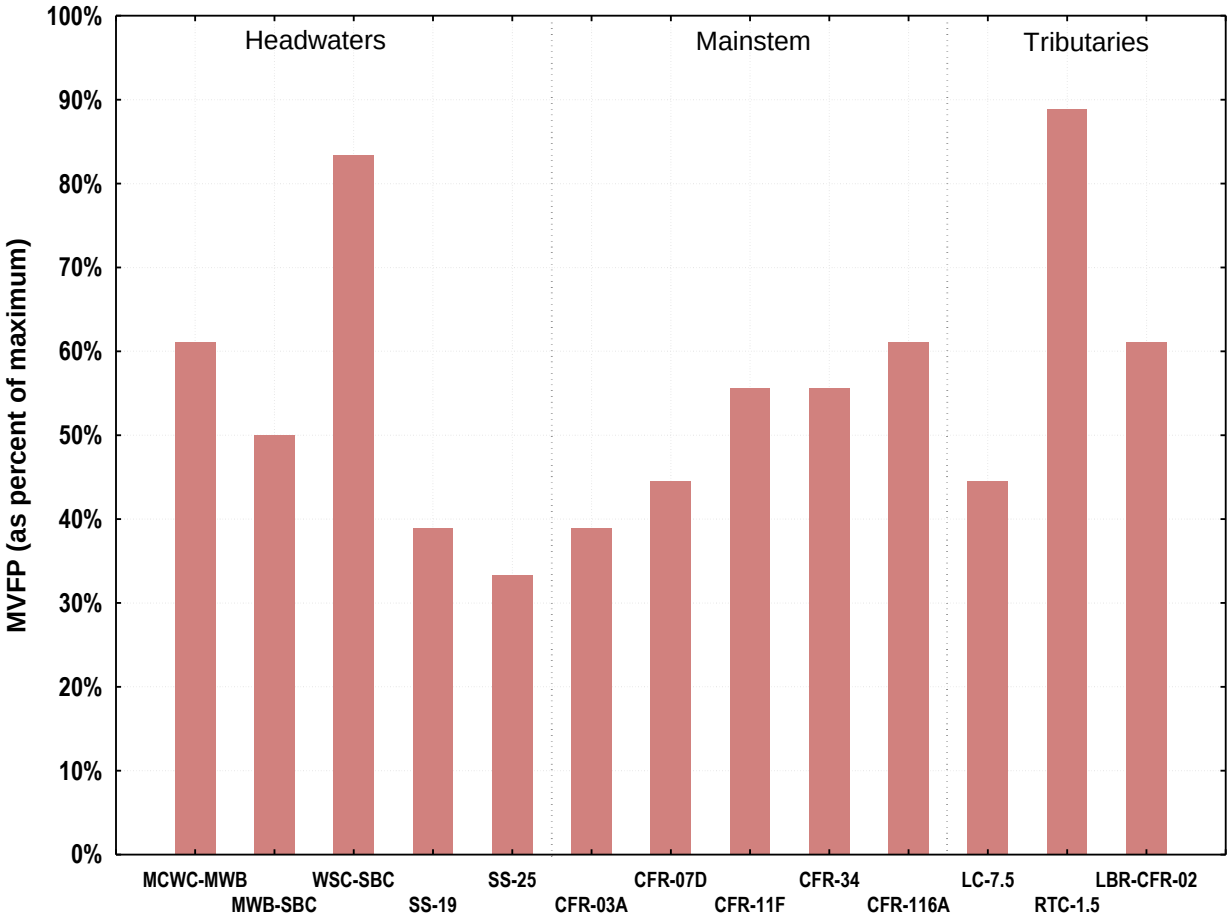

Figure 5-1. MVFP [Bollman, 1998] scores for Clark Fork basin monitoring sites. September, 2018.

Table 5-6. Bioassessment scores and values for selected metrics calculated for Clark Fork River sites 2018: MFVP [Bollman, 1998] aquatic invertebrate biointegrity scores, expressed as percent of maximum possible score, with impairment classifications; O/E with impairment classifications (more than 0.90, unimpaired); the Hilsenhoff Biotic Index (HBI) metric values (more than 4.0 impaired); and the metals tolerance index [McGuire, 2010] metric values (more than 4.0 impaired). Clark Fork River, September 24-27, 2018.

Site ID	Site Location	MVFP score (% of max. score)	MVFP impairment classification	O/E	O/E impairment classification	HBI	MTI
MCWC-MWB	Mill -Willow Creek at Frontage Road	61.1	slight	0.70	impaired	3.10	3.47
MWB-SBC	Mill-Willow Creek Bypass near mouth	50.0	moderate	0.58	impaired	3.97	4.25
WSC-SBC	Warm Springs Creek near mouth	83.3	nonimpaired	0.73	impaired	4.20	4.69
SS-19[51]	Silver Bow Creek at Frontage Road	38.9	moderate	0.19	impaired	2.77	2.71
SS-25	Silver Bow Creek at Warm Springs	33.3	moderate	0.67	impaired	4.84	4.68
CFR-03A	Clark Fork near Galen	38.9	moderate	0.35	impaired	4.23	3.88
CFR-07D	Clark Fork at Galen Road	44.4	moderate	0.40	impaired	4.73	4.75
CFR-11F	Clark Fork at Gemback Road	55.6	slight	0.43	impaired	4.21	4.82
CFR-34	Clark Fork River at Williams-Tavenner Bridge	55.6	slight	0.35	impaired	4.37	4.12
CFR-116A	Clark Fork at Turah	61.1	slight	0.34	impaired	3.54	4.74
LC-7.5	Lost Creek at Frontage Road	44.4	moderate	0.38	impaired	5.95	4.71
RTC-1.5	Racetrack Creek at Frontage Road	88.9	nonimpaired	0.47	impaired	3.16	2.88
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	61.1	slight	0.55	impaired	4.15	4.44

[51] Collected September 20, 2018 as part of the survey of the Streamside Tailings Operable Unit on Silver Bow Creek.

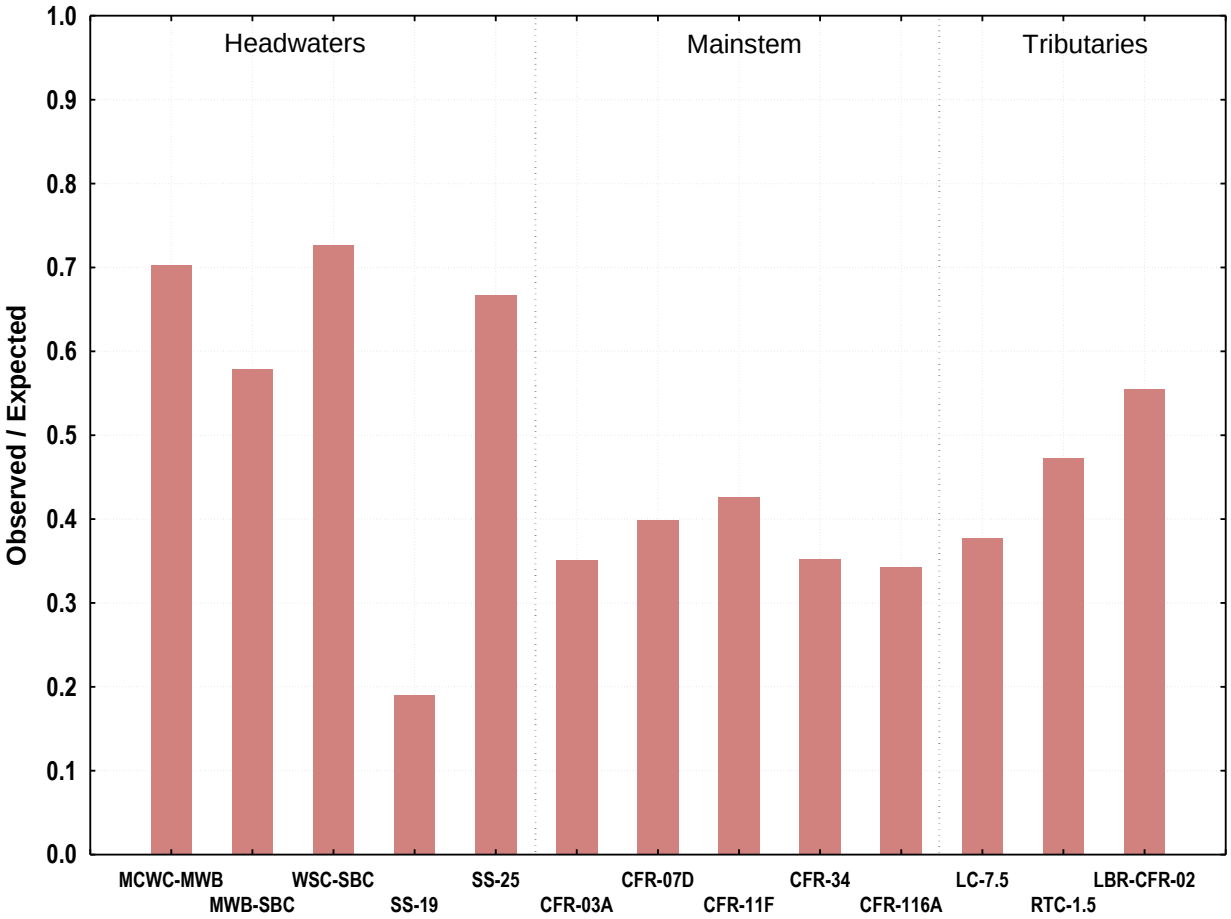

Figure 5-2. O/E predictive model [DEQ, 2012b] results for Clark Fork basin monitoring sites. September, 2018.

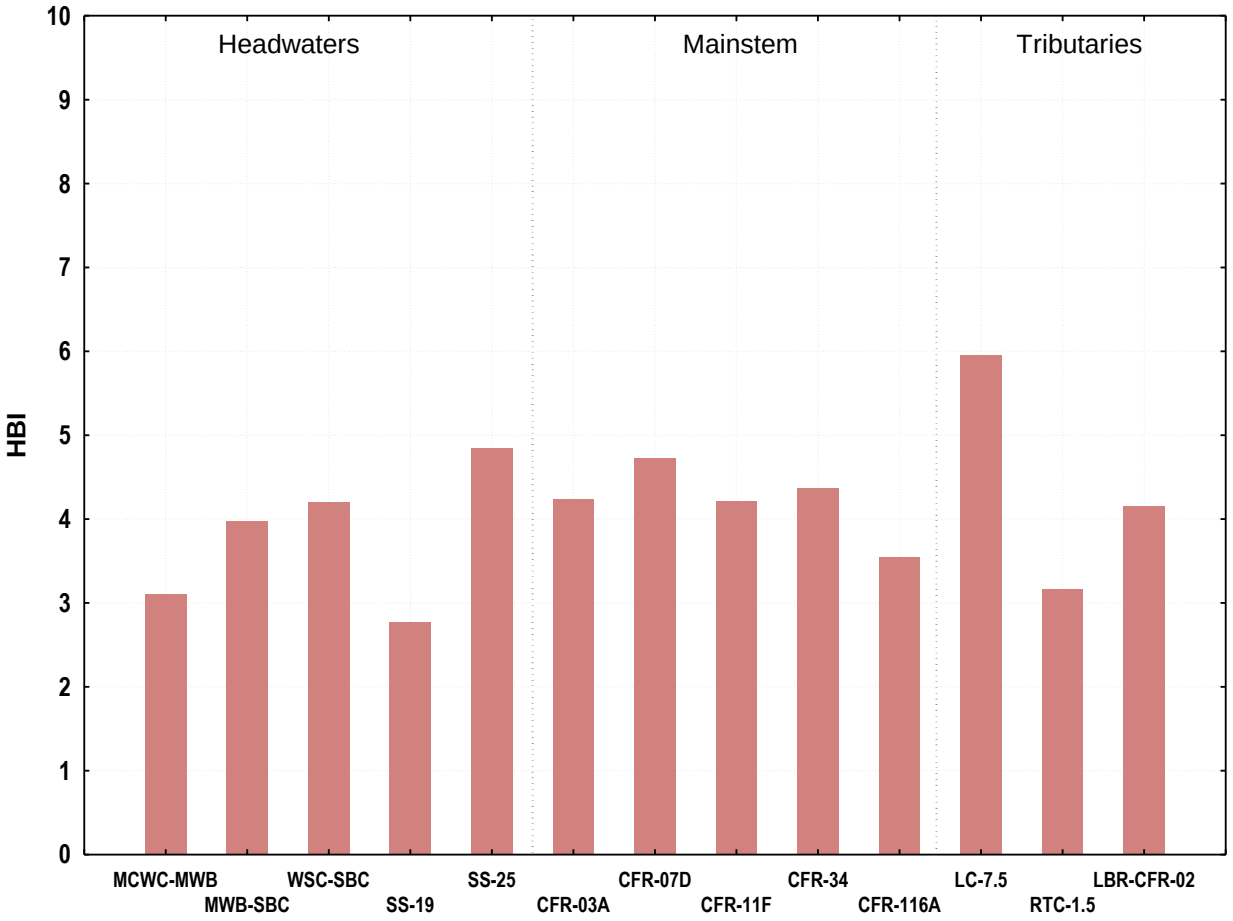

Figure 5-3. Hilsenhoff Biotic Index (HBI) [McGuire, 2010] results for Clark Fork basin monitoring sites. September, 2018.

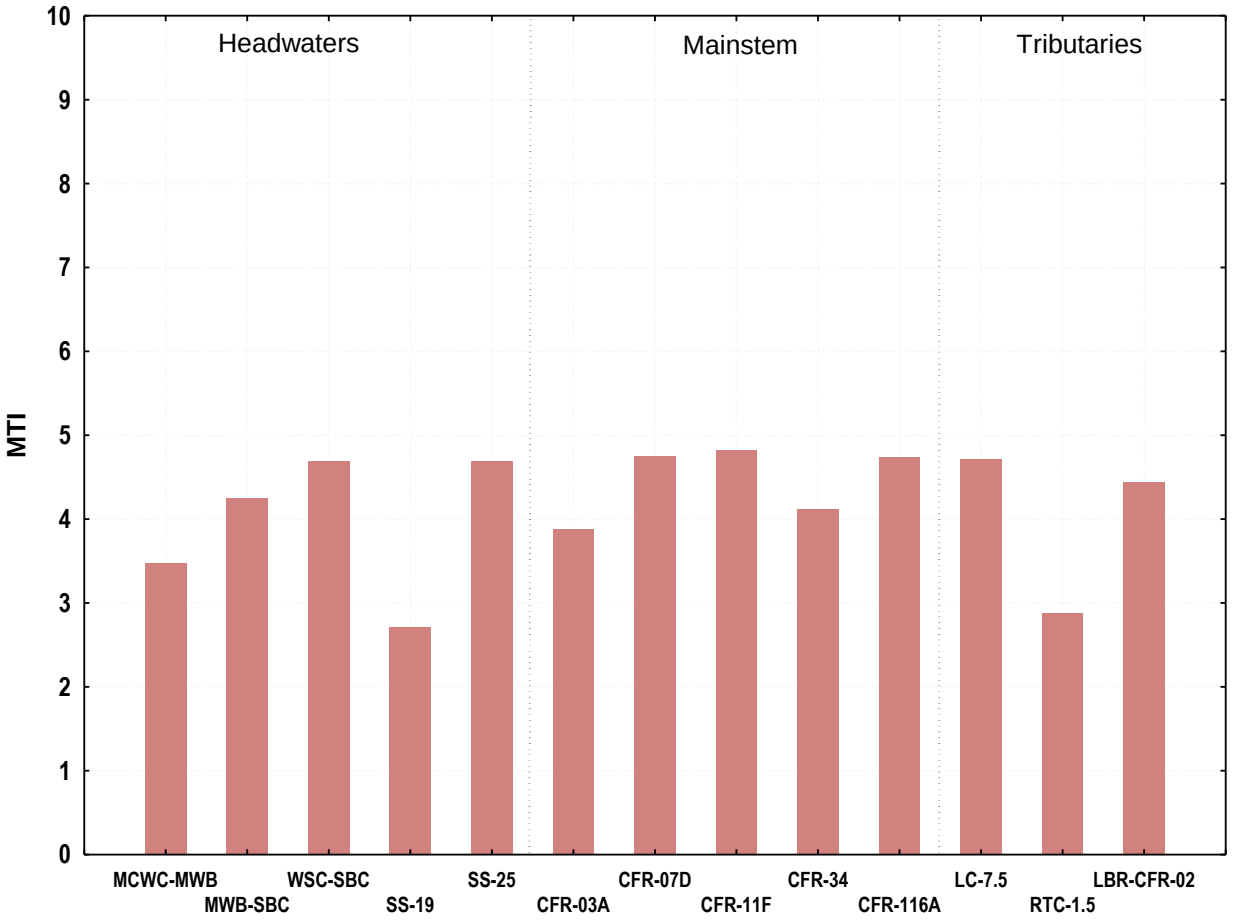

Figure 5-4. Metals Tolerance Index (MTI) [McGuire, 2010] results for Clark Fork basin monitoring sites. September, 2018.

5.3.3 Temporal Comparisons: 2017 and 2018 Data

Table 5-7 shows the comparisons of the indices between years. These comparisons are based on only two years of data, so they are made and should be interpreted with caution.

5.3.3.1 Headwater Sites

The MVFP index indicated improving or stable conditions at three headwaters sites (Sites MWB-SBC, WSC-SBC, and SS-19) and declining conditions at two sites (Sites MCWC-MWB and SS-25). Only at Site WSC-SBC in 2018 were nonimpaired conditions indicated. Based on the O/E index, conditions appeared to improve at all headwater sites except at Site SS-19 where conditions appeared to decline; however, none of the sites in either year were rated as unimpaired. The HBI, which measures how much the assemblage is affected by organic pollution, suggested improvement at all sites but Site MCWC-MWB. The HBI suggested that organic pollution was a problem (scores more than 4.0) for five of the ten site/year combinations. On the other hand, the MTI, which measures the effects of metals contamination on the assemblage, indicated worsening effects of metals on the assemblages at all sites except Site SS-19. The MTI was also above the threshold (more than 4.0) implying a negative effect of metals in five out of ten site/year combinations.

5.3.3.2 Mainstem Sites

Between 2017 and 2018, the MFVP index either declined or remained the same at all of the mainstem sites and in no case were sites rated as nonimpaired. The O/E index indicated slightly improving conditions at Sites CFR-03A, CFR-07D, and CFR-11F and declining conditions at Sites CFR-34 and CFR-116A; however, as with the MFVP, no sites were rated as unimpaired. The HBI showed that levels of organic pollution may have improved at Sites CFR-11F and CFR-116A, but only at Site CFR-116A did the value decline below the threshold in 2018. All other site/year combinations indicated that the effects of organic pollution were greater in 2018 than in 2017. In fact, only at Site CFR-03A in 2017 and Site CFR-116A in 2018 was the HBI value below 4.0. The MTI increased from 2017 to 2018 at all sites except Site CFR-34. However, only Site CFR-03A, in both 2017 and 2018, was below the threshold value of 4.0.

5.3.3.3 Tributary Sites

In the tributaries, the MVFP showed improving conditions at Sites LC-7.5 and RTC-1.5 and worsening conditions at Site LBR-CFR-02. Only Site RTC-1.5 was rated as nonimpaired in 2018. The O/E index suggested that conditions improved between 2017 and 2018 for two sites (Sites LC-7.5 and LBR-CFR-02) and declined between 2017 and 2018 at Site RTC-1.5; however, the O/E index never indicated unimpaired conditions at any tributary site in 2017 or 2018. The HBI showed worsening or the same conditions at all sites and exceeded the threshold for all but Site RTC-1.5 in both 2017 and 2018. Finally, the MTI suggested that metals contamination was worse in 2018 than 2017 at all sites, but only at Sites LC-7.5 and LBR-CFR-02 did the values rise above the threshold indicating significant metals contamination.

Table 5-7. A comparison between 2017 and 2018 bioassessment scores calculated for Clark Fork River sites. Indices are explained in the text and thresholds for impairment are shown in Table 5-6. Clark Fork River, September 24-27, 2018.

Site ID	Site description	MVFP (% maximum)		O/E		HBI		MTI	
		2017	2018	2017	2018	2017	2018	2017	2018
MCWC-MWB	Mill -Willow Creek at Frontage Road	72.2	61.1	0.61	0.70	2.82	3.10	2.70	3.47
MWB-SBC	Mill-Willow Creek Bypass near mouth	50.0	50.0	0.44	0.58	4.15	3.97	3.97	4.25
WSC-SBC	Warm Springs Creek near mouth	61.1	83.3	0.59	0.73	4.44	4.20	4.48	4.69
SS-19[52]	Silver Bow Creek at Frontage Road	38.9	38.9	0.23	0.19	3.96	2.77	3.28	2.71
SS-25	Silver Bow Creek at Warm Springs	55.6	33.3	0.46	0.67	5.17	4.84	4.54	4.68
CFR-03A	Clark Fork near Galen	61.1	38.9	0.28	0.35	3.98	4.23	3.74	3.88
CFR-07D	Clark Fork at Galen Road	61.1	44.4	0.35	0.4	4.72	4.73	4.36	4.75
CFR-11F	Clark Fork at Gemback Road	55.6	55.6	0.39	0.43	4.65	4.21	4.31	4.82
CFR-34	Clark Fork River at Williams-Tavenner Bridge	55.6	55.6	0.39	0.35	4.00	4.37	4.23	4.12
CFR-116A	Clark Fork at Turah	61.1	61.1	0.43	0.34	5.14	3.54	4.31	4.74
LC-7.5	Lost Creek at Frontage Road	33.3	44.4	0.25	0.38	4.01	5.95	3.78	4.71
RTC-1.5	Racetrack Creek at Frontage Road	77.8	88.9	0.60	0.47	2.82	3.16	2.7	2.88
LBR-CFR-02	Little Blackfoot River at Beck Hill Road	66.7	61.1	0.40	0.55	4.15	4.15	3.97	4.44

	Index value remained the same from 2017 to 2018.
	Index value change indicates improving conditions from 2017 to 2018.
	Index value change indicates declining conditions from 2017 to 2018.

[52] Collected September 20, 2018 as part of the survey of the Streamside Tailings Operable Unit on Silver Bow Creek.

5.3.4 Ecological Interpretations

5.3.4.1 Mill-Willow Creek at Frontage Road

5.3.4.1.1 Water Quality

There were six mayfly taxa recorded from this site, which was slightly below expectations for a low-to-mid-order stream in the Valley and Foothill ecoregion. One baetid, the ubiquitous *Baetis tricaudatus* complex (1.1 percent), two ephemerellids including the pollution-sensitive *Drunella spinifera* (0.2 percent) and *Ephemerella excrucians* (0.2 percent), and three heptageniids, *Cinygmula* sp. (0.4 percent), *Epeorus* sp. (0.6 percent), and *Rhithrogena* sp. (0.7 percent) were collected, but none were abundant. *Drunella spinifera* was the only pollution-sensitive taxon found. Pollution-tolerant organisms, including the elmid beetles *Optioservus* sp. (13.2 percent) and *Zaitzevia* sp. (3.5 percent), were a large component of the assemblage (18.7 percent). The percentage of collector-filterers (34.6 percent), large abundances of which are often thought to indicate organic pollution, was very high. However, the HBI (3.10) was within expectations and was the lowest for any site sampled in 2018. In addition, hemoglobin-bearing organisms (0.2 percent) were rare, suggesting that sediments were not hypoxic. Consequently, although the HBI was within expectations, the other characteristics indicated that some slight water quality impairment due to nutrient enrichment cannot be ruled out in this reach. In addition, annelid worms in the genus *Nais* (1.3 percent) and midges in the genus *Orthocladius* (1.1 percent) were common. These organisms are often found in association with filamentous algae. The presence of substantial filamentous algae is often thought to indicate nutrient enrichment, thus, supporting the contention that slight nutrient enrichment may have affected this site. The MTI (3.47) was below the threshold indicating metals contamination. Indeed, several metals-intolerant taxa, including the three heptageniid mayfly taxa listed above and the caddisfly *Lepidostoma* sp. (15.9 percent), were present.

5.3.4.1.2 Thermal Condition

Drunella spinifera was the only cold-stenotherm taxon found in the sample and it accounted for only a small percentage (0.2 percent) of the assemblage. The estimated thermal preference of the assemblage was 14.7 C.

5.3.4.1.3 Sediment Deposition

At least eight caddisfly taxa were supported at this site and many of them were abundant (e.g., *Glossosoma* sp., 12.5 percent; *Brachycentrus occidentalis*, 8.4 percent). Also, 21 “clinger” taxa were found in the sample. The FSBI-2000 (4.15) indicated that the assemblage was moderately tolerant of fine sediment. The FSBI-2012 value of 65 did not contradict this hypothesis. Thus, reduction in macroinvertebrate colonization of the stony stream bottom by the deposition of fine sediment appeared to be unlikely in this reach.

5.3.4.1.4 Habitat Diversity and Integrity

Some disturbance to instream habitats was likely because only 37 taxa were found in this reach. However, four stonefly taxa were collected, including *Sweltsa* sp. (2.8 percent) which was

common, suggesting that channel morphology, streambanks, and riparian function were probably intact. The presence of six semivoltine taxa, including some that were abundant or common (e.g., the elmid beetle, *Optioservus* sp.; the caddisfly *B. occidentalis*), suggested a fauna that was not substantially influenced by catastrophic dewatering, thermal extremes, or severe sediment pulses. Collector-filterers (34.6 percent) were the most abundant functional-feeding group, in part a consequence of abundant filtering caddisflies: *Hydropsyche* sp. (18.3 percent) was the dominant organism in the sample. Scrapers (28.8 percent), shredders (16.9 percent), and collector-gatherers (11.4 percent) were also abundant. Thus, allochthonous coarse and fine particulate organic matter and autochthonous algal production were all important to the food web in this system. In addition, the high percentage of scrapers suggested that the canopy was open, allowing light to reach the stream bed.

5.3.4.2 Mill-Willow Bypass near mouth

5.3.4.2.1 Water Quality

Most ecological indicators suggested slight water quality impairment through nutrient enrichment at Site MWB-SBC. Five mayfly taxa were reported; however, none of them were common. Mayflies included *Baetis tricaudatus* complex and an unidentified genus in the family Leptophlebiidae (each 0.4 percent of the assemblage) and the heptageniids *Ephemerella* sp., *Cinygmula* sp. and *Rhithrogena* sp. (each 0.2 percent of the assemblage). The percentage of collector-filterers (37.9 percent) was well above expectations for a low-order valley stream. Hemoglobin-bearing organisms (3.1 percent); mainly the midge *Microtendipes* sp., (2.8 percent) were common; consequently, hypoxia in the sediments may have occurred here. These characteristics suggested that slight impairment due to nutrient enrichment may have occurred here. In support of this contention, midges in the genus *Orthocladius* (3.5 percent) and annelid worms in the genus *Nais* (1.3 percent) were common suggesting that filamentous algae were probably also common at the site. However, the HBI (3.97) was slightly below the threshold thought to indicate organic pollution. Pollution-tolerant organisms (12.2 percent) were a large component of the assemblage and *Cricotopus (Nostococladius)* sp. (0.7 percent) was the only pollution-sensitive taxon collected and it was uncommon. An MTI of 4.25 provided some evidence indicating metals contamination, but several taxa thought to be intolerant of metals were present or abundant (two hepatageniid mayflies and the metals-intolerant caddisfly *Lepidostoma* sp. (15.8 percent)), making this less likely.

5.3.4.2.2 Thermal Condition

The estimated thermal preference of the assemblage was 15.9 C. Only one cold-stenotherm, the midge *C. (Nostococladius)* sp., was collected from this site and it was rare. Indeed, some warm-water-tolerant taxa were common (e.g., *Cheumatopsyche* sp., 3.3 percent).

5.3.4.2.3 Sediment Deposition

The FSBI-2000 (3.78) indicated an assemblage that was moderately tolerant of fine sediment. The FSBI-2012 was 60. Twenty "clinger" and seven caddisfly taxa (many abundant) were collected in this reach; thus, it appears unlikely that the deposition of fine sediment impeded the colonization of invertebrates here.

5.3.4.2.4 Habitat Diversity and Integrity

Some disturbance to instream habitats was likely at Mill-Willow Creek Bypass near the mouth because only 36 taxa were found in this reach. Only three stonefly taxa were collected: two taxa were rare, but immature perlodids (7.9 percent) were abundant. These data suggested that negative impacts to channel morphology, streambanks, and/or riparian function could not be ruled out here. Catastrophes like thermal extremes, scouring floods, or dewatering appear unlikely, as four long-lived taxa were found, including the elmid *Optioservus* sp. (5.5 percent) and the caddisfly *Brachycentrus occidentalis* (5.7 percent), both of which were abundant. Collector-filterers (37.9 percent) were the most abundant functional feeding group, partially as a result of abundant filtering caddisflies (e.g., *Hydropysche* sp., 16.0 percent, the most abundant organism

in the sample). Shredders (28.2 percent), collector-gatherers (14.2 percent), and scrapers (8.5 percent) were all large components of the assemblage. These characteristics of the fauna suggested that fine and coarse particulate organic matter and autochthonous algal production were all important energy pathways in this reach.

5.3.4.3 Warm Springs Creek near mouth

5.3.4.3.1 Water Quality

At Site WSC-SBC, some ecological attributes suggested no water quality impairment; however, others suggested slight impairment. On the negative side, at least six mayfly taxa were present at this site, which is slightly below expectations. The hepageniids *Cinygmula* sp. (3.1 percent) and *Rhithrogena* sp. (2.1 percent) and the ubiquitous *Baetis tricaudatus* complex (1.6 percent) were commonly collected, whereas the other taxa were rare. The HBI value (4.20) was also slightly elevated above expectations. The mayfly *Drunella grandis* (0.8 percent) and the stonefly *Paraperla* (0.4 percent) were the only pollution-sensitive taxa reported and pollution-tolerant animals (23.4 percent), all members of the elmid taxon *Optioservus* sp. (the dominant organism in the sample), accounted for a large percentage of the assemblage. Finally, midges in the genus *Orthocladius* (20.5 percent) were abundant, suggesting the presence of filamentous algae, which is often associated with nutrient enrichment. Alternatively, there were some indicators that suggested little water quality impairment. No hemoglobin-bearing organisms were reported, and collector-filterers accounted for only 4.3 percent of the food web composition. This combination of characteristics suggested that mild water quality impairment, perhaps through nutrient enrichment, cannot be ruled out. The MTI value (4.69) seemed to indicate slight metals contamination; however, the presence of heptageniid mayflies and the abundance of the caddisfly *Lepidostoma* sp. (7.9 percent) make this less likely.

5.3.4.3.2 Thermal Condition

No cold stenotherm taxa were found in this sample. However, the estimated thermal preference of the site was only 13.7 C.

5.3.4.3.3 Sediment Deposition

The FSBI-2000 (3.95) indicated a moderately sediment-tolerant assemblage; however, it appeared likely that the stony stream bottom was composed of less than 50 percent fine sediment based on an FSBI-2012 score of 95. Caddisflies were represented by six taxa and “clingers” were represented by 18 taxa, both slightly less than expectations. Impediment of invertebrate colonization of the stony stream bottom by fine sediments cannot be ruled out here.

5.3.4.3.4 Habitat Diversity and Integrity

Overall diversity (34 taxa) was below expectations; thus, instream habitats may have been monotonous or damaged. However, at least five stonefly taxa were recorded from this reach. In addition, *Skwala* sp. (1.6 percent) and an unidentified Chloroperlidae (1.6 percent) were commonly collected, making it unlikely that channel morphology, streambanks, and riparian function were disturbed. Catastrophes like dewatering or thermal stress probably did not interrupt long life cycles as six semivoltine taxa were collected. Indeed, the long-lived elmid beetle *Optioservus* sp. was the most abundant taxon in the assemblage. Scrapers (30.8 percent) and collector-gatherers (27.3 percent) were the most abundant of the feeding groups followed closely by shredders (20.7 percent). Predators (16.6 percent) and collector-filterers (4.3 percent) occurred in expected proportions. It was clear that allochthonous addition of fine particulate organic matter

deposited on the stream bottom, coarse particulate organic matter, probably added through material falling from the riparian zone, and autochthonous algal production were all important to the food web in this reach.

5.3.4.4 Silver Bow Creek at Frontage Road

This site was sampled on September 20, 2018 as part of the Streamside Tailings Operable Unit monitoring on Silver Bow Creek. The sample was collected using a D-frame net and a traveling kick-net method and the sample was subsampled to a 500-organism count. The organism count was increased to 500 (from 300) in 2017. Consequently, the 2018 sample is directly comparable to the samples on the Clark Fork in 2017 and 2018.

5.3.4.5 Water Quality

The mayfly fauna recorded from this reach was not diverse (three taxa) and the taxa were not abundant (*Baetis tricaudatus* complex, 0.8 percent; *Attenella* sp., 0.2 percent; *Tricorythodes* sp., 1.0 percent). The HBI (2.77) suggested that the assemblage was not impacted by organic pollution; however, pollution-tolerant organisms made up 17.0 percent of the sample and no pollution-sensitive taxa were collected. The percentage of filter-feeders (31.8 percent) was above expectations, and hemoglobin-bearing taxa (7.1 percent), including the midge *Microtendipes* sp. (6.5 percent), were very common in this assemblage. These findings suggest that water quality impairment through nutrient enrichment cannot be ruled out here, and that there was additional stress associated with hypoxic conditions in the sediment. Contamination by metals was not indicated because the MTI (2.71) was low and the caddisfly *Lepidostoma* sp. (41.0 percent) was abundant in the sample.

5.3.4.5.1 Thermal Condition

Similar to most sites, no cold-stenotherm taxa were recorded here. The temperature preference of the assemblage was 16.8ºC. Warm-water loving taxa (e.g., *Helicopsyche* sp., 8.0 percent) were abundant.

5.3.4.5.2 Sediment Deposition

Seven caddisfly taxa (six were abundant) and 11 “clinger” taxa were found in this sample. The FSBI-2000 value (3.46) indicated a sediment-tolerant assemblage. The FSBI-2012 was 20. Given the low value for the FSBI-2000, the negative effects of fine sediment deposition on colonization of stony sediments by invertebrates cannot be ruled out here.

5.3.4.5.3 Habitat Diversity and Integrity

Overall taxa richness (24) was lower than expected and only two stonefly taxa were collected; neither of them (*Isoperla* sp., 0.4 percent; *Skwala* sp., 0.4 percent) were common. Consequently, monotonous or disturbed instream habitats and unstable streambanks, loss of riparian function, or altered channel morphology were suggested. Catastrophic dewatering, thermal extremes, sediment pulses, or toxic inputs were probably unlikely because three long-lived taxa were collected, including the caddisfly *Brachycentrus occidentalis* (11.8 percent) and the elmid beetle *Optioservus* sp. (6.1 percent). Shredders (41.0 percent) and collector-filterers (31.8 percent) dominated the functional composition of the assemblage and all other functional groups were well represented. Thus, both fine and coarse particulate matter and instream algal production appeared to be the important energy sources in this reach.

5.3.4.6 Silver Bow Creek at Warm Springs

5.3.4.6.1 Water Quality

Water quality appears to be impaired at Site SS-25, Silver Bow Creek at Warm Springs. *Baetis tricaudatus* complex (1.3 percent), *Ephemerella* sp. (10.7 percent), and *Caenis* sp. (0.2 percent) were the only unique mayfly taxa recorded from this reach. The HBI (4.84) was above expectations. No pollution-sensitive taxa were collected and pollution-tolerant organisms (25.0 percent) made up a large percentage of the assemblage. Filtering collectors (50.2 percent) were extremely abundant in large part because the two most abundant organisms in the sample were the filtering caddisflies *Hydropsyche* sp. (24.3 percent) and *Cheumatopsyche* sp. (15.6 percent). Animals tolerant of low oxygen conditions in the sediments (1.5 percent) were also common, suggesting that hypoxia in the sediments cannot be ruled out here. High abundances of filtering collectors and hypoxic conditions are often linked to nutrient enrichment. Thus, results suggested that nutrient enrichment was at least part of the cause of water quality impairment at this site. Interestingly, flatworms in the subclass Trepaxonemata (1.7 percent) were common suggesting that there were groundwater inputs into the reach. The MTI (4.68) indicated slight metals contamination.

5.3.4.6.2 Thermal Condition

Animals tolerant of warm water temperatures were present (e.g., the caddisflies *Oecetis sp.* (0.6 percent) and *Cheumatopsyche sp.*) in this sample and no cold stenotherms were found. The calculated temperature preference was 17.3 C.

5.3.4.6.3 Sediment Deposition

Eight caddisfly taxa (seven associated with stony stream bottoms) and 17 “clinger” taxa were reported from this site. The FSBI-2000 (3.82) suggested an assemblage that was moderately tolerant of fine sediment and the FSBI-2012 (30) did not contradict this contention. Given that many of the caddisflies were common or abundant, including the fine sediment-intolerant *Lepidostoma* sp. (1.9 percent), it seemed likely that the deposition of fine sediment at this site did not appreciably influence macroinvertebrate colonization of stony substrates.

5.3.4.6.4 Habitat Diversity and Integrity

Overall macroinvertebrate diversity (43 taxa) was slightly lower than expected and only one stonefly taxon (*Isoperla* sp., 0.6 percent), which was rare, was found. Limited or monotonous instream habitats cannot be dismissed here and disruption to channel morphology, streambanks, and/or riparian function probably occurred in this reach. Four long-lived taxa were collected: the elmid beetles *Cleptelmis addenda*, *Optioservus* sp., and *Zaitzevia* sp. made up 0.2 percent, 6.0 percent and 1.3 percent of the assemblage, respectively, and the caddisfly *Brachycentrus occidentalis* (2.1 percent) was common. Consequently, catastrophes such as dewatering, scouring sediment pulses, or thermal extremes were unlikely to have had a major impact on the fauna. Collector-filterers (50.2 percent) dominated the functional feeding groups. Scrapers (17.5 percent), collector-gatherers (11.8 percent), and shredders (13.9 percent) were also well

represented. Both fine and coarse particulate organic matter and instream algal production appeared important to the energy budget.

5.3.4.7 Clark Fork River near Galen

5.3.4.7.1 Water Quality

Baetis tricaudatus complex (3.7 percent), *Ephemerella excrucians* (3.7 percent), and *Ecdyonurus criddlei* (0.2 percent) were the only mayfly taxa reported from Site CFR-03A. The HBI (4.23) was slightly above the threshold that indicated organic pollution. *Cricotopus (Nostococladius)* sp. (7.6 percent) was the only pollution-sensitive taxon collected. Pollution-tolerant organisms (19.0 percent) and collector-filterers (28.8 percent) made up larger than expected percentages of the assemblage. Hemoglobin-bearing organisms (10.4 percent, the chironomid *Microtendipes* sp.) made up a large percentage of the assemblage: sediments may have been hypoxic. However, a large crop of the blue green alga *Nostoc* sp. and nitrogen limitation may also have been indicated because of the abundance of *Cricotopus (Nostococladius)*. Overall, ecological metrics suggested water quality impairment and nutrient-enriched conditions. Metals contamination was unlikely to have occurred here as the MTI (3.88) was below the threshold thought to indicate disturbance by metals and the metals-intolerant caddisfly *Lepidostoma* sp. (3.5 percent) was common.

5.3.4.7.2 Thermal Condition

The midge *Cricotopus (Nostococladius)* sp. was the only cold stenotherm reported from this site, accounting for 7.6 percent of the assemblage. The temperature preference of the assemblage was calculated at 17.1 C.

5.3.4.7.3 Sediment Deposition

This site supported 12 caddisfly (11 associated with stony sediments) and 21 “clinger” taxa. Caddisflies were abundant. In fact, two caddisflies, *Protoptila* sp. (16.8 percent) and *Hydropysche* sp. (16.1 percent) were the dominant animals in the sample. The FSBI-2000 value (4.15) indicated a moderately sediment-tolerant fauna and the FSBI-2012 was 50. Consequently, it appears that stony substrates were largely free of deposited sediment in 2018.

5.3.4.7.4 Habitat Diversity and Integrity

Overall taxa richness (38) and stonefly taxa richness (a single taxon, *Skwala* sp.) were lower than expected, suggesting limited instream habitats and disturbed reach-scale habitat features such as stream banks and riparian zones. Disasters such as dewatering, scouring sediment pulses, or thermal extremes were probably not influential here as five long-lived taxa were recorded, including the abundant elmids *Optioservus* sp. (14.1 percent) and *Zaitzevia* sp. (2.0 percent). Scrapers (33.5 percent) were the dominant feeding group. The collector-filterers (28.8 percent) and collector-gatherers (16.8 percent) were also abundant. The abundance of shredders (15.5 percent) was probably an overestimate of the role of riparian inputs to the energy flow in the reach because *C. (Nostococladius)* sp. does not respond to inputs of coarse particulate matter from streamside. However, shredders were still an important feeding guild even with the midge’s percentage removed from the estimate. Thus, an open canopy and autochthonous algal production within the reach as well as allochthonous fine and coarse particulate organic matter were all important components of the food web.

5.3.4.8 Clark Fork River at Galen Road

5.3.4.8.1 Water Quality

In 2018, water quality appeared to be impaired at Site CFR-07D. Only four mayfly taxa were recorded and of those, only the ubiquitous *Baetis tricaudatus* complex (1.5 percent) and *Ephemerella excrucians* (2.4 percent) were common. The HBI (4.73) suggested that organic pollution may have influenced this site. No pollution-sensitive taxa were found and the abundances of pollution-tolerant taxa (16.5 percent) and collector-filterers (46.2 percent) were higher than expected for a stream with good water quality. Many midges associated with filamentous algae were collected (*Orthocladius* sp. 9.2 percent), which also might have indicated nutrient enrichment. In addition, the midge *Microtendipes* sp. (6.2 percent) was abundant: this taxon carries hemoglobin in its circulating fluids, suggesting that sediments may have had periods of hypoxia. Therefore, this reach may have been impaired through nutrient enrichment. The MTI (4.75) was above the threshold indicating metals contamination, but the metals-sensitive caddisfly *Lepidostoma sp.* (3.6 percent) was abundant. Contamination by metals cannot be ruled out in this reach.

5.3.4.8.2 Thermal Condition

The temperature preference of the assemblage was 16.1 C. No cold stenotherm taxa were collected.

5.3.4.8.3 Sediment Deposition

The caddisfly fauna was diverse (nine taxa, eight associated with stony stream bottoms) and 20 “clinger” taxa were collected. Sediment deposition probably did not impede the colonization of stony sediments in this reach. However, the FSBI-2000 value (4.41) indicated a moderately sediment-tolerant assemblage. The FSBI-2012 was 60.

5.3.4.8.4 Habitat Diversity and Integrity

Instream and reach-scale habitat features appeared to be disturbed at this site. Only 31 taxa were recorded, which was below what was expected for similar streams without impaired habitats. Stonefly diversity (two taxa) was also low although *Isoperla* sp. (1.9 percent) and *Skwala* sp. (1.9 percent) were common. Catastrophes such as dewatering, scouring sediment pulses, or thermal extremes seem unlikely here because three semivoltine taxa were recorded: the long-lived elmid beetle *Optioservus* sp. (9.6 percent) was abundant and the elmid *Zaitzevia* sp. (1.7 percent) and the caddisfly *Brachycentrus occidentalis* (2.1 percent) were both common. Collector-filterers (46.2 percent) were by far the dominant functional group, primarily because of the abundance of the caddisfly *Hydropsyche* sp. (37.3 percent), the most abundant taxon. Collector-gatherers (17.1 percent), shredders (15.8 percent), and scrapers (13.3 percent) were also well represented. Thus, the abundant algal resources and abundant fine and coarse particulate organic matter that were indicated by this distribution of feeding groups suggested the importance of both autochthonous and allochthonous production to the energy balance in this reach.

5.3.4.9 Clark Fork River at Gemback Road

5.3.4.9.1 Water Quality

At Site CFR-11F, the characteristics of the invertebrate fauna suggested that water quality was impaired through nutrient enrichment. Mayflies included only four taxa: *Baetis tricaudatus* complex (5.6 percent), *Acentrella* sp., (0.6 percent), *Ephemerella excrucians* (1.9 percent), and *Rhithrogena* sp. (0.6 percent). The HBI (4.21) was slightly above the threshold indicating organic pollution. The relative abundance of collector-filterers (46.9 percent) was high because the filtering caddisfly *Hydropsyche* sp. (42.7 percent) was the dominant organism in the sample. All of these characteristics suggested that nutrient enrichment occurred here. In addition, hypoxic sediments could not be ruled out: the midge *Microtendipes* sp., a hemoglobin-bearing taxon, made up 1.2 percent of the assemblage. Pollution-tolerant taxa accounted for 7.7 percent of the assemblage and no pollution-sensitive taxa were collected. The MTI (4.82) indicated mild contamination by metals. However, this contention was not supported by the presence of metals-sensitive heptageniid mayflies and the commonness of the caddisfly *Lepidostoma sp.* (3.9 percent).

5.3.4.9.2 Thermal Condition

The calculated temperature preference of the assemblage was 16.0 C. No cold stenotherm taxa were collected. In addition, the caddisfly *Cheumatopsyche* sp. (2.1 percent), which is tolerant of warm water conditions, was collected.

5.3.4.9.3 Sediment Deposition

The FSBI-2000 (4.64) indicated an assemblage that was moderately sediment-tolerant, and the FSBI-2012 was 55. However, sediment deposition probably did not influence colonization of invertebrate taxa to an appreciable extent: the site supported no fewer than nine caddisfly and 20 “clinger” taxa.

5.3.4.9.4 Habitat Diversity and Integrity

Disturbed or monotonous instream habitats may have been indicated, as overall diversity (35 taxa) was low. The presence of four stonefly taxa, including *Skwala* sp. (1.2 percent), which was common, suggested that reach-scale habitat features like stream banks and riparian zones were probably not disturbed. Four semivoltine species were found in the sample. However, only the elmid beetle *Optioservus* sp. (4.0 percent) was common, each of the other taxa made up less than 0.9 percent of the fauna. In spite of this, catastrophes like dewatering or thermal stress seem unlikely here. Collector-filterers (46.9 percent) dominated the food web because, as mentioned above, the filtering caddisfly *Hydropsyche* sp. was the dominant animal in the sample. Scrapers (14.8 percent), collector-gatherers (20.8 percent), and shredders (14.2 percent) were also well represented. These metrics suggested that algal films, along with fine and coarse organic particulates were important to the energy budget of this reach.

5.3.4.10 Clark Fork River at Williams-Tavenner Bridge

5.3.4.10.1 Water Quality

Similar to Site CFR-11F, water quality seemed to be impaired through nutrient enrichment here. The HBI (4.37) was elevated above expectations and only four mayfly taxa were recorded. However, of those four taxa, the ubiquitous *Baetis tricaudatus* complex (2.4 percent), *Ephemerella excrucians* (12.6 percent), and *Tricorythodes* sp. (1.7 percent) were all abundant or common. Collector-filterers (35.9 percent) dominated the food web; the filtering caddisfly *Hydropysche* sp. (28.3 percent) was the most abundant organism in the sample. Hemoglobin-bearing organisms (4.6 percent) were abundant. These findings suggest that nutrient enrichment and hypoxia in the sediments occurred in this reach. The fact that pollution-tolerant organisms accounted for 31.7 percent of the assemblage and that only one pollution-sensitive taxon (the midge *Potthastia gaedii* Gr., one specimen, 0.2 percent) was collected also supports the contention that water quality was impaired. Slight metals contamination was indicated by the MTI (4.12). However, the metals-sensitive caddisfly *Lepidostoma* sp. (5.4 percent) was abundant, and two specimens of the heptageniid mayfly *Rhithrogena* sp. (0.4 percent) were collected. Given that the MTI was only slightly elevated, the presence of these metals-intolerant taxa suggested that metals impairment was unlikely here.

5.3.4.10.2 Thermal Condition

No cold-stenotherm taxa were collected, and several warm-water taxa were abundant, including the caddisflies *Oecetis* sp. (6.9 percent), *Cheumatopsyche* sp. (3.2 percent) and *Helicopsyche* sp. (4.8 percent). The calculated temperature preference of the assemblage was 16.6 C.

5.3.4.10.3 Sediment Deposition

Based on the caddisfly and "clinger" fauna, it appeared that fine sediment deposition did not negatively influence the biota in this reach. Eight caddisfly taxa (seven associated with stony stream bottoms), many of which were abundant, and 20 "clinger" taxa were sampled here. However, the FSBI-2000 value (4.07), indicated a moderately sediment-tolerant assemblage and the FSBI-2012 value of 50 did not contradict this conjecture.

5.3.4.10.4 Habitat Diversity and Integrity

Only 34 total taxa were reported from this site, indicating instream habitats were perhaps disturbed or monotonous. However, six stonefly taxa were collected, including *Isoperla sp.* (2.2 percent) which was common, suggesting that channel morphology, streambanks, and riparian function were probably intact. Because six semivoltine taxa were collected, and one was abundant (e.g., *Optioservus* sp., 6.3 percent), catastrophes such as dewatering, scouring sediment pulses, or thermal extremes appeared unlikely to have had a major impact on the fauna. Collector-filterers (35.9 percent) and shredders (31.5 percent) dominated the functional feeding guild. All other functional groups were well represented; thus, suspended and deposited fine and coarse particulate organic matter and autochthonous algal production were all important in the food web here.

5.3.4.11 Clark Fork River at Turah

5.3.4.11.1 Water Quality

Water quality indicators were varied in their suggestion of impairment at this site. The mayflies were diverse: nine taxa, the most found in any sample in 2018, were collected: the families Ameletidae (one taxon), Baetidae (two), Ephemerellidae (two), Heptageniidae (two), Leptophlebiidae (one), and Leptohyphidae (one) were represented. Indeed, the most common taxon in the whole sample was the mayfly *Ephemerella* sp. (22.7 percent). The HBI value (3.54) suggested that the assemblage was not influenced by organic pollution. There were few hemoglobin-bearing organisms (0.4 percent) in the collection. These characteristics suggested good water quality and well-oxygenated sediments. However, other characteristics suggested impairment, some of which appeared to result from nutrient enrichment. Collector-filterers (23.2 percent) were the most abundant functional group, which is not surprising given that the filtering caddisfly *Hydropsyche* sp. (21.9 percent) was the second most abundant organism in the sample. The mayfly *Drunella spinifera* (1 specimen, 0.2 percent) was the only pollution-sensitive taxon reported, and pollution-tolerant organisms (10.3 percent) were abundant. These metrics suggested that water quality impairment, at least in part resulting from mild nutrient enrichment, cannot be ruled out at this site. The MTI (4.74) indicated slight metals contamination; however, metals-intolerant heptageniid mayflies were abundant (5.3 percent).

5.3.4.11.2 Thermal Condition

Cold stenotherms made up only 0.2 percent of the assemblage: only one specimen of the mayfly *Drunella spinifera* was collected at this site. The estimated temperature preference of the assemblage was 15.7 C.

5.3.4.11.3 Sediment Deposition

The site supported at least eight caddisfly taxa (seven associated with stony sediments) and 19 “clinger” taxa, suggesting that colonization of stony substrates was not inhibited by deposited fine sediment. The FSBI-2000 value (4.25) indicated a moderately sediment-tolerant assemblage. The FSBI-2012 value of 50 did not support or refute the contention that colonization was uninhibited at this site.

5.3.4.11.4 Habitat Diversity and Integrity

Instream habitats may have been disrupted or monotonous as only 35 taxa were reported from this sample. Reach-scale habitat features may have also been impacted as only three stonefly taxa were recorded; however, *Isoperla* sp. (8.7 percent) and *Skwala* sp. (1.3 percent) were abundant and common, respectively. The disruption of the life cycles of long-lived organisms by catastrophes like dewatering or thermal stress can be ruled out here as two semivoltine taxa were recorded: both of the elmids *Zaitzevia* sp. (2.8 percent) and *Optioservus* sp, (2.8 percent) were common. All expected functional groups were present. Scrapers (33.7 percent) followed by collector-filterers (23.2 percent) dominated the functional mix. Collector-gatherers (14.0 percent) and shredders (14.4 percent) were also well represented. Consequently, important food resources included fine and coarse particulate organic matter and algal films produced in the reach.

5.3.4.12 Lost Creek at Frontage Road

5.3.4.12.1 Water Quality

Water quality seemed to be impaired at this site. Only one specimen of the pollution-sensitive mayfly *Drunella grandis* (0.2 percent) was collected and pollution-tolerant organisms made up 24.9 percent of the assemblage. Mayfly diversity (five taxa) was below expectations and only the ubiquitous *Baetis tricaudatus* complex (2.0 percent) was common. The HBI value (5.95) was elevated over expectations and was the highest value recorded from any site sampled in 2018. Collector-filterers (30.0 percent) were very abundant. In addition, sediments may have been hypoxic as hemoglobin-bearing organisms (3.5 percent) were common in the faunal assemblage. These latter results suggested that nutrient enrichment was the cause of the water quality impairment here. Midges in the genus *Orthocladius* (14.4 percent, the second most common taxon in the sample), one specimen of caddisfly in the genus *Hydroptila* sp. (0.2 percent) and three specimens of the annelid worm *Nais* sp. (0.6 percent) were also reported. Thus, filamentous algae appeared to occur at this site, supporting the contention that nutrient enrichment impaired water quality. The MTI (4.72) indicated mild metals contamination.

5.3.4.12.2 Thermal Condition

No cold-stenotherms were collected from this site. The calculated thermal preference of the fauna was 16.8 C.

5.3.4.12.3 Sediment Deposition

Both the number of caddisfly taxa (five, four of which are associated with stony stream bottoms) and "clinger" taxa (15) were lower than expected. These findings suggest that sediment deposition may have compromised stony substrate habitats. The FSBI-2000 value (3.68) supported this contention and indicated that the fauna was moderately tolerant of deposited sediment. The FSBI-2012 value (10) was the lowest of any site sampled in 2018.

5.3.4.12.4 Habitat Diversity and Integrity

Overall faunal diversity (43 taxa) was somewhat lower than expected and only one stonefly (*Skwala* sp., 0.4 percent) was recorded from this site. Thus, instream habitats may have been monotonous or disrupted and reach-scale habitat features like stream banks and riparian zones may have been disturbed. Long-lived taxa were well-represented: five such taxa were collected from this site and the elmid *Optioservus sp.* (11.8 percent) was abundant. Consequently, catastrophic dewatering or thermal extremes did not appear to be influential. Collector-gatherers (44.0 percent) and collector-filterers (30.0 percent) were the most abundant functional groups. Scrapers (13.8 percent) and shredders (7.8 percent) were found in expected proportions. Thus, autochthonous algal production and fine and coarse particulate organic matter all seemed to be important to the energy flow in this reach.

5.3.4.13 Racetrack Creek at Frontage Road

5.3.4.13.1 Water Quality

Ecological attributes of the macroinvertebrate assemblage provided mixed results concerning water quality at Racetrack Creek. On the positive side, the HBI value (3.16) was within the range suggesting that organic pollution did not impact this reach. Pollution-tolerant taxa (4.1 percent) made up only a small part of the assemblage, and two pollution sensitive taxa were collected including the caddisfly *Ecclisomyia* sp. (1.7 percent), which was common, and the mayfly *Drunella grandis* (0.7 percent). In addition, collector-filterers (2.0 percent) were not a major component of the assemblage. On the other hand, only five mayfly taxa were found in the sample, including *Ephemerella* sp. (16.9 percent) and *Cinygmula* sp. (12.9 percent); these were both very abundant. However, five mayfly taxa is slightly below expectations. The midge *Orthocladius* sp. (19.0 percent) was abundant and the dominant organism in the assemblage. As mentioned previously, *Orthocladius* is often associated with filamentous algae, which itself is often associated with nutrient enrichment. Hemoglobin-bearing organisms were common (2.2 percent), consequently hypoxic sediments may have occurred at this site. Thus, some mild nutrient enrichment cannot be ruled out here. The MTI (2.88) was below the threshold indicating metals contamination, and the metals-intolerant heptageniid mayfly *Cinygmula* sp. was abundant; consequently, there was no evidence of metals pollution.

5.3.4.13.2 Thermal Condition

The caddisfly *Ecclisomyia* sp. was the only cold stenotherm taxon recorded from this reach. The calculated thermal preference for the assemblage was 14.2 C.

5.3.4.13.3 Sediment Deposition

Twenty "clinger" taxa and at least seven caddisfly taxa were collected, although only *Ecclisomyia* sp. was common. The FSBI-2000 value (4.51) indicated a fauna that was moderately tolerant of fine sediment and the FSBI-2012 was 65. Thus, limitation of colonization of stony substrates on the stream bottom by fine sediment deposition was unlikely here.

5.3.4.13.4 Habitat Diversity and Integrity

Overall, the habitat characteristics of this site appear to be good. Faunal diversity (48 total taxa) was high and included six stonefly taxa and five semivoltine taxa. Of the stonefly taxa, *Sweltsa* sp. (14.4 percent) was abundant and immature specimens in the family Capniidae (2.0 percent) were common. The long-lived taxa included two elmid beetles, two dytiscid beetles, and one stonefly with only the elmid *Optioservus* sp. (3.0 percent) being abundant. Instream and reach-scale habitats appear intact, and catastrophes like dewatering, thermal extremes or scouring sediment pulses do not appear to have interrupted the life cycles of long-lived organisms. The functional composition of the assemblage was dominated by scrapers (36.5 percent) and collector-gatherers (31.9 percent). Large numbers of scrapers may have indicated an open canopy and certainly indicated the importance of algal production to the food web. Fine particulate organic matter deposited on the stream bed was also important to the energy flow in this reach. In addition, shredders (9.6 percent) were well represented. The large number of stonefly predators

caused the proportion of predators (20.1 percent) to be high. As mentioned previously, the collector-filterers were not well represented.

5.3.4.14 Little Blackfoot River at Beck Hill Road

5.3.4.14.1 Water Quality

At Site LBR-CFR-02, some indicators suggested good water quality, whereas others suggested some impairment. Only five mayfly taxa were counted in the sample and only *Ephemerella* sp. (2.2 percent) was common. The HBI (4.15) was slightly elevated and collector-filterers (33.1 percent) were abundant primarily because the filtering caddisfly *Hydropsyche* sp. (30.1 percent) was the most abundant organism in the sample. In addition, the midge *Orthocladius* sp. (13.6 percent) and caddisflies in the family Hydroptilidae (0.4 percent), taxa typically associated with filamentous algae and nutrient enrichment, were abundant and present, respectively. The percentage of pollution-tolerant animals (11.7 percent) was higher than expected. Alternatively, three pollution-sensitive taxa were recorded: *Potthastia gaedii* Gr. (5.2 percent) was abundant, whereas the stonefly *Paraperla* sp. (0.2 percent) and the midge *Cricotopus* (*Nostococladius*) sp. (0.8 percent) were rare. No hemoglobin-bearing animals were collected. Thus, the possibility of some mild nutrient enrichment cannot be dismissed here. The MTI (4.44) suggested some slight metals contamination, but the metals-sensitive caddisfly *Lepidostoma* sp. (7.3 percent) was abundant and the heptageniid mayfly *Rhithrogena* sp. (0.6 percent) was present, making impacts from metals seem less likely.

5.3.4.14.2 Thermal Condition

The midge *Cricotopus (Nostococladius)* sp. was the only cold-loving taxon reported from this site. The calculated temperature preference of the assemblage was 15.8 C.

5.3.4.14.3 Sediment Deposition

Ten caddisflies (nine associated with stony stream bottoms) and 23 “clinger” taxa were collected at this site suggesting that the deposition of fine sediments did not influence the colonization of stony substrates in this reach. The FSBI-2000 (4.44) indicated a fauna that was moderately tolerant of fine sediment, but the FSBI-2012 value of 115 suggested that fine sediments likely made up less than 40 percent of the stream bottom.

5.3.4.14.4 Habitat Diversity and Integrity

The habitat conditions at this site appeared to be good. Overall taxa richness (42) was only slightly lower than expected, suggesting diverse and intact instream habitats. At least five stonefly taxa were collected: *Sweltsa* sp. (6.2 percent) was abundant and immature perlodids (2.4 percent) were common. Consequently, reach-scale habitat features were unlikely to be disrupted. In addition, eight long-lived taxa were counted including the elmids *Optioservus sp*. (4.3 percent) and *Zaitzevia* sp. (3.7 percent): year-round surface flow and absence of events that would interrupt long life cycles were indicated. Collector-filters (33.1 percent) and collector-gatherers (29.4 percent) were very abundant, suggesting the importance of allochthonous fine particulate matter to the food web. Shredders (10.5 percent) and scrapers (9.0 percent) were also abundant, indicating that autochthonous algal production and allochthonous coarse particulate matter were important to the energy budget as well.

5.4 DISCUSSION

The MVFP scored all but two sites (Warm Spring Creek near the mouth, Site WSC-SBC; Racetrack Creek at Frontage Road, Site RTC-1.5) as either slightly or moderately impaired. The O/E index scored all sites as impaired. The O/E may not be an appropriate evaluation tool for these sites, since the 2012 model did not recognize the combination of predictor variables for any site.

The HBI indicated that organic pollution was a potential cause of impairment at eight sites. Only Mill-Willow Creek at Frontage Road (Site MCWC-MWB), Mill-Willow Creek bypass near mouth (Site MWB-SBC), Silver Bow Creek at Frontage Road (Site SS-19), Clark Fork at Galen Road (Site CFR-07D), Clark Fork at Turah (Site CFR-116A), and Racetrack Creek at Frontage Road (Site RTC-1.5) scored below the 4.00 threshold.

The MTI indicated that contamination by metals occurred at nine sites. Only Mill-Willow Creek at Frontage Road (Site MCWC-MWB), Silver Bow Creek at Frontage Road (Site SS-19), Clark Fork at Galen Road (Site CFR-07D), and Racetrack Creek at Frontage Road (Site RTC-1.5) scored below the 4.00 threshold. Table 5-8 summarizes the probable stressors suggested by the taxonomic and functional composition of macroinvertebrate assemblages at each site.

Table 5-8. Clark Fork River basin sites and probable stressors as suggested by the composition of macroinvertebrate assemblages, as described in narrative interpretations. Clark Fork River basin, September 24-27, 2018.

Site name	Site ID	Nutrient and/or organic pollution	Metals	Sediment deposition	Habitat instability
Mill -Willow Creek at Frontage Road	MCWC-MWB	?			+
Mill-Willow Creek Bypass near mouth	MWB-SBC	+	?		+
Warm Springs Creek near mouth	WSC-SBC	?	?	?	+
Silver Bow Creek at Frontage Road[53]	SS-19	?		?	+
Silver Bow Creek at Warm Springs	SS-25	+	+		+
Clark Fork River near Galen at Perkins Lane	CFR-03A	+			+
Clark Fork River at Galen Road	CFR-07D	+	?		+
Clark Fork River at Gemback Road	CFR-11F	+	?		+
Clark Fork River at Williams-Tavenner Bridge	CFR-34	+			+
Clark Fork River at Turah	CFR-116A	?	?		+
Lost Creek at Frontage Road	LC-7.5	+	+	+	+
Racetrack Creek at Frontage Road	RTC-1.5	?			
Little Blackfoot River at Beck Hill Road	LBR-CFR-02	?	?		

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

[53] Collected September 20, 2018 as part of the survey of the Streamside Tailings Operable Unit on Silver Bow Creek.

6.0 FISH[54]

6.1 INTRODUCTION

The Upper Clark Fork River (UCFR) was subject to extensive mining and mineral processing activities during the late 19th and early 20th centuries. Metal contamination from these activities have reduced habitat quality and altered the fishery in the UCFR. Fishery changes include reduced trout numbers and changes in species composition. Because of these negative impacts, angling use of the Clark Fork River is lower than other streams in western Montana. Extensive remediation and restoration efforts are under way and these efforts aim to mitigate historical mining and smelting damage to natural resources in the Upper Clark Fork River Basin (UCFRB). Effects of these actions have been dramatic in Silver Bow Creek, where completed remedial activities have allowed the return of fish to a river where fish were extirpated for more than a century [Naughton, 2013]. The Silver Bow Creek fishery will continue to change in response to improvements in water quality, maturation of riparian vegetation, natural changes in river morphology, tributary restoration projects, flow enhancement, and other factors. Remedial efforts on the mainstem of the Clark Fork River are more recent and the area slated for restoration projects is vast (see Saffel et al. [2018]). Thus, monitoring fisheries responses to restoration needs to be done at multiple spatial and temporal scales [Geum Environmental, 2015]. This monitoring program evaluates the UCFRB remediation and restoration programs at the basin (mainstem river), watershed (i.e., individual tributaries), and project (site) scales.

In the past, fisheries data collection was conducted sporadically in the UCFRB. From 2008 to 2010, Montana Fish, Wildlife & Parks (FWP) biologists established long-term monitoring sections on the mainstem UCFR. FWP has completed population estimates in these sections each of the subsequent years. These mainstem population surveys provide a dataset that can be used to evaluate the mainstem Clark Fork River fishery before, during, and after restoration and remediation actions. Annual fisheries surveys in Silver Bow Creek began in 2013. Silver Bow Creek surveys initially consisted of one-pass electrofishing conducted in the fall at four sections. In 2014, two more sections were added and sampling occurred in spring and fall. In 2015, the first fish population estimates were attempted on Silver Bow Creek, both in spring and fall. The spring sampling was shifted to summer from 2016-2018 and population estimates are now attempted summer and fall at six sections. The summer sampling is conducted during the period of low flows and high water temperatures. Low dissolved oxygen has been documented in the past during the summer and hypoxic areas of Sliver Bow Creek tend to be devoid of trout during this period [Naughton, 2013]. Fall sampling is focused on evaluating fish numbers and distribution when water temperatures have cooled and dissolved oxygen concentrations are more favorable to fish.

Multiple tributaries have been identified as priorities for restoration in the UCFRB [Saffel et al., 2018]. Preliminary data on species composition and distribution were collected in multiple watersheds during the late 2000s [Lindstrom et al., 2008; Liermann et al., 2009]. Population

[54] Chapter 6 was prepared by Nathan Cook, Tracy Elam, Brad Liermann, Jason Lindstrom, and Pat Saffel of Montana Fish, Wildlife, and Parks with minor editing and formatting by RESPEC.

estimate sections were established in priority tributaries and these sections were sampled every year from 2015-2017. During the 2017 tributary sampling, Brown Trout were found in areas of the Warm Springs Creek watershed where they were not found previously. The Warm Springs Creek watershed is an isolated Bull Trout stronghold. Meyers Dam is a complete barrier to upstream fish movement and provides protection from invasion from nonnative Brown Trout, which are abundant below the dam. Previous FWP sampling indicated that Brown Trout have a limited distribution above Meyers Dam. Above the dam, Brown Trout had only been documented in Warm Springs Creek at the sampling section just above the dam (Garrity). In 2017, Brown Trout were found at the Above Veronica Trail section, which is about 6 miles upstream of the Garrity Section. Brown Trout were also first discovered in Twin Lakes Creek in 2017. In 2018, it was decided to resample the lower sections of tributaries in the upper Warm Springs Creek watershed to further investigate the potential upstream expansion of Brown Trout.

In early 2017, FWP was contacted by Trout Unlimited and the Clark Fork Coalition because these groups were interested in pursing fish screening projects on various irrigation structures throughout the UCFRB. Documenting fish entrainment in these canals is a basic way to gather information about the potential value of screening projects. Trout Unlimited was also interested in pursuing restoration actions on a previously unsampled spring creek known as Beaver Dam Creek, a tributary to the Little Blackfoot River. Gathering fish data on this creek would provide insight into its fishery value and some of its habitat issues.

6.2 METHODS AND RESULTS

6.2.1 Mainstem Population Monitoring

Trout population estimates were conducted in spring 2018 at seven established sections on the Clark Fork River. These sections have been sampled annually by FWP and are referred to as Bearmouth, Morse Ranch, Phosphate, Williams Tavenner, Below Sager Lane, and pH Shack. Population estimates are also conducted from the bottom of pH Shack to Perkins Lane. This electrofishing section was sampled from 2009-2012 and from 2015-present. Details such as section length and specific locations of population estimate sections can be found in **Figure 6-1** and Appendix H.

Fish were collected using aluminum drift boats with a mounted electrofishing unit, two front boom anodes, and one netter. Estimates were made using two marking runs and two recapture runs. Recapture runs were completed roughly one week after marking runs. All captured trout were identified to species, weighed (g), measured (mm), and marked with a small fin clip. Population estimates for fish of at least 175 mm (about 7 inches) were generated using the Chapman modification [Chapman, 1951] of the Petersen Method described in FWP's Fisheries Information System. Estimates were calculated for trout species that had a minimum of four marked fish that were recaptured (B. Liermann, FWP, *personal communication*). When comparing estimates between years, estimates with non-overlapping 95 percent confidence intervals were considered significantly different.

The Brown Trout population estimate at the pH Shack Section in 2018 was 104 fish/km, the lowest estimate since annual sampling began in 2008 (**Table 6-1**; **Figure 6-2**). The highest estimate during this period occurred in 2013 when the Brown Trout population was at 1,167 fish/km. The Brown Trout population at pH Shack declined by 85 percent between 2013 to 2015 and has since remained relatively low. At the pH-Shack-to-Perkins Lane Section, the 2018 Brown Trout estimate was 60 fish/km, well below the 2009-2018 average. Brown Trout numbers were also below average at the Sager Lane Section in 2018, at 108 fish/km. At the Williams-Tavenner Section, the 2018 Brown Trout estimate was 187 fish/km, near the average of 202 fish/km. Brown Trout numbers at Phosphate were 172 fish/km in 2018, which is not significantly lower statistically than the section average of 213 fish/km. The 2018 Brown Trout estimate at the Morse Ranch Section was 93 fish/km, which was near the average of 87 Brown Trout/km. No *Oncorhynchus* species (*Oncorhynchus* species inhabiting this system include Rainbow Trout, Westslope Cutthroat Trout, and hybrids of those species) were recaptured at the Morse Ranch Section in 2018, so no estimate could be generated. At the Bearmouth Section, the 2018 Brown Trout estimate was 51 fish/km, which is significantly higher than the average estimate of 32 fish/km. The 2018 *Oncorhynchus* estimate was 25 fish/km which was the same as the long-term average of 25 fish/km.

In late September of 2018, a section of the Upper Clark Fork River within Remedial Phases 15 and 16 was sampled. This section, referred to as the Grant Kohrs Section, was 2.6 miles long and went from the Kohrs-Manning Diversion to the upstream end of the Deer Lodge wastewater treatment plant. The Below Sager Lane Section was also sampled at this time to determine whether trout numbers were different in spring versus fall. Both sections were sampled with one marking and one recapture run. The Brown Trout population estimate at the Grant Kohrs Section was 144 fish/km (**Table 6-2**). The Below Sager Lane Section estimate was 117 fish/km, which was similar to the spring estimate.

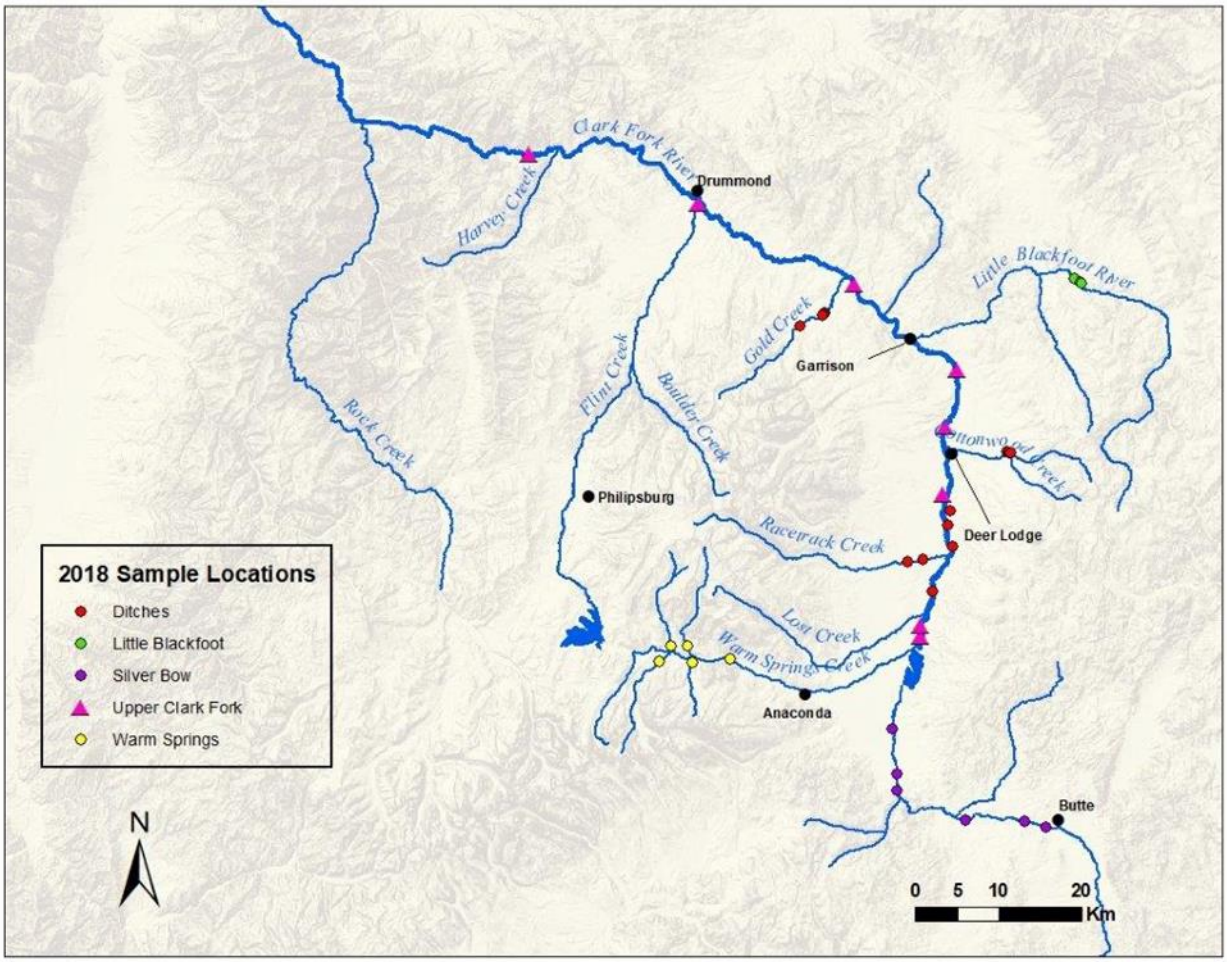

Figure 6-1. Map of 2018 fish sampling locations in the Upper Clark Fork River Basin.

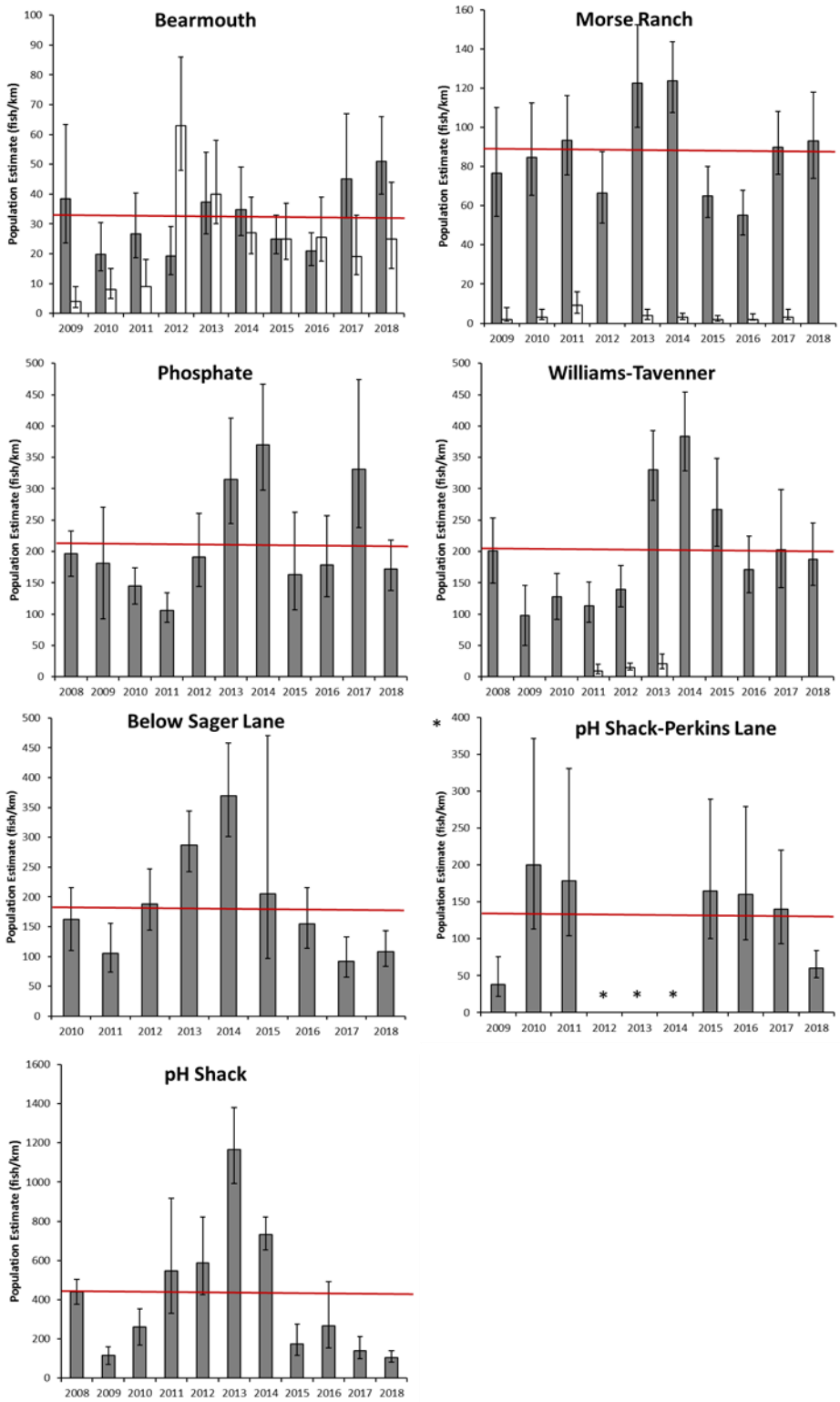

Figure 6-2. Clark Fork River Brown Trout (grey bars) and *Oncorhynchus* species (white bars) population estimates from 2008-2018 by sample section. Please note that axis values are not the same for every sample reach. The red line depicts the average Brown Trout population estimate for the section.

Table 6-1. Electrofishing data collected in spring 2018 from annual sampling sections on the Upper Clark Fork River. Population estimates are for trout greater than 175 mm (about 7 inches) in total length.

Section	Species	Population Estimate (fish/km)	95% Confidence Interval for Estimate (fish/km)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Bearmouth	Brown Trout	51	40-66	264	289	155-512	67
	Rainbow Trout	19	12-32	82	306	191-471	21
	Westslope Cutthroat Trout	6	3-12	32	333	192-422	8
	Rainbow Trout-Westslope Cutthroat Trout hybrid	---	---	13	290	225-400	3
	Bull Trout	---	---	3	326	258-402	1
Morse Ranch	Brown Trout	93	74-118	438	331	176-498	98
	Westslope Cutthroat Trout	---	---	5	299	255-341	1
	Rainbow Trout-Westslope Cutthroat Trout hybrid	---	---	1	350	350	<1
Phosphate	Brown Trout	172	139-218	298	339	104-477	99
	Westslope Cutthroat Trout	---	---	4	319	215-397	1
Williams Tavenner	Brown Trout	187	146-245	321	382	110-552	98
	Westslope Cutthroat Trout	---	---	3	313	293-329	1
	Brook Trout	---	---	2	242	205-279	1
Below Sager Lane	Brown Trout	108	83-143	272	362	87-527	99
	Brook Trout	---	---	1	407	407	<1
	Westslope Cutthroat Trout	---	---	1	176	407	<1
pH Shack to Perkins Lane	Brown Trout	60	47-84	123	296	87-517	98
	Rainbow Trout	---	---	2	315	220-410	2
pH Shack	Brown Trout	104	82-140	182	342	98-522	97
	Rainbow Trout	---	---	4	381	288-445	2
	Westslope Cutthroat Trout	---	---	1	327	327	1

Table 6-2. Electrofishing data collected in fall 2018 from sampling sections on the Upper Clark Fork River near the Grant-Kohrs Ranch. Population estimates are for trout greater than 175 mm (about 7 inches) in total length.

Section	Species	Population Estimate (fish/km)	95% Confidence Interval for Estimate (fish/km)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Below Sager Lane	Brown Trout	117	70-210	174	317	90-510	99
	Rainbow Trout	---	---	1	330	330	<1
Grant-Kohrs	Brown Trout	144	86-253	199	287	106-535	100

6.2.2 Warm Springs Creek Watershed Monitoring

Sampling in the Warm Springs Creek watershed in 2018 focused on areas in, or nearby sections above Meyers Dam in which Brown Trout were captured in the past. Sections sampled on mainstem Warm Springs Creek included the Garrity and Above Veronica Trail Sections (**Figure 6-3**). The most downstream of the established population monitoring sections of Twin Lakes Creek (river mile 1.3), Foster Creek (river mile 1.0), and Barker Creek (river mile 0.5) were also sampled. A mark-recapture estimate consisting of one mark and one recapture run was conducted at the Garrity Section and depletion estimates were conducted on other sections. Only one pass was conducted on Foster Creek due to equipment malfunction.

At the mainstem Warm Springs Creek sections, Westslope Cutthroat Trout were the most commonly captured species (**Table 6-3**). At the Garrity Section, Westslope Cutthroat Trout were estimated at 32 fish/100 m, Rainbow Trout-Westslope Cutthroat Trout hybrids at 8 fish/100 m, Brown Trout at 7 fish/100 m, Bull Trout at 4 fish/100 m, and Rainbow Trout at 4 fish/100 m. The 2018 Brown Trout estimate of 7 fish/100 m is the same as the 2015-2017 average. Brook Trout-Bull Trout hybrids, Brook Trout, and Slimy Sculpin were also captured. At the Above Veronica Trail Section, Westslope Cutthroat Trout were estimated at 21 fish/100 m and Brook Trout were estimated at 7 fish/100 m. Bull Trout, Brook Trout-Bull Trout hybrids, Slimy Sculpin, and one Brown Trout were also captured. One Brown Trout was also captured Above Veronica Trail in 2017, which was the first time Brown Trout were captured at this section. Twin Lakes Creek was sampled at river mile 1.3. At this section, Westslope Cutthroat Trout were estimated at 20 fish/100 m and three Bull Trout, one Brown Trout, two Rocky Mountain Sculpin, and three Slimy Sculpin were also captured (**Table 6-4**). Brown Trout were first captured in Twin Lakes Creek in 2017 when three Brown Trout were found in the RM 1.3 Section. Foster Creek was sampled at river mile 1.0. At this section, Westslope Cutthroat Trout were estimated at 51 fish/100 m, Bull Trout at 5 fish/100 m, and Rainbow Trout-Westslope Cutthroat Trout hybrids at 7 fish/100 m (**Table 6-5**). Brook Trout, Rocky Mountain Sculpin, and Slimy Sculpin were also captured. Brown Trout have never been captured in Foster Creek during FWP surveys. Barker Creek was sampled at river mile 0.5. Fifteen Bull Trout and 5 Westslope Cutthroat Trout were captured in one electrofishing pass in 2018 (**Table 6-6**). Additional electrofishing passes were not attempted on Barker Creek because of equipment failure. Brown Trout have not been captured in Barker Creek in any FWP surveys.

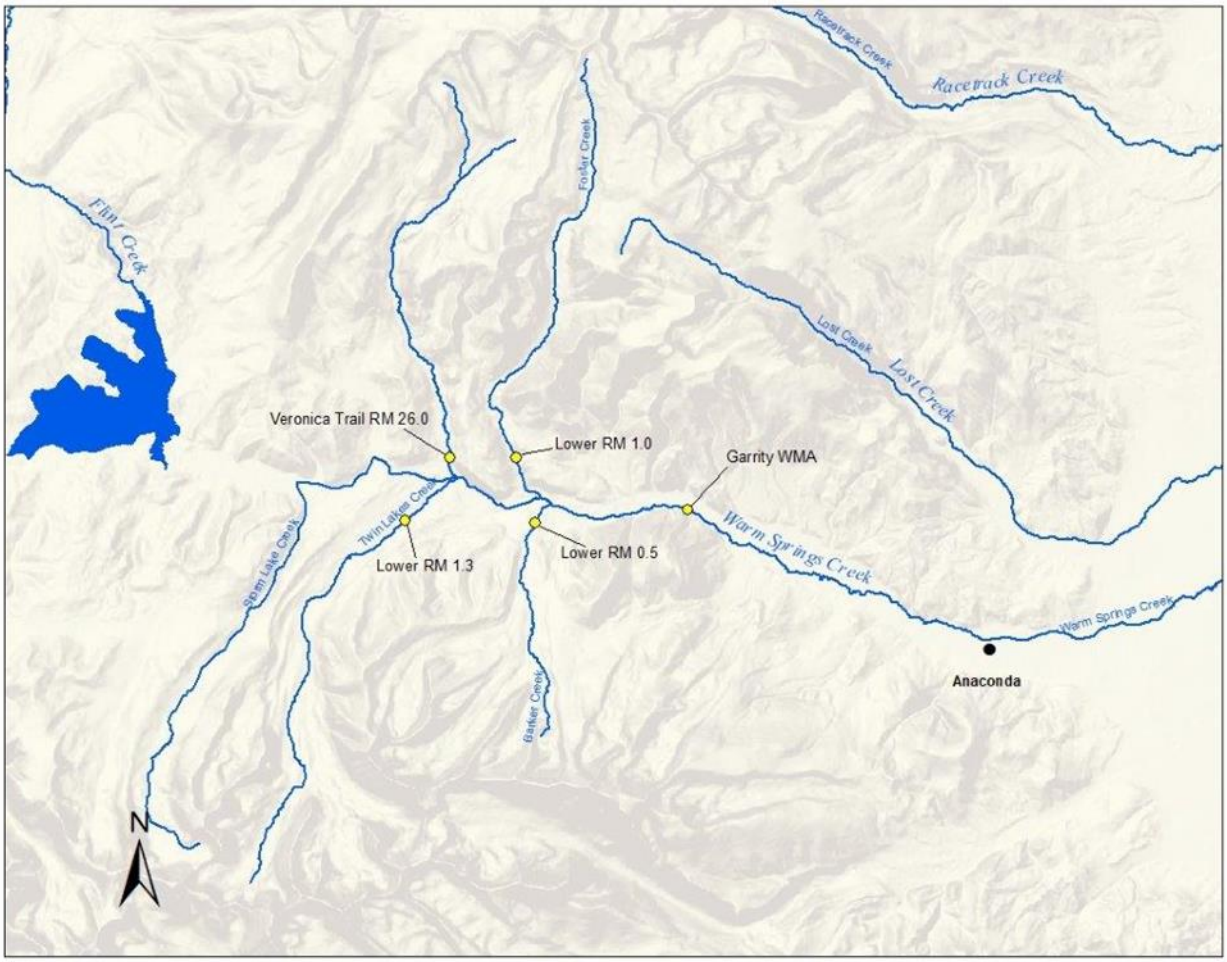

Figure 6-3. Fish sampling locations in the Warm Springs Creek watershed.

Table 6-3. Electrofishing data collected on Warm Springs Creek in 2018. Population estimates are for trout greater than 75 mm (about 3 inches) in total length.

Section	Species	Population Estimate (fish/100 m)	95% Confidence Interval for Estimate (fish/100 m)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Garrity WMA (Above Meyers Dam)	Westslope Cutthroat Trout	32	27-40	207	191	44-354	57
	Rainbow Trout-Westslope Cutthroat Trout hybrid	8	5-13	43	197	103-435	12
	Brown Trout	7	5-10	44	216	125-345	12
	Bull Trout	4	3-6	30	208	115-295	8
	Rainbow Trout	4	3-8	25	221	111-350	7
	Brook Trout-Bull Trout hybrid	---	---	3	255	206-288	<1
	Brook Trout	---	---	2	222	166-278	<1
	Slimy Sculpin	---	---	11	66	40-86	3
Above Veronica Trail	Westslope Cutthroat Trout	21	20-22	25	137	56-246	49
	Bull Trout	---	---	8	129	48-168	16
	Brook Trout	7	6-8	7	132	105-175	14
	Brook Trout-Bull Trout hybrid	---	---	1	341	341	2
	Brown Trout	---	---	1	220	220	2
	Slimy Sculpin	---	---	9	82	34-105	18

Table 6-4. Electrofishing data collected on Twin Lakes Creek in 2018. Population estimates are for trout greater than 75 mm (about 3 inches) in total length.

Section	Species	Population Estimate (fish/100 m)	95% Confidence Interval for Estimate (fish/100 m)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Lower (RM 1.3)	Westslope Cutthroat Trout	20	16-24	19	154	68-287	68
	Bull Trout	---	---	3	147	104-215	11
	Brown Trout	---	---	1	168	168	4
	Rocky Mountain Sculpin	---	---	2	99	11	5
	Slimy Sculpin	---	---	3	78	5	11

Table 6-5. Electrofishing data collected on Foster Creek in 2018. Population estimates are for trout greater than 75 mm (about 3 inches) in total length.

Section	Species	Population Estimate (fish/100 m)	95% Confidence Interval for Estimate (fish/100 m)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Lower (RM 1.0)	Westslope Cutthroat Trout	51	46-56	49	159	64-310	73
	Bull Trout	5	3-7	5	153	120-205	8
	Brook Trout	---	---	3	130	115-160	4
	Rainbow Trout-Westslope Cutthroat Trout hybrid	7	4-9	7	99	82-130	7
	Rocky Mountain Sculpin	---	---	1	102	102	1
	Slimy Sculpin	---	---	2	64	44-97	3

Table 6-6. Electrofishing data collected on Barker Creek in 2018. Population estimates are for trout greater than 75 mm (about 3 inches) in total length.

Section	Species	Population Estimate (fish/100 m)	95% Confidence Interval for Estimate (fish/100 m)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Lower (RM 0.5)	Bull Trout	---	---	15	143	53-201	75
	Westslope Cutthroat Trout	---	---	5	163	70-216	25

6.2.3 Little Blackfoot River spring creek (Beaver Dam Creek)

On August 8, 2018 depletion-based population estimates were conducted on three sections of Beaver Dam Creek (Figure 6-4). The most upstream section was downstream of a large wetland area and irrigation diversion. The middle section was within a corral. The most downstream section was approximately 0.1 miles from the confluence of the Little Blackfoot River. Brook Trout, Brown Trout, Longnose Sucker, Mountain Whitefish, and Slimy Sculpin were captured in all three sections (**Table 6-7**). One additional species, a hybrid between Brook Trout and Brown Trout (Tiger Trout; Brook Trout-Brown Trout hybrid) was captured in the most upstream section. Brown Trout were the most common species, comprising 71 percent of the catch at the upstream section, 52 percent of the catch at the Corral Section, and 83 percent of the catch near the mouth. Brown Trout abundance was 141 fish/100 m at the upstream section, 117 fish/100 m at the Corral Section, and 210 fish/100 m at the section near the mouth. Brown Trout captured at the Corral Section tended to be smaller juvenile fish whereas Brown Trout near the mouth were the largest on average.

Figure 6-4. Fish sampling locations on Beaver Dam Creek, tributary to the Little Blackfoot River.

Table 6-7. Electrofishing data collected on Beaver Dam Creek in 2018. Population estimates are for trout greater than 75 mm (about 3 inches) in total length.

Section	Species	Population Estimate (fish/100 m)	95% Confidence Interval for Estimate (fish/100 m)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Near Mouth	Brook Trout	---	---	4	206	114-254	2
	Brown Trout	210	200-220	200	170	75-450	83
	Longnose Sucker	---	---	3	136	125-148	1
	Unknown	---	---	22	83	77-94	9
	Slimy Sculpin	---	---	13	96	85-110	5
Corrals	Brook Trout	---	---	4	94	83-104	1
	Brown Trout	117	6-227	228	113	67-350	52
	Longnose Sucker	---	---	1	132	132	<1
	Mountain Whitefish	---	---	150			34
	Slimy Sculpin	---	---	55	64	29-105	13
Below upper diversion	Brook Trout	---	---	2	228	189-266	<1
	Brook Trout-Brown Trout hybrid	---	---	1	188	188	<1
	Brown Trout	141	97-185	204	148	69-313	71
	Longnose Sucker	---	---	1	56	56	<1
	Mountain Whitefish	---	---	34	73	64-83	12
	Slimy Sculpin	---	---	47	75	29-105	16

6.2.4 Irrigation Ditch Sampling

Backpack electrofishing was used to sample fish in irrigation ditches. The ditch sampling sections ranged from 40-200 m long and were sampled in one electrofishing pass to generate measures of CPUE (fish per minute of electrofishing; see Appendix H). Racetrack Creek ditch sampling was done with multi-pass electrofishing allowing for depletion-based population estimates.

Two ditches that convey water from the mainstem Clark Fork River to the eastside of the Deer Lodge Valley were sampled on October 10, 2018. These two ditches were the Valiton Eastside Ditch and the Alvi-Beck Ditch. The Valiton Diversion spans the width of the Clark Fork River and is located between the mouth of Racetrack Creek and Sager Lane bridge (Figure 6-5). Three sections of the Valiton Ditch were sampled, one near the headgate, one near an excavated pool, and one just downstream of Sager Lane. Species captured in all three sampled sections of the Valiton Ditch included Brown Trout, Largescale Sucker, and Redside Shiner (Table 6-8). One Rocky Mountain Sculpin was captured in the section below the headgate. The Alvi-Beck Diversion is located near the confluence of Dry Cottonwood Creek and the Clark Fork River. The upstream end of the Alvi-Beck Ditch is within Phases 5 and 6 of the remedy. Alvi-Beck Ditch was sampled in one section near the headgate. Redside Shiner were the most commonly captured species in the Alvi-Beck Ditch. Brown Trout (86-227 mm in length) and Largescale Sucker were also common (Table 6-9).

Two ditches off Racetrack Creek were sampled on July 12, 2018. The headgate for the Berg Diversion is approximately 3.2 miles upstream from the mouth of the Clark Fork River. A 100 m section was sampled in the Berg Ditch directly below the headgate. In this ditch, 17 Brown Trout and 3 Rocky Mountain Sculpin were captured (Table 6-10). Brown Trout density was estimated at 4 fish/100 m. Most Brown Trout in this section were juveniles and >60 mm in length. The second Racetrack Creek ditch that was sampled was the Carl Johnson Ditch which has its diversion approximately 2.2 miles upstream from the confluence of Racetrack Creek and the Clark Fork River. Brown Trout were the only species captured in the Carl Johnson Ditch. Most Brown Trout captured were >60 mm. The estimate of Brown Trout >75 mm was 8 fish/100 m.

Two Cottonwood Creek ditches were sampled on August 8, 2018. Two sections on the McQueary Ditch and one section of the Rock Creek Cattle Ditch were sampled (Figure 6-6). The McQueary Ditch was sampled above and below where it crossed Baggs Creek. Brook Trout were the most common species in both sections of the McQueary Ditch (Table 6-11). Westslope Cutthroat Trout and sculpin were also captured in the two sections sampled. Brook and Westslope Cutthroat Trout were also present in the Rock Creek Cattle Ditch, but sculpin were not found.

Five ditches that divert water from Gold Creek were sampled on August 1, 2018 (Figure 6-7). Westslope Cutthroat Trout were the most common species in the most upstream ditch (Upper Beck Ditch; Table 6-12). Brown Trout were also found in the Upper Beck Ditch. The Upper Beck Ditch is 2.3-2.5 miles upstream of the other diversions sampled. The points of diversion of the other four ditches are within a quarter mile of each other. Brown Trout were the most commonly captured species in all of the lower ditches. Most of Brown Trout captured in the lower ditches were juveniles (<100 mm). Westslope Cutthroat Trout and Slimy Sculpin were also captured in the lower four ditches.

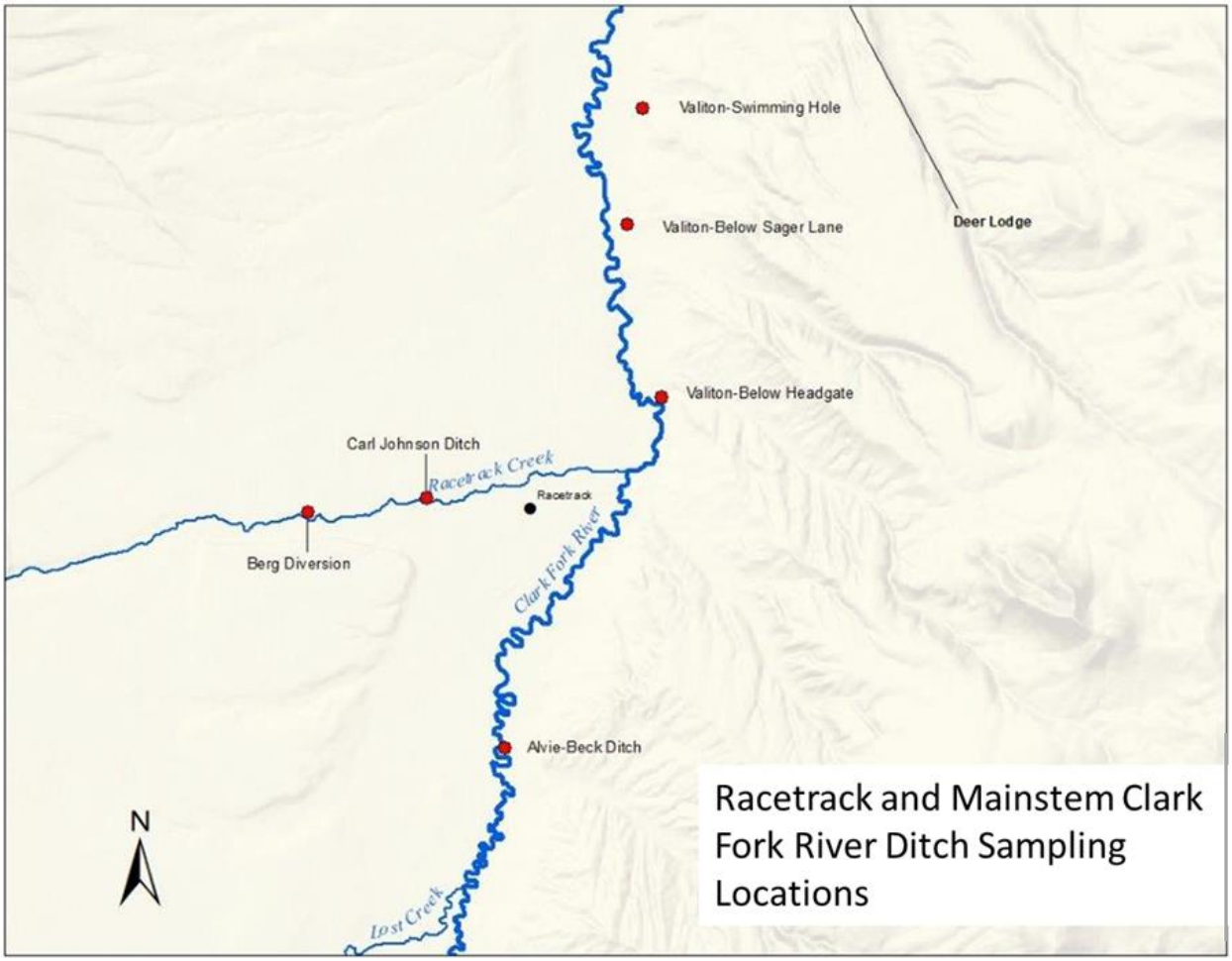

Figure 6-5. Fish sampling locations on irrigation ditches off Racetrack Creek and the mainstem Clark Fork River.

Table 6-8. Electrofishing data collected on Valiton East Side Ditch of the Clark Fork River upstream of Deer Lodge in 2018. Catch-per-unit-effort (fish/minute) are for fish greater than 75 mm (about 3 inches) in total length.

Section	Species	Catch-per-unit-effort (fish/minute)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Below Headgate	Brown Trout	1.40	19	122	91-214	43
	Largescale Sucker	0.11	15	59	36-123	34
	Rocky Mountain Sculpin	0.07	1	54	54	2
	Redside Shiner	0.66	9	65	53-96	21
Swimming hole area	Brown Trout	0.13	2	125	106-143	14
	Longnose Sucker	0.06	1	298	298	7
	Largescale Sucker	0.50	8	108	65-180	57
	Redside Shiner	0.19	3	65	62-68	21
Below Sager Lane	Brown Trout	0.01	1	91	91	8
	Largescale Sucker	0.50	4	41	36-50	31
	Redside Shiner	1.00	8	71	57-86	61

Table 6-9. Electrofishing data collected on the Alvi-Beck Ditch of the Clark Fork River upstream of Deer Lodge in 2018. Catch-per-unit-effort (fish/minute) are for fish greater than 75 mm (about 3 inches) in total length.

Section	Species	Catch-per-unit-effort (fish/minute)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Below Headgate	Brown Trout	1.80	28	124	86-227	26
	Largescale Sucker	1.80	28	85	35-140	26
	Mountain Whitefish	0.26	4	123	106-129	4
	Rocky Mountain Sculpin	0.77	12	68	51-112	11
	Redside Shiner	2.30	36	69	54-90	33

Table 6-10. Electrofishing data collected on ditches of Racetrack Creek in 2018. Population estimates are for trout greater than 75 mm (about 3 inches) in total length.

Section	Species	Population Estimate (fish/100 m)	95% Confidence Interval (fish/100 m)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Berg Diversion	Brown Trout	4	3-5	17	64	35-161	85
	Rocky Mountain Sculpin	---	---	3	102	95-110	15
Carl Johnson Ditch	Brown Trout	8	6-60	32	69	32-164	100

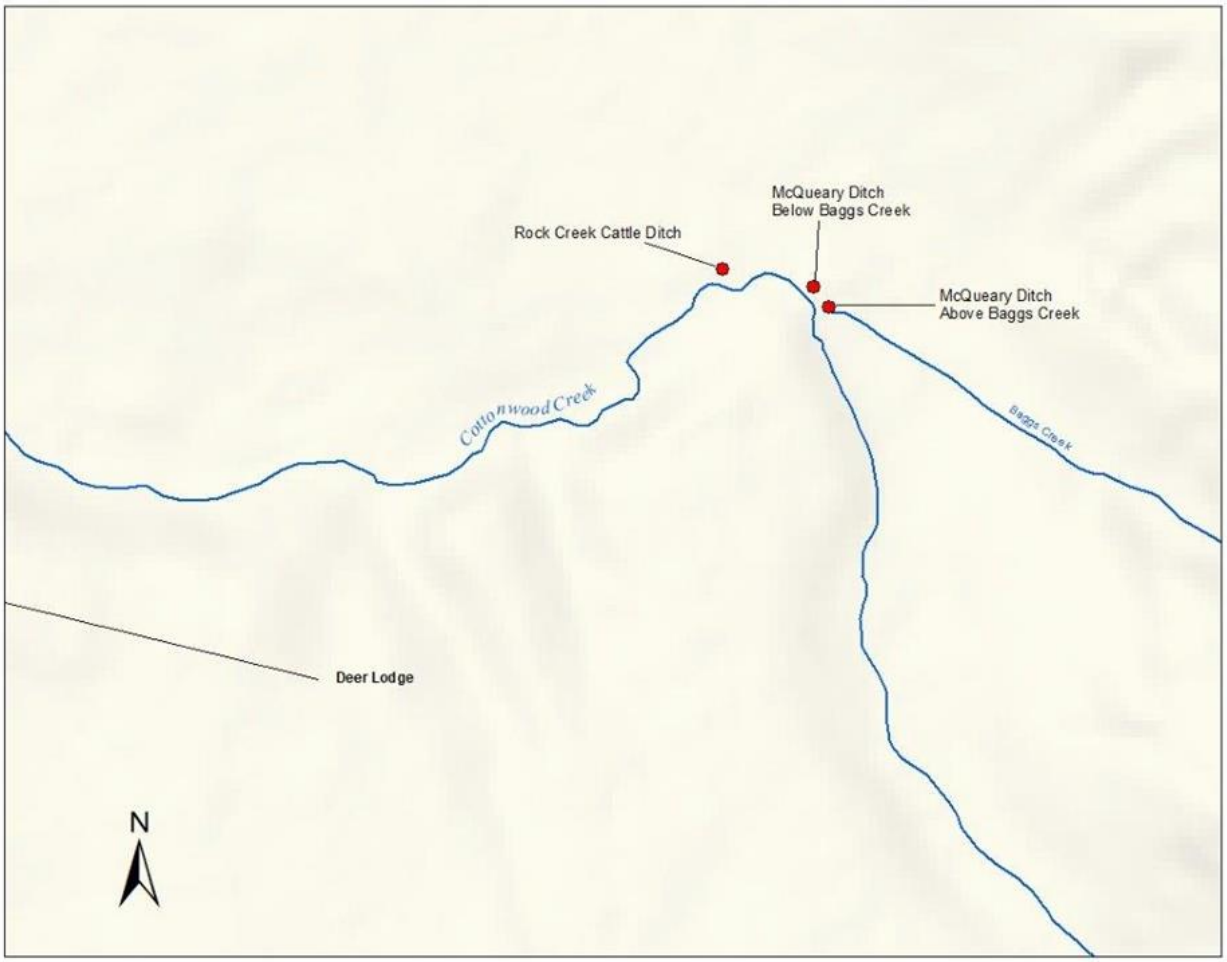

Figure 6-6. Map of ditch sampling locations near Cottonwood Creek.

Table 6-11. Electrofishing data collected on ditches of Gold Creek in 2018. Catch-per-unit-effort (fish/minute) are for fish greater than 75 mm (about 3 inches) in total length.

Section	Species	Catch-per-unit-effort (fish/minute)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
McQueary Ditch above Baggs Creek	Brook Trout	1.50	99	114	50-212	77
	Slimy Sculpin	0.23	27	66	45-89	21
	Westslope Cutthroat Trout	0.10	3	159	115-185	2
	Sculpin; unknown species	0.06	16	57	46-75	11
McQueary Ditch below Baggs Creek	Brook Trout	4.30	123	158	59-290	81
	Rocky Mountain Sculpin	0.13	2	93	92-94	1
	Slimy Sculpin	0.27	7	78	72-86	5
	Westslope Cutthroat Trout	0.20	3	144	90-234	2
Rock Creek Cattle Ditch	Brook Trout	0.90	83	91	50-189	83
	Westslope Cutthroat Trout	0.50	17	112	88-187	17

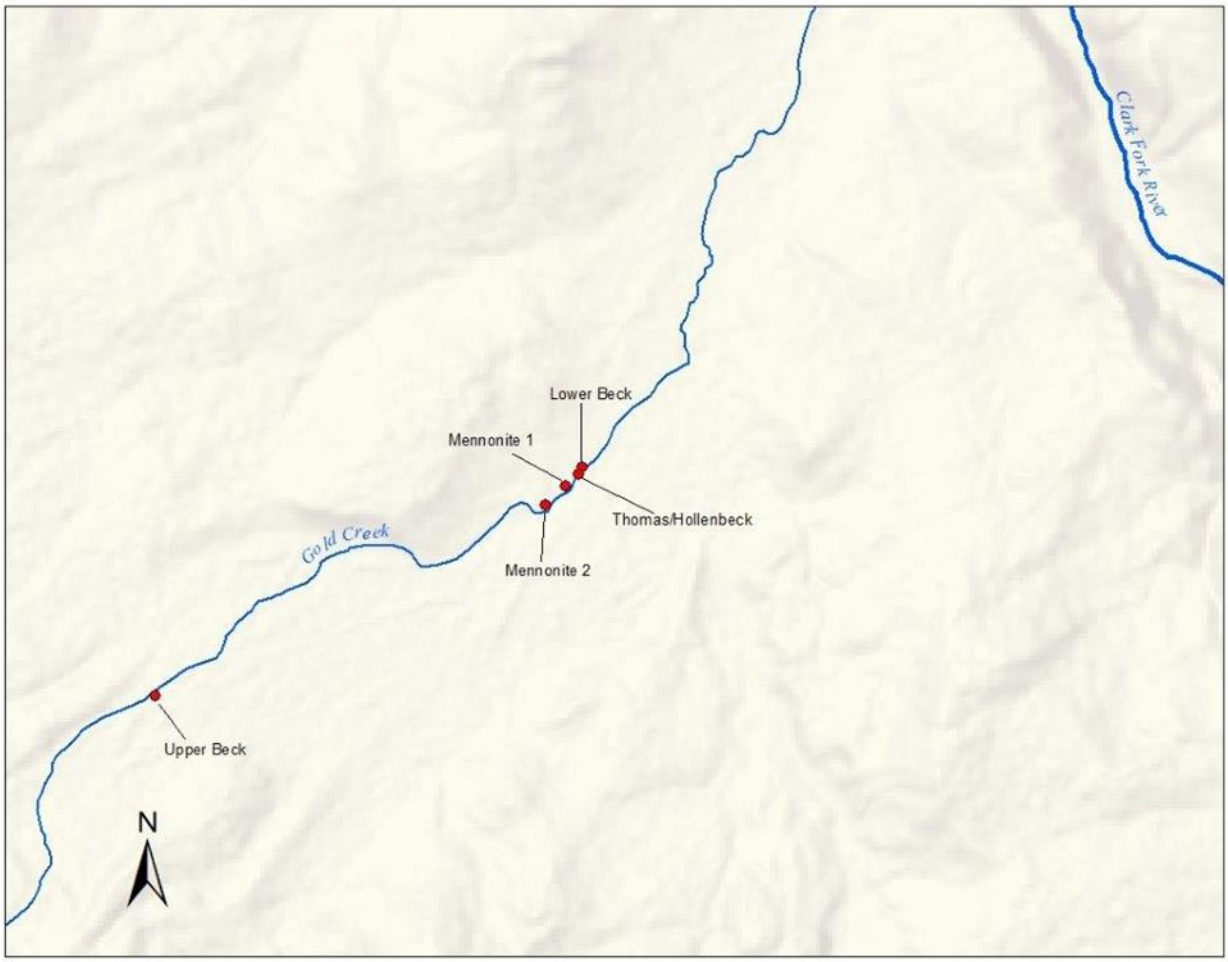

Figure 6-7. Map of ditch sampling locations near Gold Creek.

Table 6-12. Electrofishing data collected on ditches of Gold Creek in 2018. Catch-per-unit-effort (fish/minute) are for fish greater than 75 mm (about 3 inches) in total length.

Section	Species	Catch-per-unit-effort (fish/minute)	Fish Handled	Mean Length (mm)	Length Range (mm)	Species Composition (%)
Lower Beck Ditch	Brown Trout	1.46	31	67	41-127	80
	Slimy Sculpin	0.19	4	89	83-96	10
	Westslope Cutthroat Trout	0.19	4	99	85-115	10
Thomas/Hollenbeck Ditch	Brown Trout	1.95	30	93	38-165	75
	Slimy Sculpin	0.52	8	72	45-95	20
	Westslope Cutthroat Trout	0.13	2	141	94-187	5
Mennonite 1 Ditch	Brown Trout	1.70	30	98	40-125	77
	Slimy Sculpin	0.11	2	78	60-95	5
	Westslope Cutthroat Trout	0.40	7	97	83-112	18
Mennonite 2 Ditch	Brown Trout	3.72	62	65	39-136	71
	Slimy Sculpin	0.60	10	58	43-90	12
	Westslope Cutthroat Trout	0.90	15	94	73-168	17
Upper Beck Ditch	Brown Trout	0.56	11	148	93-301	27
	Westslope Cutthroat Trout	1.54	30	128	63-239	73

6.3 DISCUSSION

Brown Trout abundance in 2018 at the pH Shack Section was at or near a historic low. Population estimates decreased significantly at this section after 2014 and in 2018 were about one quarter of the 11-year average. The Below Sager Lane Section and the pH Shack-Perkins Lane Section also had lower Brown Trout abundances in 2018 compared to recent years. These three sections are in the most upstream reaches of the Clark Fork River. In contrast, Brown Trout estimates at sections downstream of Deer Lodge were near section averages, or in the case of the Bearmouth Section, above average. Brown Trout in the UCFR are not fully vulnerable to capture by boat electrofishing until they reach age-3, and age-3 fish typically comprise the bulk of the population estimates [Cook et al., 2015]. The number of age-3 fish captured during electrofishing (an index of recruitment) at the pH Shack Section is strongly related to flow conditions three years prior (Figure 6-8). Prolonged drought conditions, characterized by low mid-summer flows and high water temperatures, have had deleterious effects on the Brown Trout population in the upper sections of the UCFR. It is hopeful that higher than average late season flows in 2018 increased Brown Trout survival and will lead to increased recruitment in the next few years. The reason for above average abundance at Bearmouth is not fully known, but it could be that some Brown Trout from more upstream sections of the river moved downstream to Bearmouth. It also appears that Rainbow Trout abundance has been increasing in the Bearmouth Section in recent years. The Rainbow Trout population has increased in the lower reaches of Rock Creek (Brad Liermann, FWP, *personal communication*), so Rainbow Trout emigration from Rock Creek to portions of the Clark Fork River may have also increased.

Fish sampling in the Grant-Kohrs Section suggests that trout numbers are within a range that is typical for the surrounding area of the Clark Fork River. The Brown Trout estimate for Grant-Kohrs was between the spring estimates for Sager Lane (108 fish/km) and Williams-Tavenner (187 fish/km). These sections are upstream (Sager Lane) and downstream (Williams-Tavenner) of Grant-Kohrs. The similarity of the spring and fall estimates at Sager Lane suggest that Brown Trout numbers did not change significantly between seasons in 2018. The 2018 estimate for Grant-Kohrs provides a baseline that can be used to compare future estimates as the cleanup activities in Phases 15 and 16 progress. The estimate for this section (144 fish/km) is not particularly high, but FWP did receive several reports of exceptional fishing through this area in 2018.

In the upper Warm Springs Creek watershed, Brown Trout were again found in the same locations in 2018 where they were found in 2017. These data indicate that Brown Trout have expanded upstream of their previously known distribution. At this point, just a few individuals have been captured in these new locations, so it is unclear whether these fish are pioneering new habitat, or if these fish were spawned in areas previously unoccupied by Brown Trout. There is no evidence that the Brown Trout population at the Garrity Section has increased. The 2018 population estimate for that section was the same as the 2015-2017 average. In other areas of Montana, Brown Trout distributions have expanded into Bull Trout habitats as water temperatures have increased (e.g., Al-Chokhachy et al. [2016]). Warmer water temperatures also cause a contraction of the size of Bull Trout habitats. The distribution and abundance of Brown Trout above Meyers Dam should be monitored. However, if Brown Trout are expanding due to

climate warming, there may be few options to slow down this spread. Restoration actions that decrease water temperatures would hold the most promise for maintaining Bull Trout habitat and slowing the spread of Brown Trout.

Fish sampling on Beaver Dam Creek, a short spring creek tributary to the Little Blackfoot River, revealed significant numbers of Brown Trout and native species such as Mountain Whitefish and sculpin. This creek is probably a source of Brown Trout recruitment to the Little Blackfoot River and is a potential source of cool clean water. There are opportunities for riparian enhancement on this stream, particularly in the middle reaches around the corrals. This part of the stream is overwide and shallow, characteristics that contribute to warmer water temperatures and provide little habitat for adult trout.

Electrofishing surveys of irrigation canals off of the mainstem Clark Fork River revealed that both the Valiton and Alvi-Beck ditches entrain Brown Trout, suckers, sculpin, and other fishes. Juvenile and adult/catchable Brown Trout were found in these ditches. Fish screens on these diversions would reduce or eliminate entrainment in these systems. Brown Trout, primarily juveniles, were also found in ditches that divert water from Racetrack Creek. Racetrack Creek was found to be an important location of Brown Trout spawning [Mayfield, 2013] and recruitment [Cook et al., 2017] for the UCFR population. Surveys of Cottonwood Creek ditches revealed entrainment of trout (Westslope Cutthroat Trout and Brook Trout) and sculpin. Cottonwood and Baggs Creeks are known spawning locations for Clark Fork River Westslope Cutthroat Trout. Gold Creek ditches sampled in 2018 contained numerous Westslope Cutthroat Trout and Brown Trout. The most upstream ditch contained the largest fish and the most Westslope Cutthroat Trout of all Gold Creek ditches sampled. The four downstream ditches have points of diversion that are within a quarter mile of each other. All of these diversions would need to be screened to ensure fish bypassed at an upstream screen are not entrained in an unscreened diversion downstream. Furthermore, Gold Creek is effectively dewatered downstream of the lowest diversion due to irrigation withdrawal and natural infiltration during the summer and early fall. Enhancement of summer flows in the dewatered reaches of Gold Creek would enhance the potential for fish movements between upper and lower Gold Creek and the Clark Fork River.

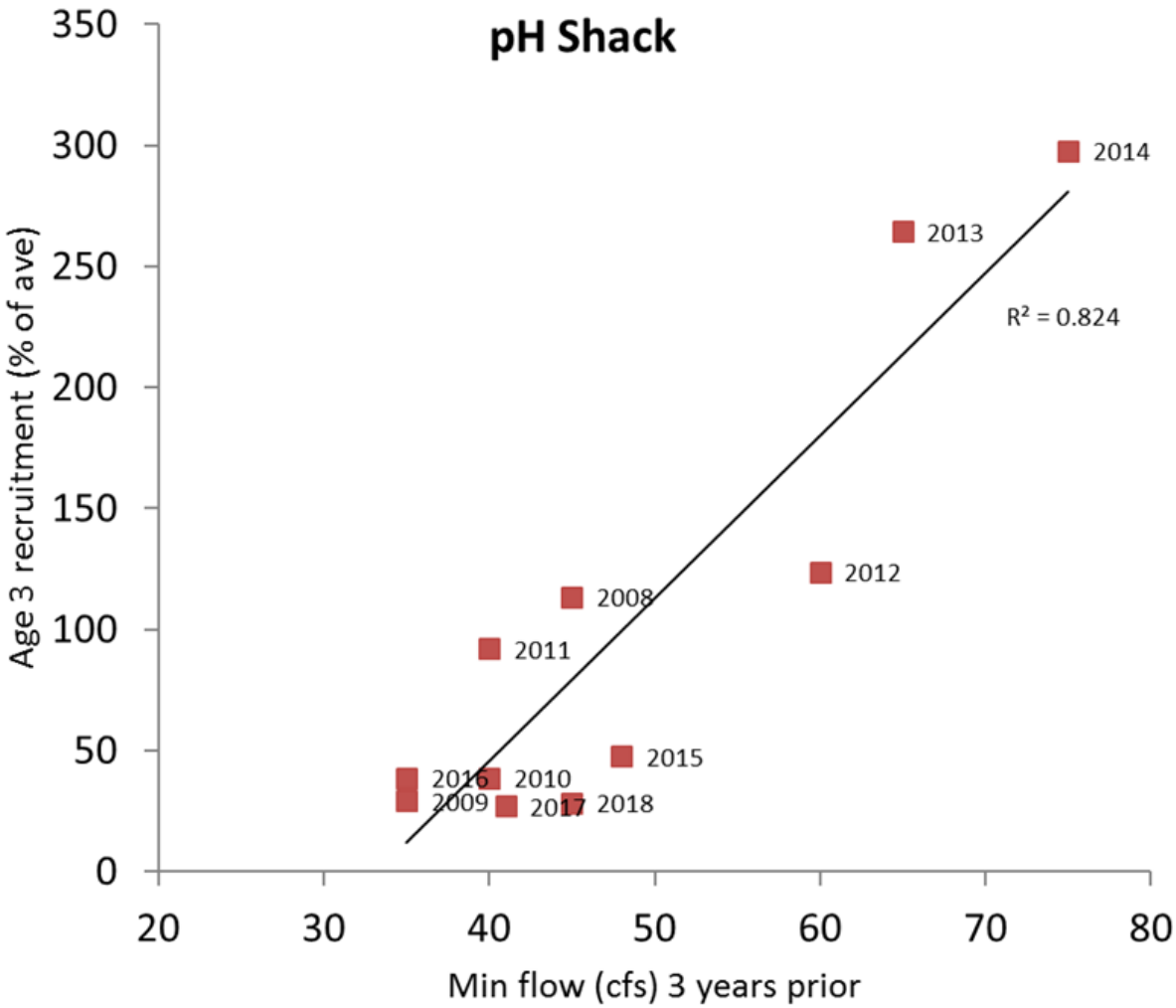

Figure 6-8. Linear regression of recruitment of age-3 Brown Trout recruitment versus minimum flow (as measured at the Clark Fork River at Galen USGS gauge) three years prior to sampling. Recruitment was calculated as the number of age three fish captured during population estimates, standardized to the average number from 2008-2018. Data labels are the year fish were sampled.

7.0 BIRDS[55]

7.1 INTRODUCTION

Bird assemblages were monitored in the Clark Fork River Operable Unit (CFROU) during the spring of 2018. Prior monitoring reports summarized annual monitoring data in 2015, 2016, and 2017 [RESPEC, 2016; 2017b; 2018b]. This report provides an assessment of the most recent bird monitoring data in the CFROU. Special attention is paid to species richness and relative abundance by project phase and to the relative abundance of special status species. Results will provide information relevant to remedial design and construction teams in order to minimize disturbance of bird habitat during construction and revegetation activities. Additionally, results will evaluate current CFROU bird occupation trends relevant for correlation with prior remediation activities.

7.2 METHODS

7.2.1 Monitoring Locations

Birds were monitored at 15 sites distributed among eight CFROU phases (Phases 1, 2, 3, 4, 5, 6, 7, and 15) in 2018 (Table 7-1). Results in this report are summarized by phase. Observations from sites within Phases 3 and 4 were combined as were observations from sites within Phases 5 and 6. All monitoring sites were located within the floodplain riparian zone adjacent to the river. Monitoring sites were located in habitats that were representative of a large proportion of the prevailing bird habitat within each phase. Generally, the sites monitored in 2018 were consistent with prior monitoring sites.

Construction-related remedial actions were completed in the fall of 2014 in Phase 1 (60 acres). Phase 1 was the first phase remediated in the CFROU. Revegetation actions continued into 2015. Phase 1 consists of 1.6 river miles. Several features adjacent to this phase likely influence bird use within its boundaries; the Warm Springs Wildlife Management Area is located approximately one mile from the southern boundary of Phase 1. In addition, the confluence of Warm Springs Creek and Silver Bow Creek is located within the phase near the upstream (southern) boundary. Two sites were monitored in Phase 1 during 2018: Sites 1-A and 1-B (Table 7-1).

[55] Chapter 7 was completed by Gary Swant (GoBirdMontana) and RESPEC.

Phase 2 (88 acres) was under construction from the summer of 2015 through the fall of 2016. Phase 2 consists of 1.9 river miles immediately downstream from Phase 1. Two sites were monitored in Phase 2 during 2018: Sites 2-A and 2-B (Table 7-1).

Phases 3 and 4 (261 acres combined) had not been remediated as of 2018. Combined, these phases consist of 4.5 river miles and are located downstream from Phase 2. Three sites were monitored in Phases 3 and 4 during 2018: Sites 3/4-A, 3/4-B, and 3/4-C (Table 7-1).

Remediation began in Phases 5 and 6 (125 acres combined) in the summer of 2014 and construction and revegetation actions were completed in 2016. Combined, these phases consist of 4.3 river miles and are located immediately downstream from Phase 4. The Racetrack Pond, located immediately downstream, is a feature adjacent to Phase 6 which may influence bird use. Three sites were monitored in Phases 5 and 6 during 2018: Sites 5/6-A, 5/6-B, and 5/6-C (Table 7-1).

Phase 7 (84 acres) had not been remediated as of 2018. This phase consists of a 1.9 mile river reach located immediately downstream from Phase 6. Phase 7 is adjacent to the Racetrack Pond, which likely provides a strong influence on the bird assemblage and bird use within the phase. Two sites were monitored in Phase 7 during 2018: Sites 7-A and 7-B (Table 7-1). During some April monitoring periods, Site 7-A was not accessible and therefore no monitoring occurred at the site during those periods.

Phase 15 had not been remediated as of 2018. Phase 15 is located within the Grant-Kohrs National Historic Site just north of Deer Lodge. The Grant-Kohrs National Historic Site is a 1,600-acre cattle ranch maintained by the National Park Service. Three sites were monitored in Phase 15 during 2018: Sites 15-A, 15-B, and 15-C (Table 7-1).

Table 7-1. Bird monitoring sites in the Clark Fork River Operable Unit, 2018.

Phase	Site	Latitude	Longitude
1	1-A	46° 11' 16.02"	112° 46' 08.08"
	1-B	46° 11' 37.85"	112° 45' 54.96"
2	2-A	46° 11' 38.90"	112° 46' 34.56"
	2-B	46° 11' 46.03"	112° 46' 07.05"
3/4	3/4-A	46° 12' 58.01"	112° 45' 38.79"
	3/4-B	46° 13' 32.73"	112° 45' 32.60"
	3/4-C	46° 14' 07.64"	112° 45' 12.63"
5/6	5/6-A	46° 14' 14.93"	112° 45' 16.71"
	5/6-B	46° 15' 30.79"	112° 45' 08.29"
	5/6-C	46° 15' 15.87"	112° 45' 14.68"
7	7-A	46° 16' 08.16"	112° 44' 34.67"
	7-B	46° 16' 29.23"	112° 44' 12.58"
15	15-A	46° 24' 25.47"	112° 44' 55.93"
	15-B	46° 24' 34.85"	112° 44' 45.73"
	15-C	46° 24' 40.70"	112° 44' 46.57"

7.2.2 Monitoring Schedule

The 2018 monitoring year constituted the fourth year of bird monitoring in the CFROU; monitoring has previously occurred in 2015, 2016, and 2017. The 2018 monitoring occurred during the spring and early summer months of April, May, and June. Sites were visited approximately ten times during the monitoring period, though total uniformity was not achieved in visits across phases (Table 7-1). During each site visit, monitoring was conducted for a ten minute period.

Table 7-2. Bird monitoring periods in the Clark Fork River Operable Unit, 2018.

Phase	Site	Monitoring Dates										Monitoring Periods (Total)
		April				May				June		
		3	10	18	24	1	8	15	29	5	26	
1	1-A	x	x	x	x	x	x	x	x	x	x	10
	1-B	x	x	x	x	x	x	x	x	x	x	10
2	2-A	x	x	x	x	x	x	x	x	x	x	10
	2-B	x	x	x	x	x	x	x	x	x	x	10
3/4	3/4-A	x	x	x	x	x	x	x	x	x		9
	3/4-B	x	x	x	x	x	x	x	x	x		9
	3/4-C	x	x	x	x	x	x	x	x	x	x	10
5/6	5/6-A	x	x	x	x	x	x	x	x	x	x	10
	5/6-B	x	x	x	x	x		x	x	x	x	9
	5/6-C	x	x	x	x	x	x	x	x	x	x	10
7	7-A	x					x	x	x	x	x	6
	7-B	x	x	x	x	x	x	x	x	x	x	10
15	15-A	x	x	x	x	x	x	x	x	x	x	10
	15-B	x	x	x	x	x	x	x	x	x	x	10
	15-C	x	x	x	x	x	x	x		x	x	9

7.2.3 Monitoring Parameters

All birds observed during each site visit were counted by species. In addition, the type of observation was distinguished to provide information about the certainty of the observation. Observations were separately classified as: 1) within a 40-m radius and identified by sight, 2) identified by call or song, 3) identified by sight flying within 40 m, 4) identified by sight flying outside or above 40 m, and 5) identified by sight at a distance greater than 40 m. Field parameters noted during each site visit included the time of the site visit, a description of weather, air temperature, and field notes.

7.2.4 Monitoring Methods

Each monitoring site was identified in the field with a site marker (i.e., white plastic tube). Counts were conducted after a two-minute period following the surveyor's arrival, to allow birds to become accustomed to the surveyor's presence. Each bird observed was recorded using a 4-letter abbreviation commonly referred to as an "ALPHA" code [IBP, 2017].

7.2.5 Data Analysis

This report compares bird richness (i.e., species counts) and relative abundance (i.e., the count of observed individuals of a certain species in proportion to the count of observed individuals of

all species) among phases and summarizes richness in the CFROU throughout the 2018 monitoring period. All bird observations within each phase were pooled and variation due to sample site (within each phase), time period, and observation type (e.g., within 40 m or beyond 40 m) were disregarded in order to make general conclusions related to each monitoring phase.

Species richness and relative abundance were tabulated by phase to compare absolute results. However, sampling effort (i.e. frequency of site visits) varied by phase which confounded direct comparisons of richness and relative abundance. For example, sites within Phase 7 were visited 16 times in 2018 whereas Phase 15 sites were visited 29 times (Table 7-1). Given this discrepancy in sampling effort between these phases, it is less meaningful to compare absolute abundance and richness between phases. Therefore, we mitigated the confounding influence of sampling effort by comparing relative abundance on a "catch-per-unit-effort" (CPUE) scale, rather than by direct comparisons. CPUE is an indirect measure of abundance, and therefore variation in CPUE may not necessarily represent true differences in abundance. However, CPUE provides the best available means to compare relative abundance by phase. The CPUE metric compared in this report is the number of observations of a given species per site visit.

In addition to confounding comparisons of abundance, discrepancies in sampling effort also confounded comparison of species richness. To account for the influence of sampling effort on species richness in each phase we plotted each phase based on the species richness (y-axis) by the number of site visits (x-axis) and then fit a logarithmic curve to those data. The fitted curve represents the "expected" number of species observed per phase given the number of site visits and then phases were compared by the magnitude of the residual (i.e., distance above or below the curve) to assess which phases had greater richness than average given the number of site visits in 2018. We assumed that the fitted model would be a logarithmic relationship because novel species would be less likely to be observed in each phase as more of those species were identified.

Overall, throughout the report, results are summarized for each species by phase, by taxonomic order, and for noted "Species of Concern", "Potential Species of Concern", and "Special Status Species" [MNHP, 2017]. Collectively, we refer to species designated by MNHP [2017] AS "Species of Concern", "Potential Species of Concern", or "Special Status Species" as "protected species" in this report.

7.3 RESULTS

7.3.1 Results by Phase

Bird diversity in the CFROU was high in 2018. In 2018, 95 separate bird species were identified in the CFROU (Table 7-3). The taxonomic orders with the highest observed species richness included: perching birds (Passeriformes; 42 species), waterfowl (Anseriformes; 19

species), shorebirds, waders and gulls (Charadriiformes; 14 species), and birds of prey (Accipitriformes; 6 species). These results are consistent with prior monitoring from 2015 to 2017 [RESPEC, 2018b].

As expected, given the variability in the sampling effort by phase, species richness has varied in the CFROU. The highest number of species observed in 2018 was in Phase 5/6 (67 species) followed, in order, by Phase 15 (56 species), Phase 3/4 (48 species), Phase 2 (48 species), Phase 7 (48 species), and Phase 1 (41 species) (Table 7-3).

In prior monitoring years, species richness increased with the frequency of site visits in each phase but appeared to approach an asymptotic limit [RESPEC, 2018b]. Species richness by phase was also modeled with a logarithmic curve but the fit was not nearly as good ($r^2 = 0.3991$) (Figure 7-1). Based on the fitted logarithmic model, species richness was higher in Phases 5/6 than expected, lower than expected in Phases 1 and 3/4, and as expected in Phases 2 and 15 (Figure 7-1).

Table 7-3. Occurrence of bird species in the Clark Fork River Operable Unit by phase, 2018.

Order	Family	Species	Phase					
			1	2	3/4	5/6	7	15
Diurnal Birds of Prey (Accipitriformes)	Hawks and Eagles (Accipitridae)	Bald Eagle			*	*	*	*
		Golden Eagle			*	*	*	*
		Northern Harrier	*	*	*	*	*	
		Red-Tailed Hawk		*	*	*	*	*
		Swainson's Hawk			*	*		*
	Osprey (Pandionidae)	Osprey	*		*	*	*	*
Waterfowl (Anseriformes)	Ducks, Geese and Swans (Anatidae)	American Wigeon	*	*	*	*	*	*
		Barrow's Goldeneye				*		*
		Bufflehead				*		*
		Canada Goose	*	*	*	*	*	*
		Canvasback		*		*		*
		Cinnamon Teal	*			*	*	*
		Common Goldeneye	*	*	*	*	*	*
		Common Merganser	*	*		*		*
		Gadwall	*	*		*	*	*
		Green-winged Teal	*	*		*	*	*
		Hooded Merganser		*			*	
		Lesser Scaup	*	*	*	*		*
		Mallard	*	*	*	*	*	*
		Northern Pintail	*			*	*	*
		Northern Shoveler	*	*		*	*	*

Order	Family	Species	Phase					
			1	2	3/4	5/6	7	15
		Redhead	*	*				
		Ring-necked Duck	*	*		*		*
		Snow Goose		*	*	*	*	*
		Tundra Swan		*	*	*		
New World Vultures (Cathartiformes)	New World vultures (Cathartidae)	Turkey Vulture			*	*	*	*
Shorebirds and Waders (Charadriiformes)	Killdeer (Charadriidae)	Killdeer		*	*	*	*	
	Gulls, Terns and Skimmers (Laridae)	California Gull	*	*			*	
		Common Tern		*				
		Forster's Tern		*				
		Franklin's Gull		*				
		Ring-billed Gull	*	*	*	*	*	
	Avocets (Recurvirostridae)	American Avocet		*				
		Black-necked Stilt		*				
	Waders (Scolopacidae)	Long-billed Curlew						*
		Long-billed Dowitcher		*				
		Marbled Godwit		*				
		Spotted Sandpiper	*		*	*	*	*
		Wilson's Phalarope		*	*	*		
		Wilson's Snipe			*	*		*
Pigeons and Doves (Columbiformes)	Pigeons and Doves (Columbidae)	Mourning Dove		*	*	*	*	*
		Rock Pigeon			*			
Kingfishers (Coraciiformes)	Kingfishers (Alcedinidae)	Belted Kingfisher	*			*	*	
Falcons and Kestrels (Falconiformes)	Falcons (Falconidae)	American Kestrel	*		*	*		*
Crane-like Birds (Gruiformes)	Cranes (Gruidae)	Sandhill Crane	*	*	*		*	*
	Rails (Rallidae)	American Coot	*	*	*	*	*	*
		Virginia Rail						*
Perching Birds (Passeriformes)	Waxwings (Bombycillidae)	Cedar Waxwing	*				*	
	Crows, Ravens, and Magpies (Corvidae)	American Crow		*	*	*	*	*
		Black-billed Magpie	*	*	*	*	*	*
		Common Raven	*	*	*	*	*	*
	Seed-eating Finch-like Birds (Emberizidae)	American Tree Sparrow	*					*
		Clay-colored Sparrow	*	*	*			*
		Dark-eyed Junco		*	*	*	*	
		Fox Sparrow					*	
		Savannah Sparrow	*	*	*	*	*	*
		Vesper Sparrow	*		*	*	*	*
		White-crowned Sparrow	*					
		American Goldfinch				*		

Order	Family	Species	Phase					
			1	2	3/4	5/6	7	15
	True Finches (Fringillidae)	Cassin's Finch				*		
		Common Redpoll				*		
	Swallows (Hirundinidae)	Bank Swallow			*	*		
		Barn Swallow				*		*
		Cliff Swallow			*	*		
		Northern Rough-winged Swallow			*	*	*	
		Tree Swallow	*	*	*	*	*	*
		Violet-green Swallow				*		
	Blackbirds and Relatives (Icteridae)	Brown-headed Cowbird	*	*	*	*	*	*
		Bobolink						*
		Brewer's Blackbird			*	*	*	*
		Bullock's Oriole						*
		Common Grackle				*		
		Red-winged Blackbird	*	*	*	*	*	*
		Western Meadowlark	*	*	*	*	*	*
		Yellow-headed Blackbird	*	*	*	*		
	Mimics (Mimidae)	Gray Catbird				*	*	
	Chickadees (Paridae)	Black-capped Chickadee						*
	New World Warblers (Parulidae)	Common Yellowthroat					*	
		Yellow Warbler			*	*		*
		Yellow-rumped Warbler	*	*	*	*		*
	New World Sparrows (Passerellidae)	Chipping Sparrow				*		
		Song Sparrow	*		*	*	*	*
	Kinglets (Regulidae)	Ruby-crowned Kinglet						*
	Starlings (Sturnidae)	European Starling	*		*	*	*	*
	Wrens (Troglodytidae)	Marsh Wren						*
	Thrushes (Turdidae)	American Robin			*	*	*	*
		Mountain Bluebird					*	
	Tyrant Flycatchers (Tyrannidae)	Eastern Kingbird	*	*		*		*
		Willow Flycatcher			*	*	*	
Large Waterbirds (Pelecaniformes)	Herons (Ardeidae)	Great Blue Heron		*		*		
	Ibises and Spoonbills (Threskiornithidae)	White-faced Ibis		*				
Woodpeckers (Piciformes)	Woodpeckers (Picidae)	Northern Flicker	*	*	*	*	*	*
Grebes (Podicipediformes)	Grebes (Podicipedidae)	Western Grebe				*		
Owls (Strigiformes)	Owls (Strigidae)	Great Horned Owl				*		

Order	Family	Species	Phase					
			1	2	3/4	5/6	7	15
Cormorants (Suliformes)	Cormorants and Shags (Phalacrocoracidae)	Double-crested Cormorant	*	*	*	*	*	*
Total (Species)			**42**	**50**	**48**	**68**	**49**	**57**

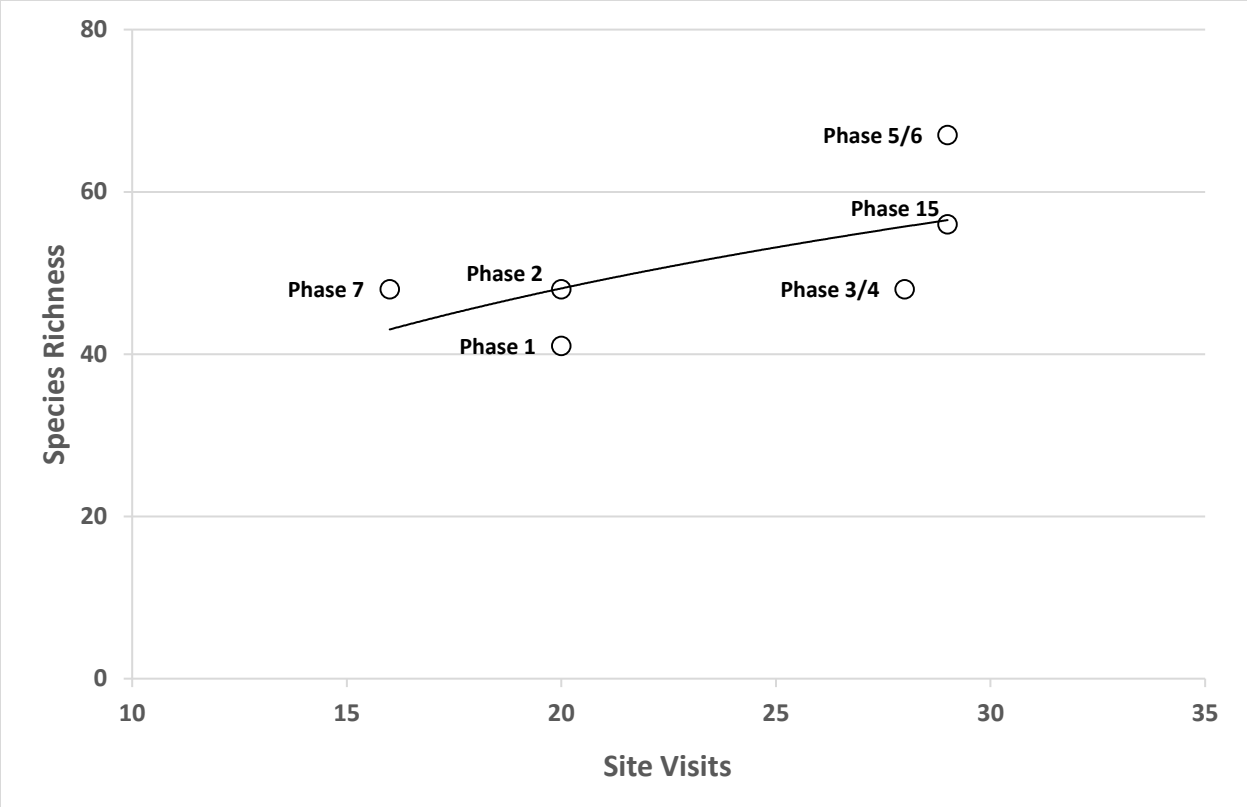

Figure 7-1. Species richness by frequency of site visits for each phase sampled in the Clark Fork River Operable Unit, 2018.

7.3.2 Results by Taxonomic Order

7.3.2.1 Birds of Prey (Accipitriformes)

Birds of prey (Accipitriformes) were common and diverse in the CFROU in 2018; of 14 taxonomic orders observed in 2018, birds of prey had the fourth highest species richness (Table 7-3). Relative abundance of birds of prey overall was highest in Phase 7 and lowest in Phases 2 and 1 (Figure 7-2). Osprey *Pandion haliaetus* were the most commonly observed bird of prey overall in the CFROU, followed by Red-tailed Hawk *Buteo jamaicensis* and Bald Eagle *Haliaeetus leucocephalus* respectively (Figure 7-2). Swainson's Hawk *Buteo swainsoni* were the least commonly observed bird of prey and were observed only in Phases 3/4, 5/6, and 15 (Figure 7-2).

Two observed bird of prey species, both eagle species, have special status designations in Montana. Bald Eagles are, "Special status species because, although it is no longer protected under the Endangered Species Act and is also no longer a Montana Species of Concern, it is still protected under the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668c)" [MNHP, 2017]. In 2018, Bald Eagles were observed in all phases except Phase 1 and Phase 2 (Figure 7-2). From 2015-2017, Bald Eagles were observed in all phases except Phase 2 [RESPEC, 2018b]. Golden Eagles *Aquila chrysaetos*, in addition to having protection under the Bald and Golden

Eagle Protection Act of 1940, are a Species of Concern because breeding populations in the state are "potentially at risk", although globally the species is considered to be "common" [MNHP, 2017]. From 2015-2017, one golden eagle was observed in the CFROU in Phase 3 [RESPEC, 2018b]. In 2018, Golden Eagles were observed in Phases 3/4, 5/6, 7, and 15 (Figure 7-2).

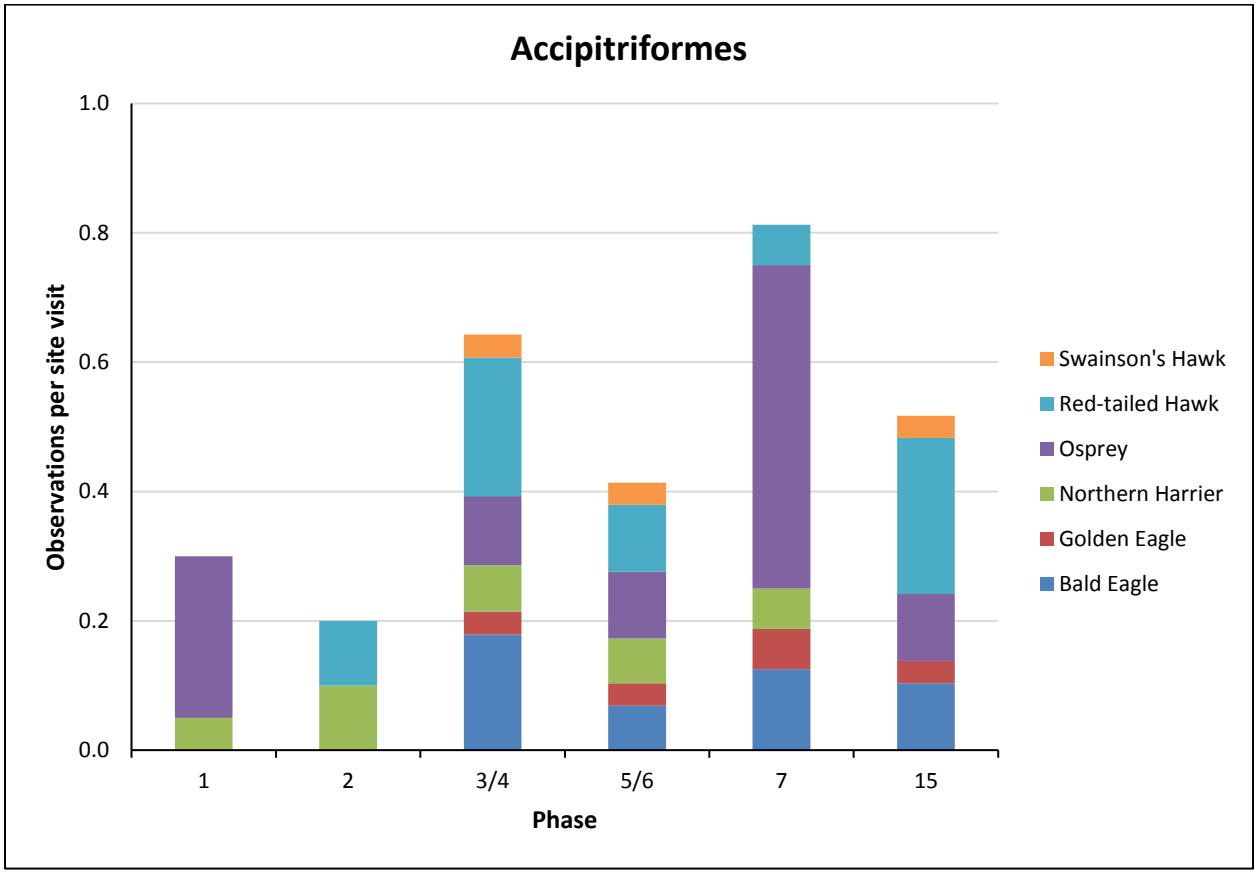

Figure 7-2. Relative abundance of birds of prey (Acciptriformes) by phase in the Clark Fork River Operable Unit, 2018.

7.3.2.2 Waterfowl (Anseriformes)

Waterfowl (Anseriformes) abundance in the CFROU was high, ranging from about 7 observations per site visit in Phase 7 to over 50 in Phase 3/4 (Figure 7-3). Richness was quite high for this order, and was second highest in the CFROU with 19 separate species observed (Figure 7-3). Waterfowl richness was highest in Phase 5/6, followed by Phase 15 and Phase 2 (Figure 7-3). Snow Geese *Anser caerulescens* were particularly common in certain phases. In Phase 3/4, 46 Snow Geese were observed per site visit on average (Figure 7-3).

Two waterfowl species observed in 2018 are "potential species of concern" in Montana: Barrow's Goldeneye *Bucephala islandica* and Hooded Merganser *Lophodytes cucullatus* [MNHP, 2017]. Barrow's Goldeneye were observed in two phases (Phases 5/6 and 15). Hooded Merganser

were also observed in two phases (Phases 2 and 7). One waterfowl species of note (Trumpeter Swan *Cygnus buccinator*) was not observed in the CFROU in 2018. Trumpeter Swan are a Species of Concern in Montana [MNHP, 2017]. Trumpeter Swan populations globally are "apparently secure" but within the state of Montana are considered to be "potentially at risk" [MNHP, 2017]. Although not observed in 2018, four Trumpeter Swan observations were made in the CFROU (in Phase 15) in 2016 [RESPEC, 2018b].

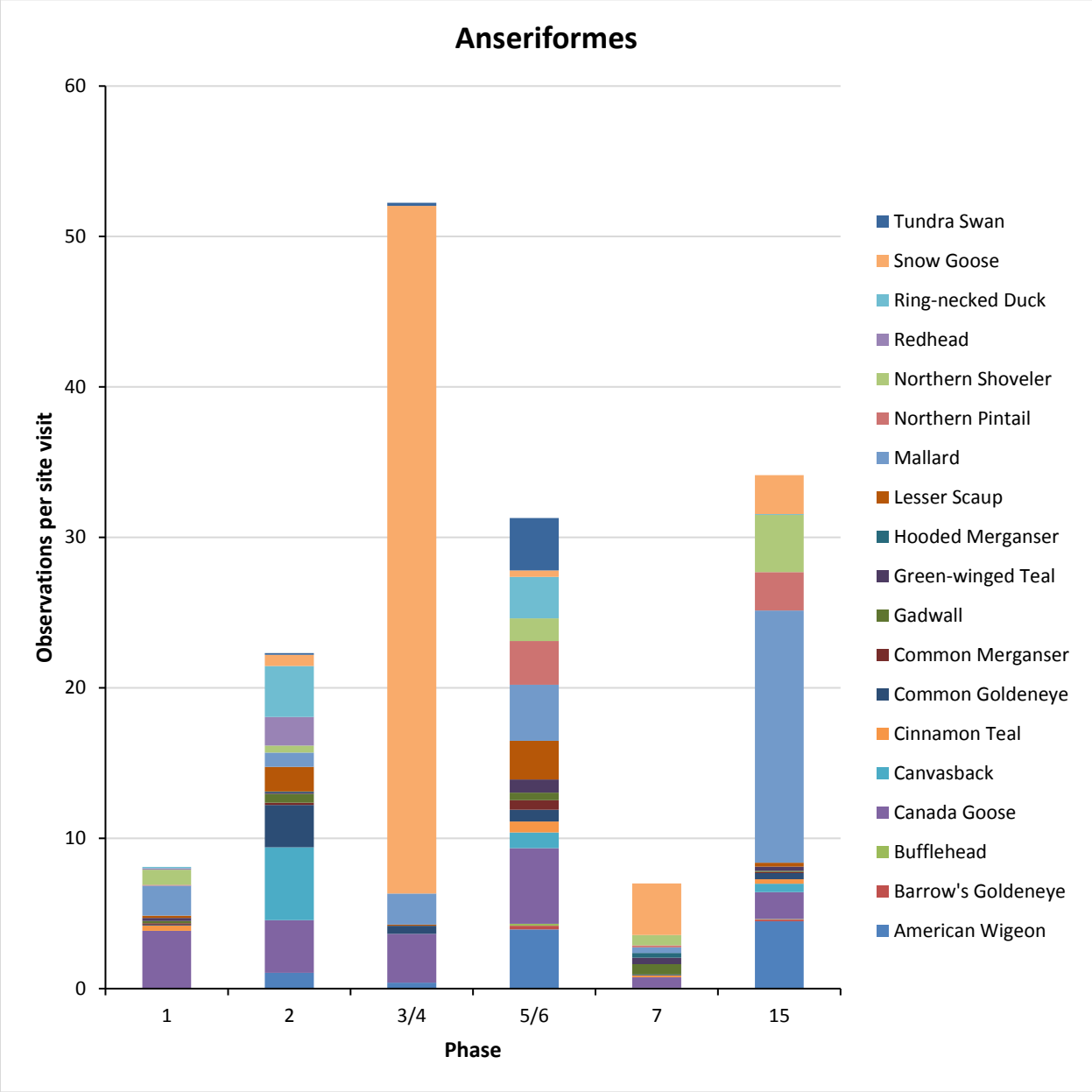

Figure 7-3. Relative abundance of waterfowl (Anseriformes) by phase in the Clark Fork River Operable Unit, 2018.

7.3.2.3 New World Vultures (Cathartiformes)

One vulture (Cathartiformes) species was observed in the CFROU: turkey vulture *Cathartes aura*. Nine individuals were observed in total among all phases. No Turkey Vulture were observed in Phases 1 or 2. This species is very common in some portions of the contiguous U.S., although breeding populations in Montana are somewhat scarce [MNHP, 2017]. Montana is located near the northern portion of this species' range [MNHP, 2017].

7.3.2.4 Shorebirds and Waders (Charadriiformes)

Shorebird and wader (Charadriiformes) species were well-represented in the CFROU during 2018 were the third richest taxonomic order in the CFROU (Figure 7-4). Fourteen species were observed in total, including representatives of four families: killdeer (Charadriidae); gulls, terns and skimmers (Laridae); avocets (Recurvirostridae); and waders (Scolopacidae) (Table 7-3).

Killdeer *Charadrius vociferus*, the only observed member of the Charadriidae family, were observed in Phases 2, 3/4, 5/6, and 7. Killdeer are considered common in Montana [MNHP, 2017].

Five species in the Laridae family were observed: California Gull *Larus californicus,* Common Tern *Sterna hirundo*, Forster's Tern *Sterna forsteri*, Franklin's Gull *Leucophaeus pipixcan*, and Ring-billed Gull *Larus delawarensis*. No members of the Laridae family were observed in Phase 15. Ring-Billed Gull were the most commonly observed Laridae species observed in the CFROU and occurred in all phases except Phase 15 (Figure 7-4). Phases 1, 2, and 7 were the only phases in which other Laridae species, other than Ring-billed Gull, were observed. Three Laridae species (Forster's tern, Franklin's Gull, Common Tern *Sterna hirundo*) observed in the CFROU in 2018 are considered Montana Species of Concern because breeding populations in the state are potentially at risk: Franklin's Gull, Forster's Tern, and Common Tern [MNHP, 2017]. Each of these Species of Concern was observed in Phase 2 but not in other phases in 2018 (Figure 7-4). Each has a population considered secure globally and Franklin's Gull was actually the second-most commonly observed Laridae species in the CFROU in 2018 (Figure 7-4).

Two members of the Recurvirostridae family were observed, both only in Phase 2: American Avocet *Recurvirostra americana* and Black-necked Stilt *Himantopus mexicanus*. American Avocet were the more commonly observed of the two Recurvirostridae species in the CFROU, with 53 total observations. The other observed Recurvirostridae member, Black-necked Stilt, are a Species of Concern in Montana [MNHP, 2017]. Six Black-necked Stilt observations were made in Phase 2.

Six shorebird species of the Scolopacidae family were observed: Long-billed Curlew *Numenius americanus,* Long-billed Dowitcher *Limnodromus scolopaceus,* Marbled Godwit *Limosa fedoa,* Spotted Sandpiper *Actitis macularius,* Wilson's Phalarope *Phalaropus tricolor*, and Wilson's

Snipe *Gallinago delicata*. Marbled Godwit were the most commonly observed species although this species was only observed in Phase 2 (Figure 7-4). Spotted Sandpiper were observed in all phases except Phase 2 and were the second-most commonly observed Scolopacidae species. One Scolopacidae species (Long-billed Curlew) observed in the CFROU in 2018 are considered a Montana Species of Concern because breeding populations in the state are potentially at risk, although populations are considered globally secure [MNHP, 2017]. In 2018, one Long-billed Curlew individual was observed in Phase 15.

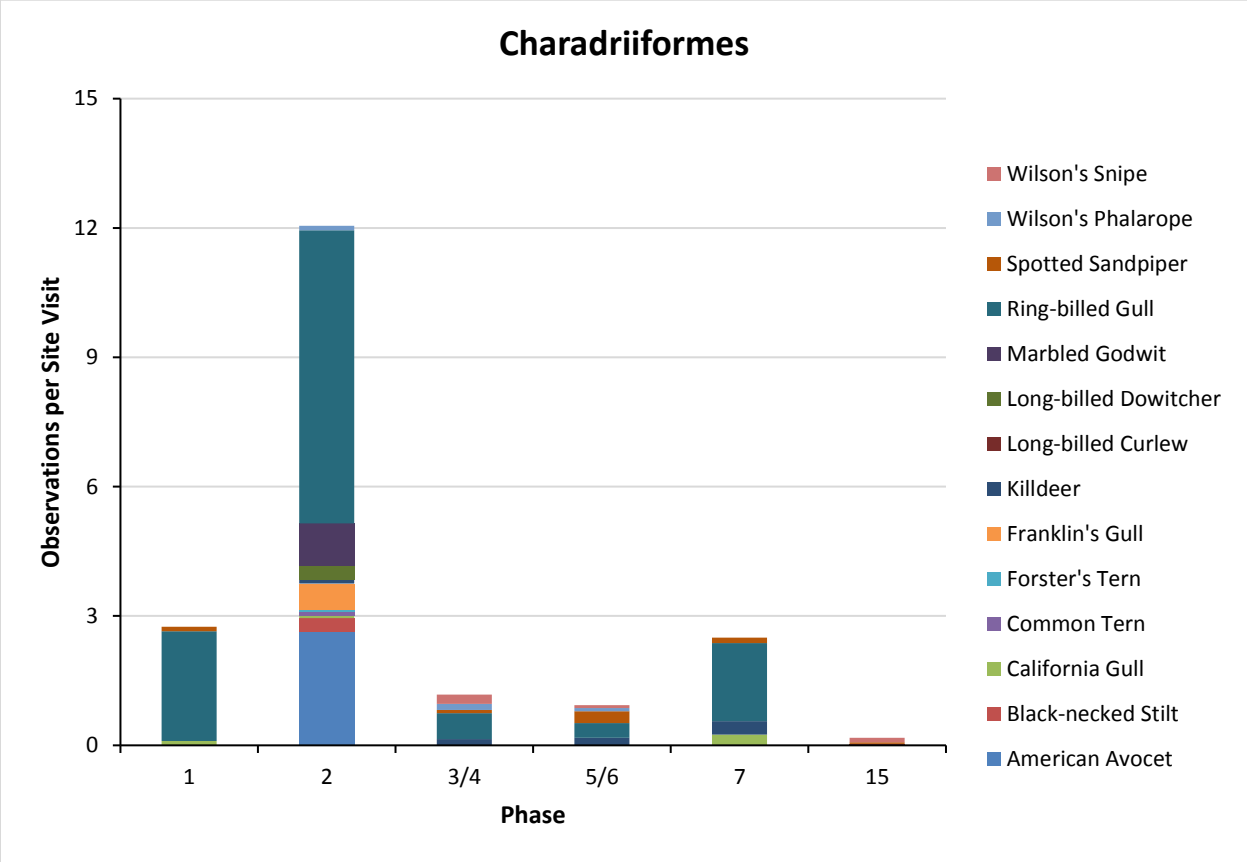

Figure 7-4. Relative abundance of shorebirds and waders (Charadriiformes) by phase in the Clark Fork River Operable Unit, 2018.

7.3.2.5 Pigeons and Doves (Columbiformes)

Two pigeon and dove species (Columbiformes) were observed in the CFROU: Mourning Dove *Zenaida macroura* and Rock Pigeon *Columba livia* (Figure 7-5). Rock Pigeon are non-native to Montana [MNHP, 2017 and were only observed in Phase 3/4 (Figure 7-5. Mourning Dove were more widespread and were observed in all phases except Phase 1 and were most commonly observed in Phase 5/6 (Figure 7-5).

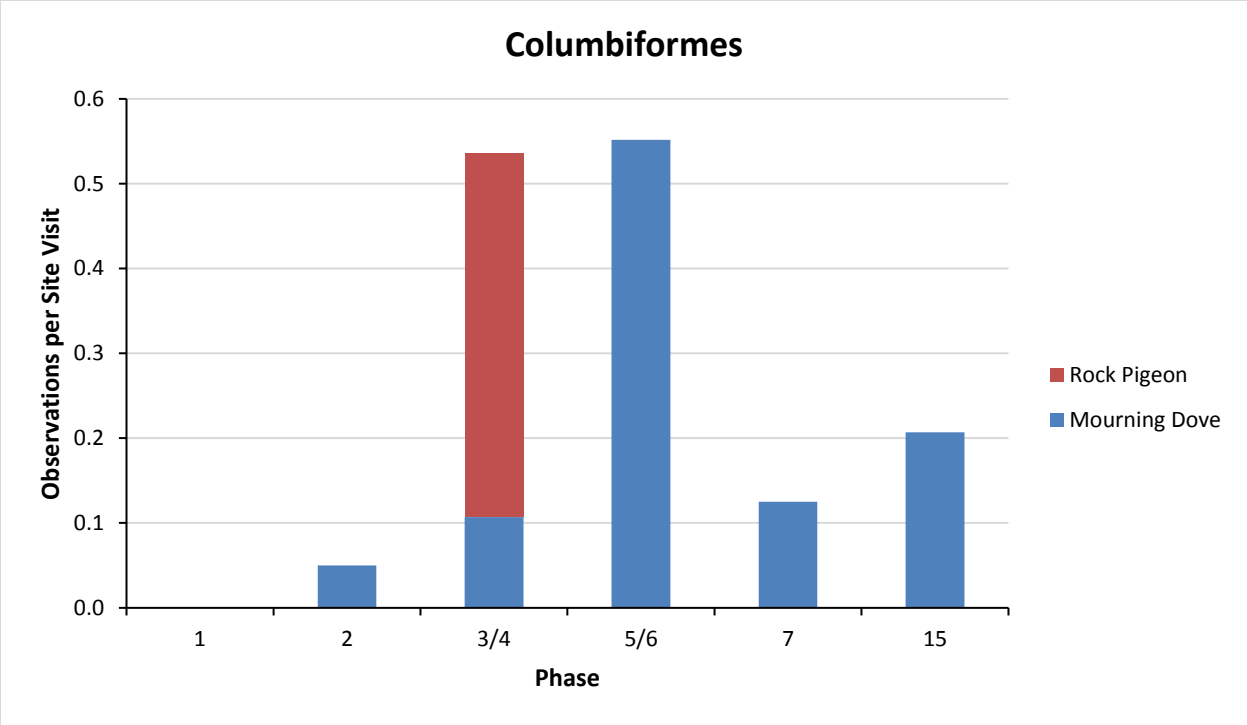

Figure 7-5. Relative abundance of pigeons and doves (Columbiformes) by phase in the Clark Fork River Operable Unit, 2018.

7.3.2.6 Kingfishers (Coraciiformes)

One kingfisher (Coraciiformes) species was observed in the CFROU: belted kingfisher *Megaceryle alcyon*. This species is common in Montana and other portions of the U.S. [MNHP, 2017], but occurrences have been rare in the CFROU. Four individuals were observed during 2018; two in Phase 1 and one each in Phases 5/6 and 7.

7.3.2.7 Falcons and Kestrels (Falconiformes)

One falcon (Falconiformes) species was observed in the CFROU: American kestrel *Falco sparverius*. Individuals were observed in Phases 1, 3/4, 5/6, and 15. From 2015-2017, two special status species were observed in the CFROU: Peregrine Falcon *Falco peregrinus,* a Species of Concern in Montana [MNHP, 2017]; and Merlin *Falco columbarius* which are considered somewhat at risk in Montana [MNHP, 2017]. Neither of these species were observed in the CFROU in 2018.

~~7.3.2.8~~ Cranes and Rails (Gruiformes)

Cranes and rails (Gruiformes) were represented in two families in the CFROU: cranes (Gruidae) and rails (Rallidae). One crane species (Sandhill Crane *Antigone canadensis*) and two

rail species (American Coot *Fulica americana* and Virginia Rail *Rallus limicola*) were observed during 2018 monitoring. American Coot were observed in all phases and were most commonly observed in Phases 2 and 7 (Figure 7-6). Sandhill Crane were observed in all phases except Phase 5/6, but were observed less commonly compared to American Coot (Figure 7-6). Breeding Sandhill Crane populations are common but overwintering populations in the state of Montana are "at risk" [MNHP, 2017]. One Virginia Rail was observed in Phase 15.

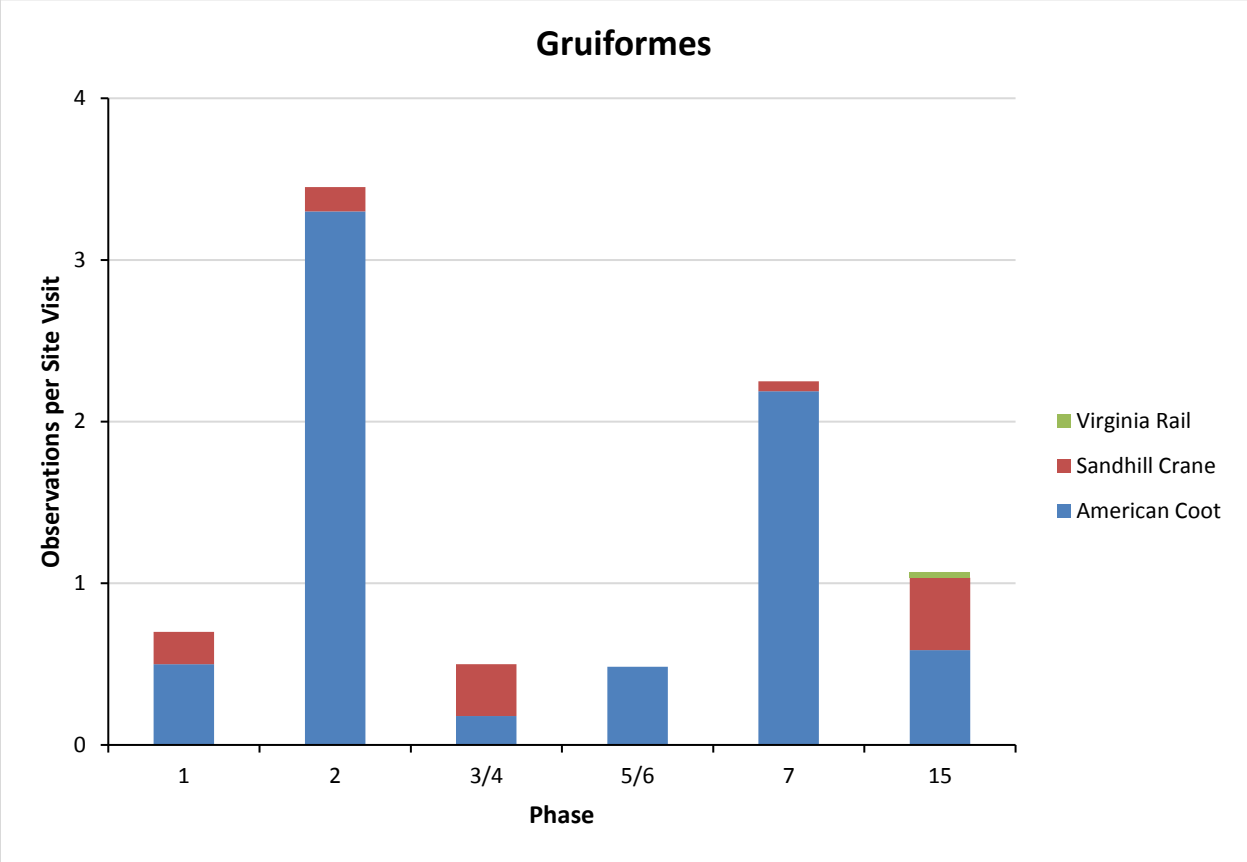

Figure 7-6. Relative abundance of cranes and rails (Gruiformes) by phase in the Clark Fork River Operable Unit, 2018.

7.3.2.9 Perching Birds (Passeriformes)

Of all taxonomic orders, perching birds (Passeriformes) were the richest in the CFROU during 2018. In addition to the high richness of this order, perching birds were common, particularly in Phases 1, 3/4, 5/6, and 7. In those phases, on average, perching birds were observed more than ten times per site visit (Figure 7-7). In total, 42 Passerines from 15 taxonomic families were observed in the CFROU in 2018 (Table 7-3). Families observed included: waxwings (Bombycillidae), crows, ravens and magpies (Corvidae), seed-eating, finch-like birds (Emberizidae), true finches (Fringillidae), swallows (Hirundinidae), blackbirds and relatives (Icteridae), mimics (Mimidae), chickadees (Paridae), New World warblers (Parulidae), New World

sparrows (Passerellidae), kinglets (Regulidae), starlings (Sturnidae), wrens (Troglodytidae), thrushes (Turdidae), and tyrant flycatchers (Tyrannidae) (Table 7-3).

Six observed species were seen to be the only representative of their respective taxonomic families: Black-capped Chickadee *Poecile atricapillus* (Paridae), Cedar Waxwing *Bombycilla cedrorum* (Bombycillidae), European Starling *Sturnus vulgaris* (Sturnidae), Gray Catbird *Dumetella carolinensis* (Mimidae), Marsh Wren *Cistothorus palustris* (Troglodytidae), and Ruby-crowned Kinglet *Regulus calendula* (Regulidae) (Table 7-3). European Starling are a non-native species and were common, although none were observed in Phase 2 in 2018 (Figure 7-7).

Seven species in the taxonomic family Emberizidae were observed in 2018 in the CFROU: American Tree Sparrow *Spizelloides arborea*, Clay-colored Sparrow *Spizella pallida*, Dark-eyed Junco *Junco hyemalis*, Fox Sparrow *Passerella iliaca*, Savannah Sparrow *Passerculus sandwichensis*, Vesper Sparrow *Pooecetes gramineus*, and White-crowned Sparrow *Zonotrichia leucophrys* (Table 7-3). Emberizids were moderately common; Savannah Sparrow were observed in all phases and were the most commonly observed Emberizid. Dark-eyed Junco, Clay-colored Sparrow, and Vesper Sparrow were the next most commonly observed Emberizids and were observed in the majority of the phases. Fox Sparrow and White-crowned Sparrow were rare.

Fringillids were observed only in Phase 5/6 in 2018 (Table 7-3; Figure 7-7). Three Fringillids were observed: American Goldfinch *Spinus tristis*, Cassin's Finch *Haemorhous cassinii*, and Common Redpoll *Acanthis flamea* (Table 7-3). Common Redpoll were more common than the other two Fringillids, but occurrence of this species is generally sporadic in the upper Clark Fork River basin. Cassin's Finch, which is identified as a Species of Concern in Montana [MNHP, 2017], and American Goldfinch, were rarely observed in 2018.

Corvids were represented by three species: American Crow *Corvus brachyrhynchos,* Black-billed Magpie *Pica hudsonia*, and Common Raven *Corvus corax* (Table 7-3; Figure 7-7). Corvids were observed in all CFROU phases. Common Raven and Black-billed Magpie were commonly observed throughout the CFROU, though Black-billed Magpie were the most commonly observed Corvid species. American Crows were relatively scarce compared to Common Raven and Black-billed Magpie.

Passerellids were represented by two species: Chipping Sparrow *Spizella passerine* and Song Sparrow *Melospiza melodia* (Table 7-3; Figure 7-7). Song sparrow were the more commonly observed of these two species and were observed in all phases other than Phase 2 (Figure 7-7). Chipping Sparrow were only observed in Phase 5/6 and were less common than Song Sparrow.

Six Hiruninids were observed in the CFROU: Bank Swallow *Riparia riparia*, Barn Swallow *Hirundo rustica*, Cliff Swallow *Petrochelidon pyrrhonota*, Northern Rough-winged Swallow *Stelgidopteryx serripennis*, Tree Swallow *Tachycineta bicolor*, and Violet-green Swallow

Tachycineta thalassina (Table 7-3; Figure 7-7). The most dominant Hiruninids were Tree Swallow, Cliff Swallow, and Bank Swallow. Tree Swallow were observed in all phases and were commonly observed in Phases 3/4 and 5/6 but less commonly observed in other phases (Figure 7-7). Cliff Swallow, by contrast, were only observed in Phases 3/4 and 5/6. Bank Swallow, Northern Rough-winged Swallow, and Violet-green Swallow were only observed in Phase 5/6. Northern Rough-winged Swallow and Violet-green Swallow were rarely observed in the CFROU.

Icterids were a rich family in the CFROU during 2018, as they were represented by Brown-Headed Cowbird *Molothrus ater*, Bobolink *Dolichonyx oryzivorus,* Brewer's Blackbird *Euphagus cyanocephalus,* Bullock's Oriole *Icterus bullockii,* Common Grackle *Quiscalus quiscula,* Red-winged Blackbird *Agelaius phoeniceus,* Western Meadowlark *Sturnella neglecta*, and Yellow-headed Blackbird *Xanthocephalus* (Table 7-3; Figure 7-7). Yellow-headed Blackbird, Western Meadowlark, and Red-winged Blackbird were ubiquitous to CFROU phases, and generally occurred with some level of at least moderate abundance. Common Grackle, Bullock's Oriole, and Bobolink, by contrast, were observed in just one phase, and were generally rare in those phases. Bobolink has declined in abundance in Montana, leading to the Species of Concern designation [MNHP, 2017]. The decline in Bobolink in Montana is due to loss or degradation of meadows and hay fields, which are the primary breeding habitat for the species [MNHP, 2017].

Parulids were represented in the CFROU by three observed species: Common Yellowthroat *Geothlypis trichas*, Yellow Warbler *Setophaga petechia*, and Yellow-rumped Warbler *Setophaga coronate* (Table 7-3). These species were generally rarely observed in the CFROU; observations per site visit were less than 0.30 for each Parulidae species. Yellow-rumped Warbler, the most commonly observed of the Parulids, were observed in all phases except Phase 7. Common Yellowthroat, the least commonly observed Parulid, was only observed in Phase 7. Yellow Warbler were observed in Phases 3/4, 5/6, and 15 and were the most commonly observed Parulid in Phases 3/4 and 15.

Turdidae species were represented by American Robin *Turdus migratorius* and Mountain Bluebird *Sialia currucoides* (Table 7-3). Neither Turdidae species were common on an observation per-site visit basis. American Robin were more commonly observed of the two Turdidae species and were observed in Phases 3/4, 5/6, 7, and 15. Mountain Bluebird were only observed in Phase 7. Nether Turdidae species were observed in Phases 1 or 2.

Tyrannidae species were represented by two species in the CFROU: Eastern Kingbird *Tyrannus* and Willow Flycatcher *Empidonax traillii* (Table 7-3). Eastern Kingbird were observed in all phases except Phases 3/4 and 7. Eastern Kingbird were more commonly observed than Willow Flycatcher.

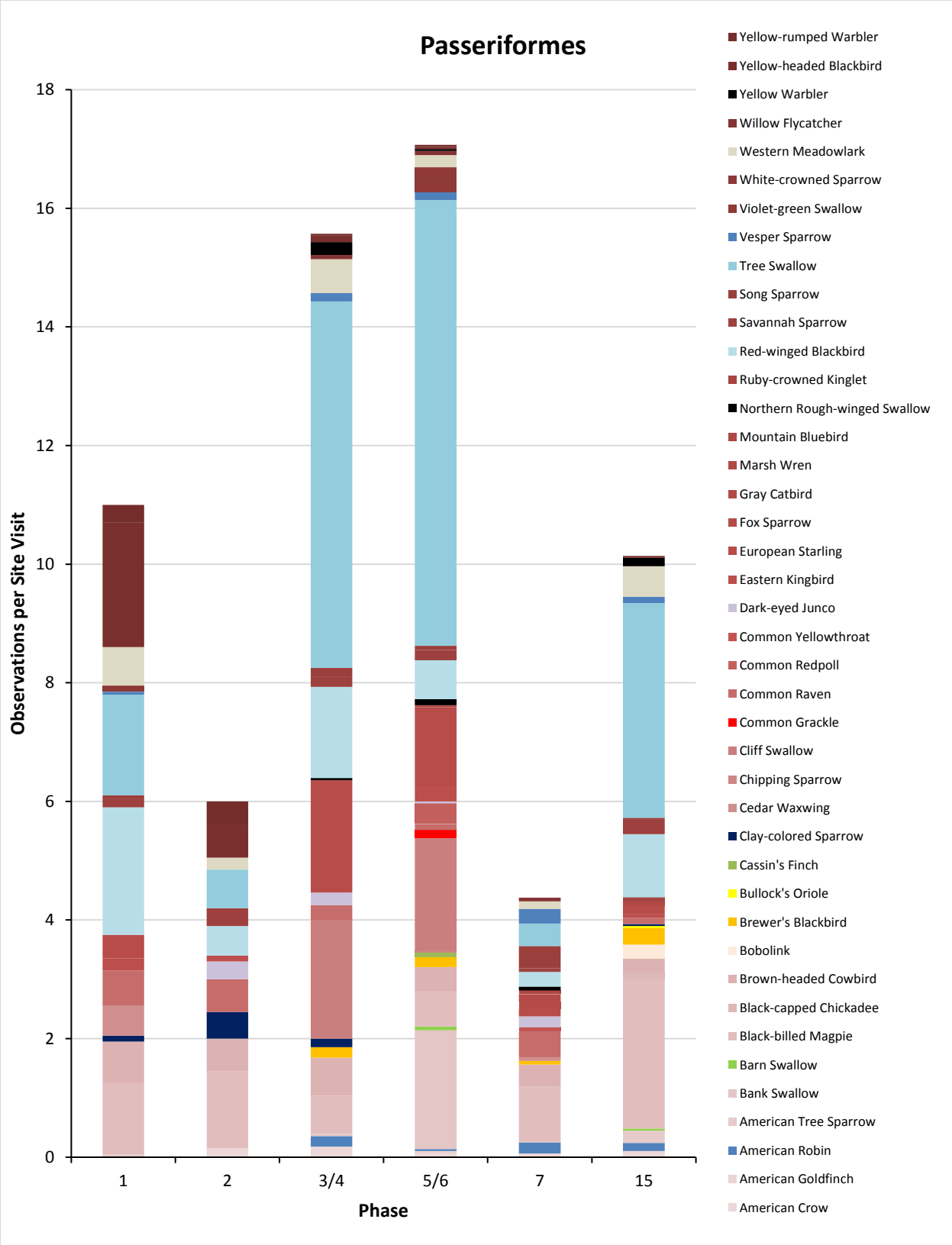

Figure 7-7. Relative abundance of perching birds (Passeriformes) by phase in the Clark Fork River Operable Unit, 2018.

7.3.2.10 Large Waterbirds (Pelecaniformes)

Two species in the Pelecaniformes order were observed in the CFROU during 2018: Great Blue Heron *Ardea herodias* and White-Faced Ibis *Plegadis chihi* (Table 7-3). Great Blue Heron were the more commonly observed of the two species and were observed in Phases 2 and 5/6. White-Faced Ibis, a Species of Concern in Montana [MNHP, 2017], was observed once in Phase 2.

7.3.2.11 Woodpeckers (Piciformes)

One woodpecker (Piciformes) species was observed in the CFROU in 2018. Northern Flicker *Colaptes auratus* were observed in all phases (Table 7-3) but were most commonly observed in Phase 15. Northern Flicker were rarely observed in Phases 1, 2, and 5/6.

7.3.2.12 Grebes (Podicipediformes)

One grebe (Podicipediformes) species was observed in the CFROU in 2018: Western Grebe *Aechmophorus occidentalis* (Table 7-3). Only two Western Grebe were observed in 2018 and both observations were in Phase 5/6.

7.3.2.13 Owls (Strigiformes)

One owl (Strigiformes) species was observed in the CFROU in 2018: Great Horned Owl *Bubo virginianus* (Table 7-3). Two Great Horned Owl observations were made, both in Phase 5/6.

7.3.2.14 Cormorants (Suliformes)

One cormorant (Suliformes) species was observed in the 2018 CFROU (Figure 7-8): Double-crested Cormorant *Phalacrocorax auratus* (Table 7-3). The species was observed in each phase, and were particularly common in Phase 2, and to a lesser degree in Phase 1 (Figure 7-8).

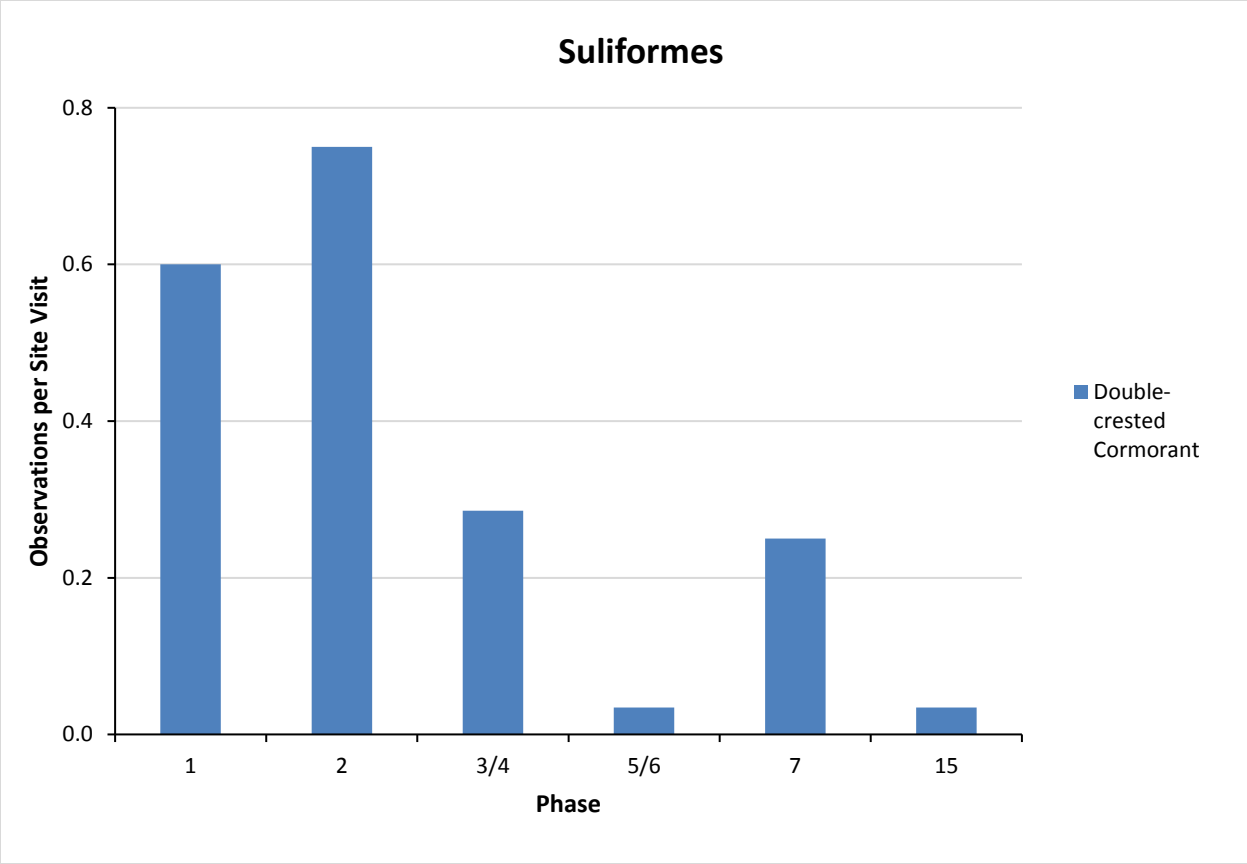

Figure 7-8. Relative abundance of cormorants (Suliformes) by phase in the Clark Fork River Operable Unit, 2018.

7.3.3 Protected Species

Twelve (13%) of the 95 bird species observed in the CFROU in 2018 are designated as either Species of Concern, Potential Species of Concern, or Special Status Species [MNHP, 2017]. One or more of these protected species were observed in each phase, with the exception of Phase 1 (Figure 7-9). In other phases, relative abundance of protected species ranged from 0.22-1.15 observations per site visit (Figure 7-9). Protected species were most commonly observed in Phase 2 (Figure 7-9). Richness of protected species ranged from 0-6 species and was also highest in Phase 2 (Figure 7-9). Bald Eagle and Golden Eagle were the most widely distributed protected species in the CFROU in 2018 and each was observed in four phases (Figure 7-9).

The most commonly observed protected species were Franklin's Gull, although this species was only observed in Phase 2 (Figure 7-9). Several other protected species (White-faced Ibis, Forster's Tern, Common Tern, and Black-necked Stilt) were also only observed in Phase 2 (Figure 7-9). Other protected species observed only in one specific phase included Cassin's Finch (Phase 5/6), Long-billed Curlew (Phase 15), and Bobolink (Phase 15) (Figure 7-9).

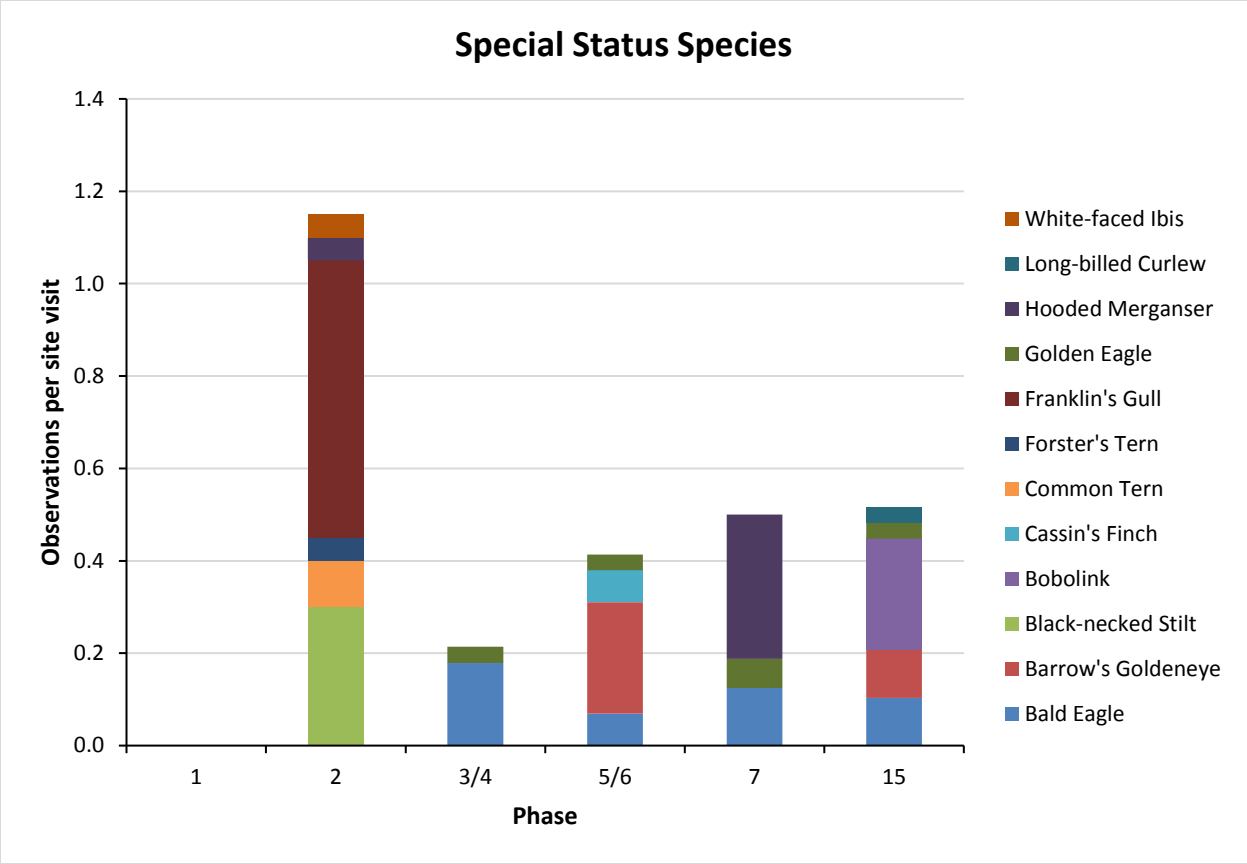

Figure 7-9. Relative abundance of Species of Concern, Potential Species of Concern, and Special Species Status, by phase in the Clark Fork River Operable Unit, 2018.

7.4 DISCUSSION

The CFROU provides habitat for a large number of bird species, including a variety of protected species which includes Montana Species of Concern and Potential Species of Concern. The richest taxonomic orders in the CFROU were perching birds (Passeriformes), waterfowl (Anseriformes), and shorebirds and waders (Charadriiformes). The diversity of bird species dependent on aquatic habitats underscores the value of those habitats in the CFROU.

Preliminary monitoring results appear somewhat mixed as to the influence of remediation on species richness. In previously remediated and revegetated phases of the CFROU in 2018, species richness was higher than expected in Phase 5/6, as expected in Phase 2, and lower than expected in Phase 1 given the sampling effort in each of these phases. Non-remediated phases also had mixed results in 2018. Of the non-remediated phases monitored in 2018, species richness was higher than expected in Phase 7, as expected in Phase 15, and lower than expected in Phase 3/4. These results suggest that the remedial actions are less invasive with respect to bird diversity than may be expected. Or, displacement of disturbance-sensitive species may be offset by effects of remedial actions that are beneficial, at least in the short-term. For example, revegetation may

provide abundant food sources that are not available in more mature vegetation such as seed mixes and early successional vegetation. In addition, during construction predatory mammals such as skunks may be temporarily displaced resulting in increased bird use of habitats vacated by those predators. Over the long-term, remedial actions will likely result in increased species richness as contamination is reduced and habitat is restored provided that overall habitat diversity remains the same.

As in prior monitoring years, birds of prey were diverse and abundant in the CFROU in 2018. Generally, we presume that predators avoid competition and are sparsely distributed on the landscape. However, interspecific (between species) competition was evidently quite common as Phases 3/4, 5/6, 7, and 15 each had five or six bird of prey species, and several likely feed on very similar prey (e.g., Swainson's Hawk, Red-Tailed Hawk, and Northern Harrier). Birds of prey were also commonly observed throughout the CFROU, suggesting that intraspecific (within species) competition was also high. The apparent tolerance of these predatory species for each other within these relatively small areas suggests that the availability of prey (e.g., small mammals, waterfowl, passerine birds, and fish) was also high. The diversity and abundance of birds of prey in the CFROU is likely a positive reflection on the overall health of the system's trophic structure.

Protected species were present in all phases of the CFROU with the exception of Phase 1 and accounted for 13% of all observed species in 2018. Phase 2 was particularly important for protected species, particularly those dependent on aquatic habitats such as waterfowl and shorebirds and waders. However, all phases (except Phase 1) had at least one protected species. Despite remedial actions and remnant contamination, the richness and relative abundance of protected species illustrate the tremendous importance of this system, the natural history of Montana, and demonstrates the importance of the upper Clark Fork River ecosystem to the conservation of vulnerable Montana bird populations.

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APPENDIX A

QUALITY ASSURANCE AND QUALITY CONTROL REVIEW AND SUMMARY: SURFACE WATER AND INSTREAM SEDIMENT

A.1 INTRODUCTION

Specific quality assurance and quality control (QA/QC) requirements for field measurements, sample collection, laboratory analysis, and the reporting of resulting data were established by protocols contained in the quality assurance project plan (QAPP), a component of the approved sampling and analysis plan (SAP) for the Clark Fork River Operable Unit (CFROU). The following quality control checklist is a component of the Montana Department of Environmental Quality QA/QC protocols and is an initial step in the review and validation of water chemistry and related data generated under the CFROU environmental monitoring program. This checklist provides an outline for reviewing and assessing some factors potentially affecting data quality and assists in identifying data that may be invalid or require additional documentation.

A.2 QUALITY CONTROL

Work order receipt checklists were completed by Energy Labs for each batch of quarterly samples delivered. These checklists are provided in Appendix B. Specific quality control issues identified included the following:

- First Quarter (Q1): Custody seals were not placed on the sample coolers. Sediment samples were not delivered on ice and were received by the laboratory at 8-11 C.
- Second Quarter – Rising Limb Event (Q2-Rising): Custody seals were not placed on the sample coolers. The methylmercury trip blank sample was not submitted to the lab on ice and was received at 19 C.
- Second Quarter – Peak Event (Q2-Peak): Custody seals were not placed on the sample coolers. The methylmercury trip blank sample was not submitted to the lab on ice and was received at 21 C.
- Second Quarter – Falling Limb Event (Q2-Falling): Custody seals were not placed on the sample coolers. Discrepancies were between the sample times written on the sample bottle and the chain of custody form occurred for five samples. In each case, the time written on the sample bottle was disregarded.
- Third Quarter (Q3): Custody seals were not placed on the sample coolers. Sediment samples were not delivered on ice and were received by the laboratory at 20-21 C. The methylmercury trip blank sample was not submitted to the lab on ice and was received at 20 C.
- Fourth Quarter (Q4): Custody seals were not placed on the sample coolers.

A.3 SUMMARY OF QUALITY CONTROL AND ANALYSIS RESULTS

Summarized in this appendix are quality control measures performed on field and laboratory data generated from surface water and instream sediment samples collected from the CFROU monitoring events in 2018. Assessed under the DEQ standard quality assurance and quality control protocols are data quality objectives (DQOs), including categories for: "representativeness", "comparability", and "completeness". Also assessed under the DEQ standard quality assurance and quality control protocols are data quality indicators (DQIs) including categories for: "sensitivity", "lab precision", "overall precision", and "bias and accuracy".

Overall, DQOs and DQIs were generally met at all monitoring sites in the CFROU during 2018. Surface water samples were collected and analyzed for total suspended sediment, nutrients, metals (dissolved and total recoverable), and common ions at sample sites on six occasions in 2018. Instream sediment samples were collected and analyzed for metals (total) during the first (Q1) and third (Q2) quarter of 2018.

A.3.1 Representativeness

All surface water and instream sediment monitoring sites in the CFROU sampled in 2018 met stated objectives for "spatial representativeness". That is, all monitoring sites were sampled at the established locations specified in the project SAP.

Surface water sediment monitoring was conducted quarterly during 2018 with an additional two sample periods during the spring runoff period, as specified in the project SAP. Q1 monitoring occurred during base streamflow conditions prior to the onset of spring runoff. Q2 monitoring events were conducted approximately during the rising, peak, and falling limbs of the Spring snowmelt runoff period. Biological monitoring was conducted in conjunction with Q3 surface water and instream sediment sampling, during low streamflows near the seasonal minimum within the specified index period for sampling biota. Q4 monitoring occurred during base streamflow conditions as late in the season as possible, prior to winter ice up. Sampling activities during 2018 occurred during the last month of each respective quarter, and all data met specified CFROU criteria for temporal representativeness.

A.3.2 Comparability

Comparability is the applicability of project data to the remedial performance goals specified in the SAP for the various environmental media monitored under the project. The performance goal for surface water quality is for all contaminants of concern (COC) to meet water quality performance goals as described in the Record of Decision. Data acquired by the 2018 monitoring are applicable to assessing attainment of project performance goals.

A.3.3 Completeness

An overall data completeness goal of 85 percent was specified for the CFROU project and an evaluation table for data completeness is not required if the goal is met or exceeded. Data completeness for surface water and instream sediment samples from the CFROU monitoring sites was near 100 percent, with all chemical and physical parameters collected and analyzed during each of the four quarterly monitoring events.

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 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 Silver Bow Creek CFROU monitoring (Appendix B).

Sensitivity of field methods for surface water samples was determined through deionized water field blank analyses. Results for all metals, common ions and suspended sediment parameters in field blanks were below the analytical reporting limits for 97 percent (280 of 288) of the surface water field blank analytes. Associated results which were less than ten times the RL concentrations have been qualified in the project database. Analytes detected in surface water field blanks included the following:

- Hardness was at the RL (1 mg/L as $CaCO_3$) in 33 percent (4 of 12) field blank samples.
- Dissolved zinc was detected in 33 percent (4 of 12) of the field blank samples; detectable dissolved zinc concentrations in field blanks ranged from 0.009-0.017 mg/L (RL = 0.008 mg/L).

A.3.5 Precision

A.3.5.1 Laboratory

Laboratory precision was assessed by the relative percent difference (RPD) metric comparing laboratory samples with duplicates. RPD comparisons were made for all analytes measured in this program. Established criteria allow a maximum of 20 percent RPD for water sample results which are at least five times greater than the RL, and 35 percent RPD for sediment samples which are at least five times greater than the RL. Results of laboratory quality control procedures are available in Appendix B.

A.3.5.2 Overall

The overall precision of surface water and instream sediment sample analyses in 2018 from the CFROU was assessed with RPD comparisons between samples and paired field duplicates. Established criteria allow a maximum of 25 percent RPD for water sample results at least 5 times

the RL, and 40 percent RPD for sediment samples at least 5 times the RL. All associated data which exceeds these criteria have been J-flagged in the project database.

Two surface water sample and duplicate pairs were collected in each quarterly sampling event and these were analyzed for dissolved and total recoverable metals, nutrients, and common ions. Results of RPD comparisons for all metal, common ion and suspended sediment parameters in the field duplicate and field sample pairs were within the established criteria in 98 percent (271 of 288) of the sample and duplicate pairs. Field duplicate and field sample pairs with RPD exceeding 25 percent included:

- Total recoverable mercury in the sample pairs collected at Site FC-CFR on March 19, July 5, September 10, and November 26, 2018. RPDs for those sample pairs were 31, 35, 53, and 37 percent, respectively.
- Total recoverable methylmercury in the sample pairs collected at Site FC-CFR on May 9 and November 26, 2018. RPDs for those sample pairs were 28 and 29 percent, respectively.
- Total recoverable lead in the sample pair collected at Site FC-CFR on November 26, 2018. RPD for that sample pair was 29 percent.

Two instream sediment sample and duplicate pairs were collected during each sampling event and these were analyzed for total metals. Among all analytes, 20 field sample and field duplicate results were compared and 16 (80 percent) were within the established criteria. Sediment field duplicate and field sample pairs which had RPD greater than 40 percent included the following:

- Copper in the sample pairs collected at Site LBR-CFR-02 on March 19, 2018 had an RPD of 51 percent.
- Lead in the sample pairs collected at Site LBR-CFR-02 on March 19 and September 10, 2018 had RPDs of 118 and 51 percent, respectively. In the sample pairs collected at Site CFR-03A on September 11, 2018 the RPD for lead was 45 percent.

A.3.5.3 Bias and Accuracy

Bias is defined as directional error from the true value of individual measurements. For field measurements (water temperature, pH, specific conductance, dissolved oxygen [DO] concentration, DO percent saturation, and turbidity), potential bias was addressed through frequent calibration of field instruments documented in calibration logs, and consistent field procedures. For water chemistry and sediment results, potential bias was minimized by adherence to approved field procedures for sample collection and handling, and decontamination 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. Any

analytical method controls or analytical batch controls that had values outside of the acceptable recovery range were re-analyzed, as detailed in the analytical QC summary provided by Energy Laboratories and included with each analytical summary report (Appendix B).

APPENDIX B

ANALYTICAL LABORATORY RESULTS

APPENDIX B1

ANALYTICAL LABORATORY RESULTS
1ST QUARTER MONITORING

ANALYTICAL SUMMARY REPORT

April 25, 2018

MT DEQ-Federal Superfund
PO Box 200901
Helena, MT 59620-0901

Work Order: H18030364 Quote ID: H1525 - CFR Monitoring-474374

Project Name: CFROU Monitoring

Energy Laboratories Inc Helena MT received the following 33 samples for MT DEQ-Federal Superfund on 3/23/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18030364-001	CFR-116A	03/19/18 9:00	03/23/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H18030364-002	Field Blank #1 FC-CFR	03/19/18 12:00	03/23/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Hardness Anions by Ion Chromatography 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
H18030364-003	FC-CFR	03/19/18 12:15	03/23/18	Surface Water	Same As Above
H18030364-004	FC-CFR Duplicate	03/19/18 12:15	03/23/18	Surface Water	Same As Above
H18030364-005	LBR-CFR-02	03/19/18 14:00	03/23/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H18030364-006	CFR-34	03/19/18 15:30	03/23/18	Surface Water	Same As Above

ANALYTICAL SUMMARY REPORT

H18030364-007	CFR-27H	03/19/18 16:45	03/23/18	Surface Water	Same As Above
H18030364-008	CFR-11F	03/19/18 17:45	03/23/18	Surface Water	Same As Above
H18030364-009	CFR-07D	03/20/18 8:30	03/23/18	Surface Water	Same As Above
H18030364-010	CFR-03A	03/20/18 9:30	03/23/18	Surface Water	Same As Above
H18030364-011	Field Blank #2 WSC-SBC	03/20/18 10:15	03/23/18	Surface Water	Same As Above
H18030364-012	WSC-SBC	03/20/18 10:30	03/23/18	Surface Water	Same As Above
H18030364-013	WSC-SBC Duplicate	03/20/18 10:30	03/23/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness 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
H18030364-014	SS-25	03/20/18 11:30	03/23/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H18030364-015	MWB-SBC	03/20/18 12:15	03/23/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness 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

ANALYTICAL SUMMARY REPORT

H18030364-016	SBC-P2	03/20/18 12:00	03/23/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by EPA 200.2 Digestion, Total P Water Nitrogen, Total Persulfate Phosphorus, Total Solids, Total Suspended
H18030364-017	MCWC-MWB	03/20/18 13:30	03/23/18	Surface Water	Same As Above
H18030364-018	CFR-84F	03/19/18 11:00	03/23/18	Surface Water	Mercury, Total Recoverable Digestion, Mercury by CVAA Subcontracted, Analytics
H18030364-019	CFR-116A	03/19/18 9:00	03/23/18	Soil	Metals by ICP/ICPMS, Total Percent Moisture Digestion, Total Metals Sieve Analysis, Wet Soil Preparation
H18030364-020	LBR-CFR-02	03/19/18 14:00	03/23/18	Soil	Metals by ICP/ICPMS, Total Percent Moisture Digestion, Total Metals Sieve Analysis, Wet
H18030364-021	LBR-CFR-02 Duplicate	03/19/18 14:00	03/23/18	Soil	Same As Above
H18030364-022	CFR-34	03/19/18 15:30	03/23/18	Soil	Same As Above
H18030364-023	CFR-27H	03/19/18 16:45	03/23/18	Soil	Same As Above
H18030364-024	CFR-11F	03/19/18 17:45	03/23/18	Soil	Same As Above
H18030364-025	CFR-07D	03/20/18 8:30	03/23/18	Soil	Same As Above
H18030364-026	CFR-03A	03/20/18 9:30	03/23/18	Soil	Same As Above
H18030364-027	CFR-03A Duplicate	03/20/18 9:30	03/23/18	Soil	Same As Above
H18030364-028	WSC-SBC	03/20/18 10:30	03/23/18	Soil	Same As Above
H18030364-029	MWB-SBC	03/20/18 12:15	03/23/18	Soil	Same As Above
H18030364-030	MCWC-MWB	03/20/18 13:30	03/23/18	Soil	Same As Above
H18030364-031	LC-7.5	03/20/18 14:30	03/23/18	Soil	Same As Above
H18030364-032	RTC-1.5	03/19/18 15:00	03/23/18	Soil	Same As Above
H18030364-033	SS-25	03/19/18 11:30	03/23/18	Soil	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: CFROU Monitoring
Work Order: H18030364

Report Date: 04/25/18

CASE NARRATIVE

Samples were reviewed for dissolved and total constituents. Sample H18030364-016 (SBC-P2), the dissolved metals are greater than the total recoverable metals analytes. For analytes where the dissolved concentration was greater than the corresponding total the values were compared to verify if they were within method specified RPD criteria. Duplicate data was reviewed as a second verification to verify the reported values were confirmed by a second analysis. Additionally, the sample containers were verified to ensure they were properly labeled. abc 4/25/18

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the calculated method detection limit (MDL). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-116A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-001
Collection Date: 03/19/18 09:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	28	mg/L		1	0.3	A2540 D	03/23/18 15:04 / km			124 (14410200)_180323A	53	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	0.7	A2320 B	03/26/18 12:42 / km			PHSC_101-H_180326A	25	R133328
Bicarbonate as HCO3	150	mg/L		4	0.7	A2320 B	03/26/18 12:42 / km			PHSC_101-H_180326A	25	R133328
Chloride	7	mg/L		1	0.003	E300.0	03/26/18 13:08 / SR			IC METROHM_180326A	9	R133379
Sulfate	50	mg/L		1	0.01	E300.0	03/26/18 13:08 / SR			IC METROHM_180326A	9	R133379
Hardness as CaCO3	165	mg/L		1	1	A2340 B	03/27/18 18:16 / sld			WATERCALC_180327D	2	R133391
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.02	0.007	E353.2	03/26/18 10:04 / cm			FIA203-HE_180326A	58	R133339
Nitrogen, Total	0.45	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:27 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	27	40918
Phosphorus, Total as P	0.070	mg/L		0.003	0.0006	E365.1	03/27/18 13:38 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	28	40926
METALS, DISSOLVED												
Arsenic	0.007	mg/L		0.001	0.00002	E200.8	03/27/18 14:47 / sld			ICPMS205-H_180327A	87	R133388
Cadmium	0.00003	mg/L		0.00003	0.00002	E200.8	03/27/18 14:47 / sld			ICPMS205-H_180327A	87	R133388
Copper	0.007	mg/L		0.001	0.00004	E200.8	03/26/18 21:42 / sld			ICPMS205-H_180326C	130	R133370
Lead	0.00013	mg/L	J	0.0003	0.00001	E200.8	03/26/18 21:42 / sld			ICPMS205-H_180326C	130	R133370
Zinc	0.0079	mg/L	J	0.008	0.0001	E200.8	03/27/18 14:47 / sld			ICPMS205-H_180327A	87	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.009	mg/L		0.001	0.00002	E200.8	03/27/18 14:50 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	88	40907
Cadmium	0.00014	mg/L		0.00003	0.00002	E200.8	03/27/18 14:50 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	88	40907
Calcium	47	mg/L		1	0.01	E200.7	03/27/18 13:14 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	60	40907
Copper	0.024	mg/L		0.001	0.0003	E200.8	03/26/18 21:44 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	131	40907
Lead	0.0034	mg/L		0.0003	0.00003	E200.8	03/26/18 21:44 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	131	40907
Magnesium	12	mg/L		1	0.09	E200.7	03/27/18 13:14 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	60	40907
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 13:14 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	60	40907
Sodium	11	mg/L		1	0.02	E200.7	03/27/18 13:14 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	60	40907
Zinc	0.033	mg/L		0.008	0.002	E200.8	03/26/18 21:44 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	131	40907

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Field Blank #1 FC-CFR
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-002
Collection Date: 03/19/18 12:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1	0.3	A2540 D	03/23/18 15:04 / km			124 (14410200)_180323A	54	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	2	mg/L	J	4	0.7	A2320 B	03/26/18 12:48 / km			PHSC_101-H_180326A	27	R133328
Bicarbonate as HCO3	2	mg/L	J	4	0.7	A2320 B	03/26/18 12:48 / km			PHSC_101-H_180326A	27	R133328
Chloride	0.006	mg/L	J	1	0.003	E300.0	03/26/18 13:22 / SR			IC METROHM_180326A	10	R133379
Sulfate	ND	mg/L		1	0.01	E300.0	03/26/18 13:22 / SR			IC METROHM_180326A	10	R133379
Hardness as CaCO3	1	mg/L		1	1	A2340 B	03/27/18 18:16 / sld			WATERCALC_180327D	3	R133391
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.007	E353.2	03/26/18 10:06 / cm			FIA203-HE_180326A	59	R133339
Nitrogen, Total	ND	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:28 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	28	40918
Phosphorus, Total as P	ND	mg/L		0.003	0.0006	E365.1	03/27/18 13:41 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	31	40926
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.001	0.00002	E200.8	03/27/18 14:52 / sld			ICPMS205-H_180327A	89	R133388
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/26/18 21:47 / sld			ICPMS205-H_180326C	132	R133370
Copper	ND	mg/L		0.001	0.00004	E200.8	03/26/18 21:47 / sld			ICPMS205-H_180326C	132	R133370
Lead	ND	mg/L		0.0003	0.00001	E200.8	03/26/18 21:47 / sld			ICPMS205-H_180326C	132	R133370
Zinc	0.0071	mg/L	J	0.008	0.0001	E200.8	03/26/18 21:47 / sld			ICPMS205-H_180326C	132	R133370
METALS, TOTAL RECOVERABLE												
Arsenic	0.00002	mg/L	J	0.001	0.00002	E200.8	03/27/18 14:54 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	90	40907
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/26/18 21:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	133	40907
Calcium	0.47	mg/L	J	1	0.01	E200.7	03/27/18 13:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	67	40907
Copper	ND	mg/L		0.001	0.0003	E200.8	03/26/18 21:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	133	40907
Lead	0.00006	mg/L	J	0.0003	0.00003	E200.8	03/26/18 21:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	133	40907
Magnesium	ND	mg/L		1	0.009	E200.7	03/27/18 13:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	67	40907
Mercury	ND	mg/L		5E-06	6E-07	E245.1	03/27/18 13:07 / PN	03/23/18 13:43	E245.1	HGCV202-H_180327A	111	40903
Potassium	ND	mg/L		1	0.05	E200.7	03/27/18 13:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	67	40907
Sodium	ND	mg/L		1	0.02	E200.7	03/27/18 13:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	67	40907
Zinc	ND	mg/L		0.008	0.002	E200.8	03/26/18 21:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	133	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-003
Collection Date: 03/19/18 12:15
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	11	mg/L		1	0.3	A2540 D	03/23/18 15:04 / km			124 (14410200)_180323A	55	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	0.7	A2320 B	03/26/18 12:54 / km			PHSC_101-H_180326A	29	R133328
Bicarbonate as HCO3	160	mg/L		4	0.7	A2320 B	03/26/18 12:54 / km			PHSC_101-H_180326A	29	R133328
Chloride	4	mg/L		1	0.003	E300.0	03/26/18 13:37 / SR			IC METROHM_180326A	11	R133379
Sulfate	16	mg/L		1	0.01	E300.0	03/26/18 13:37 / SR			IC METROHM_180326A	11	R133379
Hardness as CaCO3	146	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	1	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.02	0.007	E353.2	03/26/18 10:07 / cm			FIA203-HE_180326A	60	R133339
Nitrogen, Total	0.39	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:31 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	31	40918
Phosphorus, Total as P	0.064	mg/L		0.003	0.0006	E365.1	03/27/18 13:43 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	32	40926
METALS, DISSOLVED												
Arsenic	0.006	mg/L		0.001	0.00002	E200.8	03/27/18 15:12 / sld			ICPMS205-H_180327A	98	R133388
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/26/18 21:51 / sld			ICPMS205-H_180326C	134	R133370
Copper	0.001	mg/L		0.001	0.00004	E200.8	03/28/18 14:32 / sld			ICPMS205-H_180328A	34	R133435
Lead	0.00019	mg/L	J	0.0003	0.00001	E200.8	03/26/18 21:51 / sld			ICPMS205-H_180326C	134	R133370
Zinc	0.0056	mg/L	J	0.008	0.0001	E200.8	03/26/18 21:51 / sld			ICPMS205-H_180326C	134	R133370
METALS, TOTAL RECOVERABLE												
Arsenic	0.007	mg/L		0.001	0.00002	E200.8	03/27/18 15:14 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	99	40907
Cadmium	0.00003	mg/L	J	0.00003	0.00002	E200.8	03/27/18 15:14 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	99	40907
Calcium	39	mg/L		1	0.01	E200.7	03/27/18 13:44 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	68	40907
Copper	0.002	mg/L		0.001	0.0003	E200.8	03/26/18 21:53 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	135	40907
Lead	0.0023	mg/L		0.0003	0.00003	E200.8	03/26/18 21:53 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	135	40907
Magnesium	12	mg/L		1	0.09	E200.7	03/27/18 13:44 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	68	40907
Mercury	0.000107	mg/L		5E-06	6E-07	E245.1	03/27/18 13:10 / PN	03/23/18 13:43	E245.1	HGCV202-H_180327A	112	40903
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 13:44 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	68	40907
Sodium	8	mg/L		1	0.02	E200.7	03/27/18 13:44 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	68	40907
Zinc	0.009	mg/L		0.008	0.002	E200.8	03/26/18 21:53 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	135	40907

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: FC-CFR Duplicate
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-004
Collection Date: 03/19/18 12:15
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	11	mg/L		1	0.3	A2540 D	03/23/18 15:05 / km			124 (14410200)_180323A	56	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	0.7	A2320 B	03/26/18 13:00 / km			PHSC_101-H_180326A	31	R133328
Bicarbonate as HCO3	160	mg/L		4	0.7	A2320 B	03/26/18 13:00 / km			PHSC_101-H_180326A	31	R133328
Chloride	4	mg/L		1	0.003	E300.0	03/26/18 13:52 / SR			IC METROHM_180326A	12	R133379
Sulfate	16	mg/L		1	0.01	E300.0	03/26/18 13:52 / SR			IC METROHM_180326A	12	R133379
Hardness as CaCO3	148	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	2	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.02	0.007	E353.2	03/26/18 10:08 / cm			FIA203-HE_180326A	61	R133339
Nitrogen, Total	0.39	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:32 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	32	40918
Phosphorus, Total as P	0.062	mg/L		0.003	0.0006	E365.1	03/27/18 13:44 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	33	40926
METALS, DISSOLVED												
Arsenic	0.006	mg/L		0.001	0.00002	E200.8	03/27/18 15:16 / sld			ICPMS205-H_180327A	100	R133388
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/27/18 15:16 / sld			ICPMS205-H_180327A	100	R133388
Copper	0.00092	mg/L	J	0.001	0.00004	E200.8	03/26/18 22:11 / sld			ICPMS205-H_180326C	143	R133370
Lead	0.00017	mg/L	J	0.0003	0.00001	E200.8	03/27/18 15:16 / sld			ICPMS205-H_180327A	100	R133388
Zinc	0.0047	mg/L	J	0.008	0.0001	E200.8	03/27/18 15:16 / sld			ICPMS205-H_180327A	100	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.007	mg/L		0.001	0.00002	E200.8	03/27/18 15:18 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	101	40907
Cadmium	0.00003	mg/L	J	0.00003	0.00002	E200.8	03/27/18 15:18 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	101	40907
Calcium	39	mg/L		1	0.01	E200.7	03/27/18 13:48 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	69	40907
Copper	0.002	mg/L		0.001	0.0003	E200.8	03/26/18 22:13 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	144	40907
Lead	0.0023	mg/L		0.0003	0.00003	E200.8	03/27/18 15:18 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	101	40907
Magnesium	12	mg/L		1	0.09	E200.7	03/27/18 13:48 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	69	40907
Mercury	0.0000785	mg/L		5E-06	6E-07	E245.1	03/27/18 13:13 / PN	03/23/18 13:43	E245.1	HGCV202-H_180327A	113	40903
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 13:48 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	69	40907
Sodium	8	mg/L		1	0.02	E200.7	03/27/18 13:48 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	69	40907
Zinc	0.009	mg/L		0.008	0.002	E200.8	03/27/18 15:18 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	101	40907

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: LBR-CFR-02
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-005
Collection Date: 03/19/18 14:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	5	mg/L		1	0.3	A2540 D	03/23/18 15:05 / km			124 (14410200)_180323A	57	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	0.7	A2320 B	03/26/18 13:07 / km			PHSC_101-H_180326A	33	R133328
Bicarbonate as HCO3	140	mg/L		4	0.7	A2320 B	03/26/18 13:07 / km			PHSC_101-H_180326A	33	R133328
Chloride	4	mg/L		1	0.003	E300.0	03/26/18 14:06 / SR			IC METROHM_180326A	13	R133379
Sulfate	18	mg/L		1	0.01	E300.0	03/26/18 14:06 / SR			IC METROHM_180326A	13	R133379
Hardness as CaCO3	128	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	3	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.011	mg/L	J	0.02	0.007	E353.2	03/26/18 10:09 / cm			FIA203-HE_180326A	62	R133339
Nitrogen, Total	0.15	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:34 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	33	40918
Phosphorus, Total as P	0.020	mg/L		0.003	0.0006	E365.1	03/27/18 13:45 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	34	40926
METALS, DISSOLVED												
Arsenic	0.004	mg/L		0.001	0.00002	E200.8	03/27/18 15:21 / sld			ICPMS205-H_180327A	102	R133388
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/27/18 15:21 / sld			ICPMS205-H_180327A	102	R133388
Copper	0.00074	mg/L	J	0.001	0.00004	E200.8	03/26/18 22:15 / sld			ICPMS205-H_180326C	145	R133370
Lead	0.00002	mg/L	J	0.0003	0.00001	E200.8	03/27/18 15:21 / sld			ICPMS205-H_180327A	102	R133388
Zinc	0.0037	mg/L	J	0.008	0.0001	E200.8	03/27/18 15:21 / sld			ICPMS205-H_180327A	102	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.004	mg/L		0.001	0.00002	E200.8	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	103	40907
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	103	40907
Calcium	37	mg/L		1	0.01	E200.7	03/27/18 13:52 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	70	40907
Copper	0.0008	mg/L	J	0.001	0.0003	E200.8	03/26/18 22:18 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	146	40907
Lead	0.00018	mg/L	J	0.0003	0.00003	E200.8	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	103	40907
Magnesium	8	mg/L		1	0.09	E200.7	03/27/18 13:52 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	70	40907
Potassium	2	mg/L		1	0.05	E200.7	03/27/18 13:52 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	70	40907
Sodium	7	mg/L		1	0.02	E200.7	03/27/18 13:52 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	70	40907
Zinc	0.002	mg/L	J	0.008	0.002	E200.8	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	103	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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-34
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-006
Collection Date: 03/19/18 15:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	31	mg/L		1	0.3	A2540 D	03/23/18 15:05 / km			124 (14410200)_180323A	58	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	0.7	A2320 B	03/26/18 13:12 / km			PHSC_101-H_180326A	35	R133328
Bicarbonate as HCO3	180	mg/L		4	0.7	A2320 B	03/26/18 13:12 / km			PHSC_101-H_180326A	35	R133328
Chloride	17	mg/L		1	0.003	E300.0	03/26/18 14:21 / SR			IC METROHM_180326A	14	R133379
Sulfate	80	mg/L		1	0.01	E300.0	03/26/18 14:21 / SR			IC METROHM_180326A	14	R133379
Hardness as CaCO3	222	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	4	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.02	0.007	E353.2	03/26/18 10:13 / cm			FIA203-HE_180326A	65	R133339
Nitrogen, Total	0.51	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:35 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	34	40918
Phosphorus, Total as P	0.066	mg/L		0.003	0.0006	E365.1	03/27/18 13:46 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	35	40926
METALS, DISSOLVED												
Arsenic	0.010	mg/L		0.001	0.00002	E200.8	03/27/18 15:25 / sld			ICPMS205-H_180327A	104	R133388
Cadmium	0.00015	mg/L		0.00003	0.00002	E200.8	03/27/18 15:25 / sld			ICPMS205-H_180327A	104	R133388
Copper	0.009	mg/L		0.001	0.00004	E200.8	03/26/18 22:20 / sld			ICPMS205-H_180326C	147	R133370
Lead	0.00020	mg/L	J	0.0003	0.00001	E200.8	03/27/18 15:25 / sld			ICPMS205-H_180327A	104	R133388
Zinc	0.010	mg/L		0.008	0.0001	E200.8	03/27/18 15:25 / sld			ICPMS205-H_180327A	104	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.016	mg/L		0.001	0.00002	E200.8	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	105	40907
Cadmium	0.00023	mg/L		0.00003	0.00002	E200.8	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	105	40907
Calcium	65	mg/L		1	0.01	E200.7	03/27/18 13:56 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	71	40907
Copper	0.054	mg/L		0.001	0.0003	E200.8	03/26/18 22:22 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	148	40907
Lead	0.0073	mg/L		0.0003	0.00003	E200.8	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	105	40907
Magnesium	15	mg/L		1	0.09	E200.7	03/27/18 13:56 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	71	40907
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 13:56 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	71	40907
Sodium	19	mg/L		1	0.02	E200.7	03/27/18 13:56 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	71	40907
Zinc	0.048	mg/L		0.008	0.002	E200.8	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	105	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-007
Collection Date: 03/19/18 16:45
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	31	mg/L		1	0.3	A2540 D	03/23/18 15:05 / km			124 (14410200)_180323A	59	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	0.7	A2320 B	03/26/18 13:18 / km			PHSC_101-H_180326A	37	R133328
Bicarbonate as HCO3	170	mg/L		4	0.7	A2320 B	03/26/18 13:18 / km			PHSC_101-H_180326A	37	R133328
Chloride	17	mg/L		1	0.003	E300.0	03/26/18 14:35 / SR			IC METROHM_180326A	15	R133379
Sulfate	84	mg/L		1	0.01	E300.0	03/26/18 14:35 / SR			IC METROHM_180326A	15	R133379
Hardness as CaCO3	215	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	5	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.20	mg/L		0.02	0.007	E353.2	03/26/18 10:16 / cm			FIA203-HE_180326A	68	R133339
Nitrogen, Total	0.50	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:36 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	35	40918
Phosphorus, Total as P	0.048	mg/L		0.003	0.0006	E365.1	03/27/18 13:47 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	36	40926
METALS, DISSOLVED												
Arsenic	0.010	mg/L		0.001	0.00002	E200.8	03/27/18 15:43 / sld			ICPMS205-H_180327A	112	R133388
Cadmium	0.00006	mg/L		0.00003	0.00002	E200.8	03/27/18 15:43 / sld			ICPMS205-H_180327A	112	R133388
Copper	0.008	mg/L		0.001	0.00004	E200.8	03/26/18 22:24 / sld			ICPMS205-H_180326C	149	R133370
Lead	0.00019	mg/L	J	0.0003	0.00001	E200.8	03/27/18 15:43 / sld			ICPMS205-H_180327A	112	R133388
Zinc	0.010	mg/L		0.008	0.0001	E200.8	03/27/18 15:43 / sld			ICPMS205-H_180327A	112	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.015	mg/L		0.001	0.00002	E200.8	03/27/18 15:45 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	113	40907
Cadmium	0.00022	mg/L		0.00003	0.00002	E200.8	03/27/18 15:45 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	113	40907
Calcium	63	mg/L		1	0.01	E200.7	03/27/18 14:00 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	72	40907
Copper	0.045	mg/L		0.001	0.0003	E200.8	03/26/18 22:27 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	150	40907
Lead	0.0067	mg/L		0.0003	0.00003	E200.8	03/27/18 15:45 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	113	40907
Magnesium	14	mg/L		1	0.09	E200.7	03/27/18 14:00 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	72	40907
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 14:00 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	72	40907
Sodium	18	mg/L		1	0.02	E200.7	03/27/18 14:00 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	72	40907
Zinc	0.042	mg/L		0.008	0.002	E200.8	03/27/18 15:45 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	113	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-008
Collection Date: 03/19/18 17:45
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	19	mg/L		1	0.3	A2540 D	03/23/18 15:06 / km			124 (14410200)_180323A	60	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	0.7	A2320 B	03/26/18 13:23 / km			PHSC_101-H_180326A	39	R133328
Bicarbonate as HCO3	170	mg/L		4	0.7	A2320 B	03/26/18 13:23 / km			PHSC_101-H_180326A	39	R133328
Chloride	20	mg/L		1	0.003	E300.0	03/26/18 14:50 / SR			IC METROHM_180326A	16	R133379
Sulfate	99	mg/L		1	0.01	E300.0	03/26/18 14:50 / SR			IC METROHM_180326A	16	R133379
Hardness as CaCO3	232	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	6	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.14	mg/L		0.02	0.007	E353.2	03/26/18 10:18 / cm			FIA203-HE_180326A	69	R133339
Nitrogen, Total	0.41	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:37 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	36	40918
Phosphorus, Total as P	0.032	mg/L		0.003	0.0006	E365.1	03/27/18 13:48 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	37	40926
METALS, DISSOLVED												
Arsenic	0.011	mg/L		0.001	0.00002	E200.8	03/27/18 15:47 / sld			ICPMS205-H_180327A	114	R133388
Cadmium	0.00005	mg/L		0.00003	0.00002	E200.8	03/27/18 15:47 / sld			ICPMS205-H_180327A	114	R133388
Copper	0.006	mg/L		0.001	0.00004	E200.8	03/26/18 22:29 / sld			ICPMS205-H_180326C	151	R133370
Lead	0.00017	mg/L	J	0.0003	0.00001	E200.8	03/27/18 15:47 / sld			ICPMS205-H_180327A	114	R133388
Zinc	0.008	mg/L		0.008	0.0001	E200.8	03/27/18 15:47 / sld			ICPMS205-H_180327A	114	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.014	mg/L		0.001	0.00002	E200.8	03/27/18 15:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	115	40907
Cadmium	0.00016	mg/L		0.00003	0.00002	E200.8	03/27/18 15:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	115	40907
Calcium	67	mg/L		1	0.01	E200.7	03/27/18 14:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	83	40907
Copper	0.027	mg/L		0.001	0.0003	E200.8	03/26/18 22:31 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	152	40907
Lead	0.0033	mg/L		0.0003	0.00003	E200.8	03/27/18 15:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	115	40907
Magnesium	15	mg/L		1	0.09	E200.7	03/27/18 14:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	83	40907
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 14:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	83	40907
Sodium	19	mg/L		1	0.02	E200.7	03/27/18 14:41 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	83	40907
Zinc	0.028	mg/L		0.008	0.002	E200.8	03/27/18 15:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	115	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-009
Collection Date: 03/20/18 08:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	12	mg/L		1	0.3	A2540 D	03/23/18 15:06 / km			124 (14410200)_180323A	61	TSS180323A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	0.7	A2320 B	03/26/18 13:29 / km			PHSC_101-H_180326A	41	R133328
Bicarbonate as HCO3	170	mg/L		4	0.7	A2320 B	03/26/18 13:29 / km			PHSC_101-H_180326A	41	R133328
Chloride	19	mg/L		1	0.003	E300.0	03/26/18 15:04 / SR			IC METROHM_180326A	17	R133379
Sulfate	100	mg/L		1	0.01	E300.0	03/26/18 15:04 / SR			IC METROHM_180326A	17	R133379
Hardness as CaCO3	226	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	7	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.23	mg/L		0.02	0.007	E353.2	03/26/18 10:19 / cm			FIA203-HE_180326A	70	R133339
Nitrogen, Total	0.45	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:38 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	37	40918
Phosphorus, Total as P	0.027	mg/L		0.003	0.0006	E365.1	03/27/18 13:49 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	38	40926
METALS, DISSOLVED												
Arsenic	0.009	mg/L		0.001	0.00002	E200.8	03/27/18 15:52 / sld			ICPMS205-H_180327A	116	R133388
Cadmium	0.00005	mg/L		0.00003	0.00002	E200.8	03/27/18 15:52 / sld			ICPMS205-H_180327A	116	R133388
Copper	0.005	mg/L		0.001	0.00004	E200.8	03/26/18 22:42 / sld			ICPMS205-H_180326C	157	R133370
Lead	0.00013	mg/L	J	0.0003	0.00001	E200.8	03/27/18 15:52 / sld			ICPMS205-H_180327A	116	R133388
Zinc	0.014	mg/L		0.008	0.0001	E200.8	03/27/18 15:52 / sld			ICPMS205-H_180327A	116	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.012	mg/L		0.001	0.00002	E200.8	03/27/18 15:54 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	117	40907
Cadmium	0.00016	mg/L		0.00003	0.00002	E200.8	03/27/18 15:54 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	117	40907
Calcium	66	mg/L		1	0.01	E200.7	03/27/18 14:45 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	84	40907
Copper	0.021	mg/L		0.001	0.0003	E200.8	03/26/18 22:44 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	158	40907
Lead	0.0023	mg/L		0.0003	0.00003	E200.8	03/27/18 15:54 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	117	40907
Magnesium	15	mg/L		1	0.09	E200.7	03/27/18 14:45 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	84	40907
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 14:45 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	84	40907
Sodium	18	mg/L		1	0.02	E200.7	03/27/18 14:45 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	84	40907
Zinc	0.028	mg/L		0.008	0.002	E200.8	03/27/18 15:54 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	117	40907

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-03A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-010
Collection Date: 03/20/18 09:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	5	mg/L	D	2	0.3	A2540 D	03/26/18 11:46 / km			124 (14410200)_180326A	27	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	0.7	A2320 B	03/26/18 13:35 / km			PHSC_101-H_180326A	43	R133328
Bicarbonate as HCO3	150	mg/L		4	0.7	A2320 B	03/26/18 13:35 / km			PHSC_101-H_180326A	43	R133328
Chloride	24	mg/L		1	0.003	E300.0	03/26/18 16:32 / SR			IC METROHM_180326A	22	R133379
Sulfate	88	mg/L		1	0.01	E300.0	03/26/18 16:32 / SR			IC METROHM_180326A	22	R133379
Hardness as CaCO3	203	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	8	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.18	mg/L		0.02	0.007	E353.2	03/26/18 10:20 / cm			FIA203-HE_180326A	71	R133339
Nitrogen, Total	0.38	mg/L		0.05	0.01	A4500 N-C	03/27/18 09:40 / cm	03/27/18 08:25	A4500 N-	FIA203-HE_180327A	38	40918
Phosphorus, Total as P	0.020	mg/L		0.003	0.0006	E365.1	03/27/18 13:50 / cm	03/27/18 12:39	E365.1	FIA202-HE_180327A	39	40926
METALS, DISSOLVED												
Arsenic	0.008	mg/L		0.001	0.00002	E200.8	03/27/18 15:56 / sld			ICPMS205-H_180327A	118	R133388
Cadmium	0.00007	mg/L		0.00003	0.00002	E200.8	03/27/18 15:56 / sld			ICPMS205-H_180327A	118	R133388
Copper	0.005	mg/L		0.001	0.00004	E200.8	03/26/18 22:47 / sld			ICPMS205-H_180326C	159	R133370
Lead	0.00013	mg/L	J	0.0003	0.00001	E200.8	03/27/18 15:56 / sld			ICPMS205-H_180327A	118	R133388
Zinc	0.015	mg/L		0.008	0.0001	E200.8	03/27/18 15:56 / sld			ICPMS205-H_180327A	118	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.009	mg/L		0.001	0.00002	E200.8	03/27/18 15:58 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	119	40907
Cadmium	0.00011	mg/L		0.00003	0.00002	E200.8	03/27/18 15:58 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	119	40907
Calcium	59	mg/L		1	0.01	E200.7	03/27/18 14:49 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	85	40907
Copper	0.009	mg/L		0.001	0.0003	E200.8	03/27/18 15:58 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	119	40907
Lead	0.0009	mg/L		0.0003	0.00003	E200.8	03/27/18 15:58 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	119	40907
Magnesium	13	mg/L		1	0.09	E200.7	03/27/18 14:49 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	85	40907
Potassium	4	mg/L		1	0.05	E200.7	03/27/18 14:49 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	85	40907
Sodium	20	mg/L		1	0.02	E200.7	03/27/18 14:49 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	85	40907
Zinc	0.022	mg/L		0.008	0.002	E200.8	03/27/18 15:58 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	119	40907

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 WSC-SBC
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-011
Collection Date: 03/20/18 10:15
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1	0.3	A2540 D	03/26/18 11:46 / km			124 (14410200)_180326A	29	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	2	mg/L	J	4	0.7	A2320 B	03/26/18 13:40 / km			PHSC_101-H_180326A	45	R133328
Bicarbonate as HCO3	2	mg/L	J	4	0.7	A2320 B	03/26/18 13:40 / km			PHSC_101-H_180326A	45	R133328
Chloride	0.007	mg/L	J	1	0.003	E300.0	03/26/18 16:46 / SR			IC METROHM_180326A	23	R133379
Sulfate	ND	mg/L		1	0.01	E300.0	03/26/18 16:46 / SR			IC METROHM_180326A	23	R133379
Hardness as CaCO3	1	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	9	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.007	E353.2	03/26/18 10:21 / cm			FIA203-HE_180326A	72	R133339
Nitrogen, Total	ND	mg/L		0.05	0.01	A4500 N-C	03/27/18 10:21 / cm	03/27/18 08:27	A4500 N-	FIA203-HE_180327A	69	40919
Phosphorus, Total as P	0.0027	mg/L	J	0.003	0.0006	E365.1	03/27/18 13:55 / cm	03/27/18 12:42	E365.1	FIA202-HE_180327A	44	40927
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.001	0.00002	E200.8	03/27/18 16:09 / sld			ICPMS205-H_180327A	124	R133388
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/27/18 16:09 / sld			ICPMS205-H_180327A	124	R133388
Copper	ND	mg/L		0.001	0.00004	E200.8	03/26/18 22:56 / sld			ICPMS205-H_180326C	163	R133370
Lead	ND	mg/L		0.0003	0.00001	E200.8	03/27/18 16:09 / sld			ICPMS205-H_180327A	124	R133388
Zinc	0.0068	mg/L	J	0.008	0.0001	E200.8	03/27/18 16:09 / sld			ICPMS205-H_180327A	124	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	ND	mg/L		0.001	0.00002	E200.8	03/27/18 16:12 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	125	40907
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/27/18 16:12 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	125	40907
Calcium	0.54	mg/L	J	1	0.01	E200.7	03/27/18 14:53 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	86	40907
Copper	ND	mg/L		0.001	0.0003	E200.8	03/26/18 22:58 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	164	40907
Lead	ND	mg/L		0.0003	0.00003	E200.8	03/27/18 16:12 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	125	40907
Magnesium	0.024	mg/L	J	1	0.009	E200.7	03/27/18 14:53 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	86	40907
Potassium	ND	mg/L		1	0.05	E200.7	03/27/18 14:53 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	86	40907
Sodium	ND	mg/L		1	0.02	E200.7	03/27/18 14:53 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	86	40907
Zinc	ND	mg/L		0.008	0.002	E200.8	03/27/18 16:12 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	125	40907

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: WSC-SBC
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-012
Collection Date: 03/20/18 10:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	03/26/18 11:46 / km			124 (14410200)_180326A	30	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	130	mg/L		4	0.7	A2320 B	03/26/18 13:46 / km			PHSC_101-H_180326A	47	R133328
Bicarbonate as HCO3	160	mg/L		4	0.7	A2320 B	03/26/18 13:46 / km			PHSC_101-H_180326A	47	R133328
Chloride	2	mg/L		1	0.003	E300.0	03/26/18 17:01 / SR			IC METROHM_180326A	24	R133379
Sulfate	39	mg/L		1	0.01	E300.0	03/26/18 17:01 / SR			IC METROHM_180326A	24	R133379
Hardness as CaCO3	172	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	10	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.02	0.007	E353.2	03/26/18 10:22 / cm			FIA203-HE_180326A	73	R133339
Nitrogen, Total	0.12	mg/L		0.05	0.01	A4500 N-C	03/27/18 10:25 / cm	03/27/18 08:27	A4500 N-	FIA203-HE_180327A	72	40919
Phosphorus, Total as P	0.0015	mg/L	J	0.003	0.0006	E365.1	03/27/18 13:58 / cm	03/27/18 12:42	E365.1	FIA202-HE_180327A	47	40927
METALS, DISSOLVED												
Arsenic	0.004	mg/L		0.001	0.00002	E200.8	03/27/18 16:14 / sld			ICPMS205-H_180327A	126	R133388
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/27/18 16:14 / sld			ICPMS205-H_180327A	126	R133388
Copper	0.002	mg/L		0.001	0.00004	E200.8	03/26/18 23:13 / sld			ICPMS205-H_180326C	171	R133370
Lead	0.00003	mg/L	J	0.0003	0.00001	E200.8	03/27/18 16:14 / sld			ICPMS205-H_180327A	126	R133388
Zinc	0.0033	mg/L	J	0.008	0.0001	E200.8	03/27/18 16:14 / sld			ICPMS205-H_180327A	126	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.004	mg/L		0.001	0.00002	E200.8	03/27/18 16:16 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	127	40907
Cadmium	0.00004	mg/L		0.00003	0.00002	E200.8	03/27/18 16:16 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	127	40907
Calcium	51	mg/L		1	0.01	E200.7	03/27/18 15:12 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	91	40907
Copper	0.004	mg/L		0.001	0.0003	E200.8	03/26/18 23:16 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	172	40907
Lead	0.00020	mg/L	J	0.0003	0.00003	E200.8	03/27/18 16:16 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	127	40907
Magnesium	11	mg/L		1	0.09	E200.7	03/27/18 15:12 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	91	40907
Potassium	1	mg/L		1	0.05	E200.7	03/27/18 15:12 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	91	40907
Sodium	4	mg/L		1	0.02	E200.7	03/27/18 15:12 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	91	40907
Zinc	0.003	mg/L	J	0.008	0.002	E200.8	03/27/18 16:16 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	127	40907

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: WSC-SBC Duplicate
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-013
Collection Date: 03/20/18 10:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	03/26/18 11:58 / km			124 (14410200)_180326A	31	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	130	mg/L		4	0.7	A2320 B	03/26/18 13:51 / km			PHSC_101-H_180326A	49	R133328
Bicarbonate as HCO3	160	mg/L		4	0.7	A2320 B	03/26/18 13:51 / km			PHSC_101-H_180326A	49	R133328
Chloride	2	mg/L		1	0.003	E300.0	03/26/18 17:16 / SR			IC METROHM_180326A	25	R133379
Sulfate	39	mg/L		1	0.01	E300.0	03/26/18 17:16 / SR			IC METROHM_180326A	25	R133379
Hardness as CaCO3	170	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	11	R133415
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	03/26/18 14:03 / cm			FIA203-HE_180326B	11	R133359
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.02	0.007	E353.2	03/26/18 10:23 / cm			FIA203-HE_180326A	74	R133339
Nitrogen, Total	0.12	mg/L		0.05	0.01	A4500 N-C	03/27/18 10:26 / cm	03/27/18 08:27	A4500 N-	FIA203-HE_180327A	73	40919
Phosphorus, Total as P	0.005	mg/L		0.003	0.0006	E365.1	03/27/18 13:59 / cm	03/27/18 12:42	E365.1	FIA202-HE_180327A	48	40927
METALS, DISSOLVED												
Arsenic	0.004	mg/L		0.001	0.00002	E200.8	03/27/18 16:18 / sld			ICPMS205-H_180327A	128	R133388
Cadmium	0.00002	mg/L	J	0.00003	0.00002	E200.8	03/27/18 16:18 / sld			ICPMS205-H_180327A	128	R133388
Copper	0.002	mg/L		0.001	0.00004	E200.8	03/26/18 23:18 / sld			ICPMS205-H_180326C	173	R133370
Lead	0.00002	mg/L	J	0.0003	0.00001	E200.8	03/27/18 16:18 / sld			ICPMS205-H_180327A	128	R133388
Zinc	0.0036	mg/L	J	0.008	0.0001	E200.8	03/27/18 16:18 / sld			ICPMS205-H_180327A	128	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.004	mg/L		0.001	0.00002	E200.8	03/27/18 16:21 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	129	40907
Cadmium	0.00004	mg/L		0.00003	0.00002	E200.8	03/27/18 16:21 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	129	40907
Calcium	51	mg/L		1	0.01	E200.7	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	94	40907
Copper	0.003	mg/L		0.001	0.0003	E200.8	03/26/18 23:20 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	174	40907
Lead	0.00022	mg/L	J	0.0003	0.00003	E200.8	03/27/18 16:21 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	129	40907
Magnesium	11	mg/L		1	0.09	E200.7	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	94	40907
Potassium	1	mg/L		1	0.05	E200.7	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	94	40907
Sodium	4	mg/L		1	0.02	E200.7	03/27/18 15:23 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	94	40907
Zinc	0.003	mg/L	J	0.008	0.002	E200.8	03/27/18 16:21 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	129	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-014
Collection Date: 03/20/18 11:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	3	mg/L		1	0.3	A2540 D	03/26/18 11:58 / km			124 (14410200)_180326A	32	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	0.7	A2320 B	03/26/18 14:49 / km			PHSC_101-H_180326A	55	R133328
Bicarbonate as HCO3	140	mg/L		4	0.7	A2320 B	03/26/18 14:49 / km			PHSC_101-H_180326A	55	R133328
Chloride	32	mg/L		1	0.003	E300.0	03/26/18 17:30 / SR			IC METROHM_180326A	26	R133379
Sulfate	105	mg/L		1	0.01	E300.0	03/26/18 17:30 / SR			IC METROHM_180326A	26	R133379
Hardness as CaCO3	217	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	12	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.25	mg/L		0.02	0.007	E353.2	03/26/18 10:25 / cm			FIA203-HE_180326A	75	R133339
Nitrogen, Total	0.55	mg/L		0.05	0.01	A4500 N-C	03/27/18 10:27 / cm	03/27/18 08:27	A4500 N-	FIA203-HE_180327A	74	40919
Phosphorus, Total as P	0.028	mg/L		0.003	0.0006	E365.1	03/27/18 14:00 / cm	03/27/18 12:42	E365.1	FIA202-HE_180327A	49	40927
METALS, DISSOLVED												
Arsenic	0.010	mg/L		0.001	0.00002	E200.8	03/27/18 16:23 / sld			ICPMS205-H_180327A	130	R133388
Cadmium	0.00010	mg/L		0.00003	0.00002	E200.8	03/27/18 16:23 / sld			ICPMS205-H_180327A	130	R133388
Copper	0.005	mg/L		0.001	0.00004	E200.8	03/26/18 23:22 / sld			ICPMS205-H_180326C	175	R133370
Lead	0.00016	mg/L	J	0.0003	0.00001	E200.8	03/27/18 16:23 / sld			ICPMS205-H_180327A	130	R133388
Zinc	0.021	mg/L		0.008	0.0001	E200.8	03/27/18 16:23 / sld			ICPMS205-H_180327A	130	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.011	mg/L		0.001	0.00002	E200.8	03/27/18 16:25 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	131	40907
Cadmium	0.00015	mg/L		0.00003	0.00002	E200.8	03/27/18 16:25 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	131	40907
Calcium	63	mg/L		1	0.01	E200.7	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	95	40907
Copper	0.007	mg/L		0.001	0.0003	E200.8	03/26/18 23:25 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	176	40907
Lead	0.0007	mg/L		0.0003	0.00003	E200.8	03/27/18 16:25 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	131	40907
Magnesium	14	mg/L		1	0.09	E200.7	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	95	40907
Potassium	5	mg/L		1	0.05	E200.7	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	95	40907
Sodium	25	mg/L		1	0.02	E200.7	03/27/18 15:27 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	95	40907
Zinc	0.028	mg/L		0.008	0.002	E200.8	03/27/18 16:25 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	131	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-015
Collection Date: 03/20/18 12:15
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	5	mg/L		1	0.3	A2540 D	03/26/18 11:59 / km			124 (14410200)_180326A	33	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	110	mg/L		4	0.7	A2320 B	03/26/18 15:00 / km			PHSC_101-H_180326A	59	R133328
Bicarbonate as HCO3	130	mg/L		4	0.7	A2320 B	03/26/18 15:00 / km			PHSC_101-H_180326A	59	R133328
Chloride	6	mg/L		1	0.003	E300.0	03/26/18 17:45 / SR			IC METROHM_180326A	27	R133379
Sulfate	123	mg/L		1	0.01	E300.0	03/26/18 17:45 / SR			IC METROHM_180326A	27	R133379
Hardness as CaCO3	222	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	13	R133415
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	03/26/18 14:42 / cm			FIA203-HE_180326B	44	R133359
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.007	E353.2	03/26/18 10:26 / cm			FIA203-HE_180326A	76	R133339
Nitrogen, Total	0.18	mg/L		0.05	0.01	A4500 N-C	03/27/18 10:28 / cm	03/27/18 08:27	A4500 N-	FIA203-HE_180327A	75	40919
Phosphorus, Total as P	0.019	mg/L		0.003	0.0006	E365.1	03/27/18 14:01 / cm	03/27/18 12:42	E365.1	FIA202-HE_180327A	50	40927
METALS, DISSOLVED												
Arsenic	0.017	mg/L		0.001	0.00002	E200.8	03/27/18 16:41 / sld			ICPMS205-H_180327A	138	R133388
Cadmium	ND	mg/L		0.00003	0.00002	E200.8	03/27/18 16:41 / sld			ICPMS205-H_180327A	138	R133388
Copper	0.002	mg/L		0.001	0.00004	E200.8	03/26/18 23:27 / sld			ICPMS205-H_180326C	177	R133370
Lead	0.00015	mg/L	J	0.0003	0.00001	E200.8	03/27/18 16:41 / sld			ICPMS205-H_180327A	138	R133388
Zinc	0.0040	mg/L	J	0.008	0.0001	E200.8	03/27/18 16:41 / sld			ICPMS205-H_180327A	138	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.019	mg/L		0.001	0.00002	E200.8	03/27/18 16:43 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	139	40907
Cadmium	0.00005	mg/L		0.00003	0.00002	E200.8	03/27/18 16:43 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	139	40907
Calcium	65	mg/L		1	0.01	E200.7	03/27/18 15:30 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	96	40907
Copper	0.004	mg/L		0.001	0.0003	E200.8	03/26/18 23:29 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	178	40907
Lead	0.0009	mg/L		0.0003	0.00003	E200.8	03/27/18 16:43 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	139	40907
Magnesium	15	mg/L		1	0.09	E200.7	03/27/18 15:30 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	96	40907
Potassium	2	mg/L		1	0.05	E200.7	03/27/18 15:30 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	96	40907
Sodium	12	mg/L		1	0.02	E200.7	03/27/18 15:30 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	96	40907
Zinc	0.007	mg/L	J	0.008	0.002	E200.8	03/27/18 16:43 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	139	40907

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SBC-P2
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-016
Collection Date: 03/20/18 12:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	03/26/18 11:59 / km			124 (14410200)_180326A	34	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	0.7	A2320 B	03/26/18 15:06 / km			PHSC_101-H_180326A	61	R133328
Bicarbonate as HCO3	150	mg/L		4	0.7	A2320 B	03/26/18 15:06 / km			PHSC_101-H_180326A	61	R133328
Chloride	40	mg/L		1	0.003	E300.0	03/26/18 17:59 / SR			IC METROHM_180326A	28	R133379
Sulfate	100	mg/L		1	0.01	E300.0	03/26/18 17:59 / SR			IC METROHM_180326A	28	R133379
Hardness as CaCO3	209	mg/L		1	1	A2340 B	03/27/18 15:34 / abc			CALC_180328B	674	R133425
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.34	mg/L		0.02	0.007	E353.2	03/26/18 10:29 / cm			FIA203-HE_180326A	79	R133339
Nitrogen, Total	0.70	mg/L		0.05	0.01	A4500 N-C	03/27/18 10:29 / cm	03/27/18 08:27	A4500 N-	FIA203-HE_180327A	76	40919
Phosphorus, Total as P	0.033	mg/L		0.003	0.0006	E365.1	03/27/18 14:02 / cm	03/27/18 12:42	E365.1	FIA202-HE_180327A	51	40927
METALS, DISSOLVED												
Arsenic	0.009	mg/L		0.001	0.00002	E200.8	03/28/18 14:34 / sld			ICPMS205-H_180328A	35	R133435
Cadmium	0.00017	mg/L		0.00003	0.00002	E200.8	03/28/18 14:34 / sld			ICPMS205-H_180328A	35	R133435
Copper	0.008	mg/L		0.001	0.00004	E200.8	03/26/18 23:31 / sld			ICPMS205-H_180326C	179	R133370
Lead	0.0006	mg/L		0.0003	0.00001	E200.8	03/28/18 14:34 / sld			ICPMS205-H_180328A	35	R133435
Zinc	0.036	mg/L		0.008	0.0001	E200.8	03/28/18 14:34 / sld			ICPMS205-H_180328A	35	R133435
METALS, TOTAL RECOVERABLE												
Arsenic	0.008	mg/L		0.001	0.00002	E200.8	04/02/18 14:34 / sld	03/29/18 07:46	E200.2	ICPMS205-H_180402A	61	40957
Cadmium	0.00013	mg/L		0.00003	0.00002	E200.8	04/02/18 14:34 / sld	03/29/18 07:46	E200.2	ICPMS205-H_180402A	61	40957
Calcium	61	mg/L		1	0.01	E200.7	03/27/18 15:34 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	97	40907
Copper	0.007	mg/L		0.001	0.0003	E200.8	03/26/18 23:34 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	180	40907
Lead	0.0003	mg/L		0.0003	0.00003	E200.8	04/02/18 18:01 / sld	03/29/18 07:46	E200.2	ICPMS205-H_180402B	36	40957
Magnesium	14	mg/L		1	0.09	E200.7	03/27/18 15:34 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	97	40907
Potassium	5	mg/L		1	0.05	E200.7	03/27/18 15:34 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	97	40907
Sodium	28	mg/L		1	0.02	E200.7	03/27/18 15:34 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	97	40907
Zinc	0.029	mg/L		0.008	0.002	E200.8	04/02/18 14:34 / sld	03/29/18 07:46	E200.2	ICPMS205-H_180402A	61	40957

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-017
Collection Date: 03/20/18 13:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	5	mg/L		1	0.3	A2540 D	03/26/18 11:59 / km			124 (14410200)_180326A	35	TSS180326A
INORGANICS												
Alkalinity, Total as CaCO3	98	mg/L		4	0.7	A2320 B	03/26/18 15:11 / km			PHSC_101-H_180326A	63	R133328
Bicarbonate as HCO3	120	mg/L		4	0.7	A2320 B	03/26/18 15:11 / km			PHSC_101-H_180326A	63	R133328
Chloride	2	mg/L		1	0.003	E300.0	03/26/18 18:14 / SR			IC METROHM_180326A	29	R133379
Sulfate	32	mg/L		1	0.01	E300.0	03/26/18 18:14 / SR			IC METROHM_180326A	29	R133379
Hardness as CaCO3	119	mg/L		1	1	A2340 B	03/28/18 09:59 / sld			WATERCALC_180328A	14	R133415
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.02	0.007	E353.2	03/26/18 10:33 / cm			FIA203-HE_180326A	82	R133339
Nitrogen, Total	0.18	mg/L		0.05	0.01	A4500 N-C	03/27/18 10:31 / cm	03/27/18 08:27	A4500 N-	FIA203-HE_180327A	77	40919
Phosphorus, Total as P	0.021	mg/L		0.003	0.0006	E365.1	03/27/18 14:03 / cm	03/27/18 12:42	E365.1	FIA202-HE_180327A	52	40927
METALS, DISSOLVED												
Arsenic	0.018	mg/L		0.001	0.00002	E200.8	03/27/18 16:49 / sld			ICPMS205-H_180327A	142	R133388
Cadmium	0.00003	mg/L	J	0.00003	0.00002	E200.8	03/27/18 16:49 / sld			ICPMS205-H_180327A	142	R133388
Copper	0.002	mg/L		0.001	0.00004	E200.8	03/26/18 23:47 / sld			ICPMS205-H_180326C	186	R133370
Lead	0.00027	mg/L	J	0.0003	0.00001	E200.8	03/27/18 16:49 / sld			ICPMS205-H_180327A	142	R133388
Zinc	0.0066	mg/L	J	0.008	0.0001	E200.8	03/27/18 16:49 / sld			ICPMS205-H_180327A	142	R133388
METALS, TOTAL RECOVERABLE												
Arsenic	0.021	mg/L		0.001	0.00002	E200.8	03/27/18 16:52 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	143	40907
Cadmium	0.00007	mg/L		0.00003	0.00002	E200.8	03/27/18 16:52 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	143	40907
Calcium	34	mg/L		1	0.01	E200.7	03/27/18 15:38 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	98	40907
Copper	0.005	mg/L		0.001	0.0003	E200.8	03/26/18 23:49 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180326C	187	40907
Lead	0.0014	mg/L		0.0003	0.00003	E200.8	03/27/18 16:52 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	143	40907
Magnesium	8	mg/L		1	0.09	E200.7	03/27/18 15:38 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	98	40907
Potassium	1	mg/L		1	0.05	E200.7	03/27/18 15:38 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	98	40907
Sodium	10	mg/L		1	0.02	E200.7	03/27/18 15:38 / sld	03/26/18 07:54	E200.2	ICP2-HE_180327A	98	40907
Zinc	0.010	mg/L		0.008	0.002	E200.8	03/27/18 16:52 / sld	03/26/18 07:54	E200.2	ICPMS205-H_180327A	143	40907

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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-84F
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18030364-018
Collection Date: 03/19/18 11:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE												
Mercury	0.0000294	mg/L		5E-06	6E-07	E245.1	03/27/18 13:17 / PN	03/23/18 13:43	E245.1	HGCV202-H_180327A	114	40903

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-019
Collection Date: 03/19/18 09:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	75.7	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	1	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	61.2	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	1	R133453
3050 EXTRACTABLE METALS												
Arsenic	70	mg/kg-dry		2	2	SW6020	04/04/18 13:30 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	32	40967
Cadmium	4.2	mg/kg-dry		0.2	0.2	SW6020	04/04/18 13:30 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	32	40967
Copper	561	mg/kg-dry		7	7	SW6010B	04/03/18 14:54 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	94	40967
Lead	135	mg/kg-dry		5	0.3	SW6020	04/04/18 13:30 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	32	40967
Zinc	791	mg/kg-dry		5	2	SW6010B	04/03/18 14:54 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	94	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-020
Collection Date: 03/19/18 14:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	58.4	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	3	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	1.8	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	2	R133453
3050 EXTRACTABLE METALS												
Arsenic	23	mg/kg-dry		1	1	SW6020	04/03/18 19:12 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	69	40967
Cadmium	1.5	mg/kg-dry		0.2	0.1	SW6020	04/03/18 19:12 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	69	40967
Copper	67	mg/kg-dry		5	4	SW6010B	04/03/18 14:58 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	95	40967
Lead	209	mg/kg-dry		5	0.2	SW6020	04/03/18 19:12 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	69	40967
Zinc	163	mg/kg-dry		5	1	SW6010B	04/03/18 14:58 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	95	40967

Report Definitions: RL - Analyte 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 Duplicate
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-021
Collection Date: 03/19/18 14:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	65.5	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	4	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	3.0	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	3	R133453
3050 EXTRACTABLE METALS												
Arsenic	23	mg/kg-dry		1	1	SW6020	04/03/18 19:14 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	70	40967
Cadmium	1.5	mg/kg-dry		0.2	0.1	SW6020	04/03/18 19:14 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	70	40967
Copper	40	mg/kg-dry		5	5	SW6010B	04/03/18 15:09 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	98	40967
Lead	54	mg/kg-dry		5	0.2	SW6020	04/03/18 19:14 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	70	40967
Zinc	142	mg/kg-dry		5	1	SW6010B	04/03/18 15:09 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	98	40967

Report Definitions: RL - Analyte 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-34
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-022
Collection Date: 03/19/18 15:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	47.4	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	5	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	3.3	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	4	R133453
3050 EXTRACTABLE METALS												
Arsenic	127	mg/kg-dry		1	0.9	SW6020	04/04/18 13:33 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	33	40967
Cadmium	8.5	mg/kg-dry		0.2	0.1	SW6020	04/04/18 13:33 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	33	40967
Copper	1230	mg/kg-dry		5	3	SW6010B	04/03/18 15:13 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	99	40967
Lead	172	mg/kg-dry		5	0.1	SW6020	04/04/18 13:33 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	33	40967
Zinc	956	mg/kg-dry		5	1	SW6010B	04/03/18 15:13 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	99	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-023
Collection Date: 03/19/18 16:45
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	57.3	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	6	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	39.4	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	5	R133453
3050 EXTRACTABLE METALS												
Arsenic	121	mg/kg-dry		1	1	SW6020	04/04/18 13:35 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	34	40967
Cadmium	4.6	mg/kg-dry		0.2	0.1	SW6020	04/04/18 13:35 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	34	40967
Copper	1160	mg/kg-dry		5	4	SW6010B	04/03/18 15:16 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	100	40967
Lead	171	mg/kg-dry		5	0.2	SW6020	04/04/18 13:35 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	34	40967
Zinc	822	mg/kg-dry		5	1	SW6010B	04/03/18 15:16 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	100	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-024
Collection Date: 03/19/18 17:45
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	64.7	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	7	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	23.4	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	6	R133453
3050 EXTRACTABLE METALS												
Arsenic	178	mg/kg-dry		1	1	SW6020	04/03/18 19:20 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	73	40967
Cadmium	5.8	mg/kg-dry		0.2	0.2	SW6020	04/03/18 19:20 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	73	40967
Copper	1590	mg/kg-dry		5	5	SW6010B	04/03/18 15:20 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	101	40967
Lead	215	mg/kg-dry		5	0.2	SW6020	04/03/18 19:20 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	73	40967
Zinc	1070	mg/kg-dry		5	2	SW6010B	04/03/18 15:20 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	101	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-025
Collection Date: 03/20/18 08:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	65.6	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	8	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	19.8	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	7	R133453
3050 EXTRACTABLE METALS												
Arsenic	200	mg/kg-dry		1	1	SW6020	04/04/18 13:37 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	35	40967
Cadmium	7.4	mg/kg-dry		0.2	0.2	SW6020	04/04/18 13:37 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	35	40967
Copper	1980	mg/kg-dry		5	5	SW6010B	04/03/18 15:24 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	102	40967
Lead	278	mg/kg-dry		5	0.2	SW6020	04/04/18 13:37 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	35	40967
Zinc	1250	mg/kg-dry		5	2	SW6010B	04/03/18 15:24 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	102	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-026
Collection Date: 03/20/18 09:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	68.4	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			)RYING OVEN 2_180405A	9	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	16.0	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	8	R133453
3050 EXTRACTABLE METALS												
Arsenic	139	mg/kg-dry		2	2	SW6020	04/04/18 13:39 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	36	40967
Cadmium	6.1	mg/kg-dry		0.2	0.2	SW6020	04/04/18 13:39 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	36	40967
Copper	1220	mg/kg-dry		6	6	SW6010B	04/03/18 15:27 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	103	40967
Lead	166	mg/kg-dry		5	0.2	SW6020	04/04/18 13:39 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	36	40967
Zinc	1220	mg/kg-dry		5	2	SW6010B	04/03/18 15:27 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	103	40967

Report Definitions: RL - Analyte 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 Duplicate
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-027
Collection Date: 03/20/18 09:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	60.2	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			RYING OVEN 2_180405A	10	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	14.4	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	9	R133453
3050 EXTRACTABLE METALS												
Arsenic	125	mg/kg-dry		1	1	SW6020	04/03/18 19:26 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	76	40967
Cadmium	5.3	mg/kg-dry		0.2	0.1	SW6020	04/03/18 19:26 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	76	40967
Copper	1150	mg/kg-dry		5	4	SW6010B	04/03/18 15:31 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	104	40967
Lead	150	mg/kg-dry		5	0.2	SW6020	04/03/18 19:26 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	76	40967
Zinc	1110	mg/kg-dry		5	1	SW6010B	04/03/18 15:31 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	104	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-028
Collection Date: 03/20/18 10:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	63.0	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			RYING OVEN 2_180405A	12	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	9.0	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	10	R133453
3050 EXTRACTABLE METALS												
Arsenic	85	mg/kg-dry		1	1	SW6020	04/03/18 19:28 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	77	40967
Cadmium	4.3	mg/kg-dry		0.2	0.1	SW6020	04/03/18 19:28 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	77	40967
Copper	862	mg/kg-dry		5	5	SW6010B	04/03/18 15:35 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	105	40967
Lead	106	mg/kg-dry		5	0.2	SW6020	04/03/18 19:28 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	77	40967
Zinc	431	mg/kg-dry		5	1	SW6010B	04/03/18 15:35 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	105	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-029
Collection Date: 03/20/18 12:15
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	59.7	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			RYING OVEN 2_180405A	13	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	1.4	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	11	R133453
3050 EXTRACTABLE METALS												
Arsenic	232	mg/kg-dry		1	1	SW6020	04/03/18 19:39 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	82	40967
Cadmium	5.3	mg/kg-dry		0.2	0.1	SW6020	04/03/18 19:39 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	82	40967
Copper	198	mg/kg-dry		5	4	SW6010B	04/03/18 15:38 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	106	40967
Lead	151	mg/kg-dry		5	0.2	SW6020	04/03/18 19:39 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	82	40967
Zinc	642	mg/kg-dry		5	1	SW6010B	04/03/18 15:38 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	106	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-030
Collection Date: 03/20/18 13:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	80.2	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			RYING OVEN 2_180405A	14	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	33.4	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	12	R133453
3050 EXTRACTABLE METALS												
Arsenic	153	mg/kg-dry		2	2	SW6020	04/03/18 19:41 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	83	40967
Cadmium	7.6	mg/kg-dry		0.3	0.3	SW6020	04/03/18 19:41 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	83	40967
Copper	499	mg/kg-dry		9	9	SW6010B	04/03/18 15:42 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	107	40967
Lead	198	mg/kg-dry		5	0.3	SW6020	04/03/18 19:41 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	83	40967
Zinc	681	mg/kg-dry		5	3	SW6010B	04/03/18 15:42 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	107	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-031
Collection Date: 03/20/18 14:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	67.4	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			RYING OVEN 2_180405A	15	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	10.4	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	13	R133453
3050 EXTRACTABLE METALS												
Arsenic	71	mg/kg-dry		1	1	SW6020	04/03/18 19:44 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	84	40967
Cadmium	2.4	mg/kg-dry		0.2	0.2	SW6020	04/03/18 19:44 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	84	40967
Copper	410	mg/kg-dry		5	5	SW6010B	04/03/18 15:53 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	110	40967
Lead	92	mg/kg-dry		5	0.2	SW6020	04/03/18 19:44 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	84	40967
Zinc	249	mg/kg-dry		5	2	SW6010B	04/03/18 15:53 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	110	40967

Report Definitions: RL - Analyte 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: RTC-1.5
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-032
Collection Date: 03/19/18 15:00
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	63.1	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			RYING OVEN 2_180405A	16	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	1.2	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	14	R133453
3050 EXTRACTABLE METALS												
Arsenic	26	mg/kg-dry		1	1	SW6020	04/04/18 13:41 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	37	40967
Cadmium	1.5	mg/kg-dry		0.2	0.1	SW6020	04/04/18 13:41 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	37	40967
Copper	86	mg/kg-dry		5	5	SW6010B	04/03/18 15:57 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	111	40967
Lead	125	mg/kg-dry		5	0.2	SW6020	04/04/18 13:41 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180404B	37	40967
Zinc	137	mg/kg-dry		5	1	SW6010B	04/03/18 15:57 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	111	40967

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Matrix: Soil

Lab ID: H18030364-033
Collection Date: 03/19/18 11:30
DateReceived: 03/23/18
Report Date: 04/25/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS												
Moisture	69.7	wt%		0.2	0.02	D2974	04/05/18 12:15 / rgk			RYING OVEN 2_180405A	17	R133645
SIEVE ANALYSIS												
No. 230 (63 um), Passed	4.1	wt%-wet		0.1		SSSA 15-2	03/29/18 11:09 / swj			MISC SOILS_180329A	15	R133453
3050 EXTRACTABLE METALS												
Arsenic	147	mg/kg-dry		2	2	SW6020	04/03/18 19:48 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	86	40967
Cadmium	7.2	mg/kg-dry		0.2	0.2	SW6020	04/03/18 19:48 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	86	40967
Copper	436	mg/kg-dry		6	6	SW6010B	04/03/18 16:01 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	112	40967
Lead	261	mg/kg-dry		5	0.2	SW6020	04/03/18 19:48 / sld	03/30/18 07:20	SW3050 B	ICPMS205-H_180403C	86	40967
Zinc	962	mg/kg-dry		5	2	SW6010B	04/03/18 16:01 / sld	03/30/18 07:20	SW3050 B	ICP2-HE_180403B	112	40967

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 180327wa-hg202

Date: *25-Apr-18*

Run ID :Run Order: **HGCV202-H_180327A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **03/27/18 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
Mercury	0.000104	0.00010	0.0001	0	104	90	110				

Associated samples: **H18030364-002C, H18030364-003C, H18030364-004C, H18030364-018A**

Run ID :Run Order: **HGCV202-H_180327A: 106** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E245.1**

Analysis Date: **03/27/18 12:52** 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
Mercury	9.88E-05	0.00010	0.0001	0	99	90	110				

Associated samples: **H18030364-002C, H18030364-003C, H18030364-004C, H18030364-018A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40903

Date: *25-Apr-18*

Run ID :Run Order: **HGCV202-H_180327A: 98** SampType: **Method Blank** Lab ID: **MB-40903** Method: **E245.1**
Analysis Date: **03/27/18 12:27** Units: **mg/L** **Prep Info:** Prep Date: **3/23/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1E-06									

Associated samples: **H18030364-002C, H18030364-003C, H18030364-004C, H18030364-018A**

Run ID :Run Order: **HGCV202-H_180327A: 99** SampType: **Laboratory Control Sample** Lab ID: **LCS-40903** Method: **E245.1**
Analysis Date: **03/27/18 12:30** Units: **mg/L** **Prep Info:** Prep Date: **3/23/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.07E-05	0.00010	0.000075	0	**94**	90	110				

Associated samples: **H18030364-002C, H18030364-003C, H18030364-004C, H18030364-018A**

Run ID :Run Order: **HGCV202-H_180327A: 115** SampType: **Sample Matrix Spike** Lab ID: **H18030364-018AMS** Method: **E245.1**
Analysis Date: **03/27/18 13:20** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000112	0.00010	0.000075	0.00002941	**111**	70	130				

Associated samples: **H18030364-002C, H18030364-003C, H18030364-004C, H18030364-018A**

Run ID :Run Order: **HGCV202-H_180327A: 116** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-018AMSD** Method: **E245.1**
Analysis Date: **03/27/18 13:23** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000122	0.00010	0.000075	0.00002941	**124**	70	130	0.0001124	**8.4**	20	

Associated samples: **H18030364-002C, H18030364-003C, H18030364-004C, H18030364-018A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40907

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180327A: 47** SampType: **Method Blank** Lab ID: **MB-40907** Method: **E200.7**
Analysis Date: **03/27/18 12:25** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.2	0.01									
Magnesium	ND	0.009									
Potassium	ND	0.05									
Sodium	0.04	0.02									

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 48** SampType: **Laboratory Control Sample** Lab ID: **LCS-40907** Method: **E200.7**
Analysis Date: **03/27/18 12:29** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.5	1.0	25	0.1821	101	85	115				
Magnesium	25.2	1.0	25	0	101	85	115				
Potassium	25.8	1.0	25	0	103	85	115				
Sodium	26.1	1.0	25	0.03932	104	85	115				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 63** SampType: **Serial Dilution** Lab ID: **H18030364-001CDIL** Method: **E200.7**
Analysis Date: **03/27/18 13:26** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	44.4	1.0		0		0	0	46.97	5.7	10	
Magnesium	11.0	1.0		0		0	0	11.56	4.7	10	
Potassium	3.02	1.0		0		0	0	3.624	18	10	R
Sodium	9.78	1.0		0		0	0	10.74	9.4	10	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 65** SampType: **Sample Matrix Spike** Lab ID: **H18030364-001CMS3** Method: **E200.7**
Analysis Date: **03/27/18 13:33** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	73.0	1.0	25	46.97	104	70	130				

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40907

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180327A: 65** SampType: **Sample Matrix Spike** Lab ID: **H18030364-001CMS3** Method: **E200.7**

Analysis Date: **03/27/18 13:33** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	37.6	1.0	25	11.56	104	70	130				
Potassium	30.4	1.0	25	3.624	107	70	130				
Sodium	38.0	1.0	25	10.74	109	70	130				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 66** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-001CMSD3** Method: **E200.7**

Analysis Date: **03/27/18 13:37** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	73.0	1.0	25	46.97	104	70	130	73.01	0.1	20	
Magnesium	37.6	1.0	25	11.56	104	70	130	37.6	0.0	20	
Potassium	30.0	1.0	25	3.624	105	70	130	30.38	1.3	20	
Sodium	37.4	1.0	25	10.74	106	70	130	38.01	1.7	20	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 87** SampType: **Serial Dilution** Lab ID: **H18030364-011CDIL** Method: **E200.7**

Analysis Date: **03/27/18 14:56** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.798	1.0		0		0	0	0.5362		10	N
Magnesium	0.0818	1.0		0		0	0	0.02404		10	N
Potassium	ND	1.0		0		0	0	0		10	
Sodium	ND	1.0		0		0	0	0		10	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 89** SampType: **Sample Matrix Spike** Lab ID: **H18030364-011CMS3** Method: **E200.7**

Analysis Date: **03/27/18 15:04** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.0	1.0	25	0.5362	102	70	130				
Magnesium	25.4	1.0	25	0.02404	102	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40907

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180327A: 89** SampType: **Sample Matrix Spike** Lab ID: **H18030364-011CMS3** Method: **E200.7**

Analysis Date: **03/27/18 15:04** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	25.2	1.0	25	0	101	70	130				
Sodium	25.3	1.0	25	0	101	70	130				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 90** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-011CMSD3** Method: **E200.7**

Analysis Date: **03/27/18 15:08** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.1	1.0	25	0.5362	102	70	130	25.97	0.6	20	
Magnesium	25.6	1.0	25	0.02404	102	70	130	25.43	0.5	20	
Potassium	25.6	1.0	25	0	102	70	130	25.2	1.6	20	
Sodium	25.7	1.0	25	0	103	70	130	25.31	1.4	20	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40907

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180326C: 129** SampType: **Method Blank** Lab ID: **MB-40907** Method: **E200.8**
Analysis Date: **03/26/18 21:40** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2E-05	2E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0003									
Lead	ND	3E-05									
Zinc	ND	0.002									

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180326C: 137** SampType: **Sample Matrix Spike** Lab ID: **H18030364-001CMS3** Method: **E200.8**
Analysis Date: **03/26/18 21:58** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.613	0.0010	0.5	0.01102	**120**	70	130				
Cadmium	0.255	0.0010	0.25	0.0001425	**102**	70	130				
Copper	0.483	0.0050	0.5	0.02372	**92**	70	130				
Lead	0.514	0.0010	0.5	0.003374	**102**	70	130				
Zinc	0.553	0.010	0.5	0.03347	**104**	70	130				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180326C: 138** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-001CMSD3** Method: **E200.8**
Analysis Date: **03/26/18 22:00** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.617	0.0010	0.5	0.01102	**121**	70	130	0.6128	**0.7**	20	
Cadmium	0.260	0.0010	0.25	0.0001425	**104**	70	130	0.2553	**1.8**	20	
Copper	0.492	0.0050	0.5	0.02372	**94**	70	130	0.483	**1.7**	20	
Lead	0.526	0.0010	0.5	0.003374	**105**	70	130	0.5142	**2.3**	20	
Zinc	0.559	0.010	0.5	0.03347	**105**	70	130	0.5527	**1.2**	20	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40907

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180326C: 165** SampType: **Sample Matrix Spike** Lab ID: **H18030364-011CMS3** Method: **E200.8**

Analysis Date: **03/26/18 23:00** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.645	0.0010	0.5	0.00002484	129	70	130				
Cadmium	0.268	0.0010	0.25	0	107	70	130				
Copper	0.474	0.0050	0.5	0	95	70	130				
Lead	0.529	0.0010	0.5	0	106	70	130				
Zinc	0.551	0.010	0.5	0	110	70	130				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180326C: 166** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-011CMSD3** Method: **E200.8**

Analysis Date: **03/26/18 23:02** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.642	0.0010	0.5	0.00002484	128	70	130	0.6452	0.4	20	
Cadmium	0.268	0.0010	0.25	0	107	70	130	0.268	0.2	20	
Copper	0.474	0.0050	0.5	0	95	70	130	0.4745	0.1	20	
Lead	0.528	0.0010	0.5	0	106	70	130	0.529	0.2	20	
Zinc	0.550	0.010	0.5	0	110	70	130	0.5509	0.1	20	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 84** SampType: **Method Blank** Lab ID: **MB-40907** Method: **E200.8**

Analysis Date: **03/27/18 14:41** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	2E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0003									
Lead	ND	3E-05									
Zinc	ND	0.002									

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40907

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 91** SampType: **Laboratory Control Sample** Lab ID: **LCS-40907** Method: **E200.8**

Analysis Date: **03/27/18 14:56** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.500	0.0010	0.5	0	100	85	115				
Cadmium	0.249	0.0010	0.25	0	100	85	115				
Copper	0.471	0.0050	0.5	0	94	85	115				
Lead	0.499	0.0010	0.5	0	100	85	115				
Zinc	0.473	0.010	0.5	0	95	85	115				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 92** SampType: **Sample Matrix Spike** Lab ID: **H18030364-001CMS3** Method: **E200.8**

Analysis Date: **03/27/18 14:58** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.517	0.0010	0.5	0.009231	102	70	130				
Cadmium	0.249	0.0010	0.25	0.0001353	100	70	130				
Copper	0.487	0.0050	0.5	0.02411	93	70	130				
Lead	0.508	0.0010	0.5	0.003272	101	70	130				
Zinc	0.498	0.010	0.5	0.03055	93	70	130				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 93** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-001CMSD3** Method: **E200.8**

Analysis Date: **03/27/18 15:01** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.522	0.0010	0.5	0.009231	103	70	130	0.5174	1.0	20	
Cadmium	0.250	0.0010	0.25	0.0001353	100	70	130	0.2494	0.1	20	
Copper	0.486	0.0050	0.5	0.02411	92	70	130	0.4873	0.2	20	
Lead	0.515	0.0010	0.5	0.003272	102	70	130	0.5084	1.3	20	
Zinc	0.503	0.010	0.5	0.03055	95	70	130	0.4976	1.1	20	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40907

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 132** SampType: **Sample Matrix Spike** Lab ID: **H18030364-011CMS3** Method: **E200.8**

Analysis Date: **03/27/18 16:27** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.524	0.0010	0.5	0	105	70	130				
Cadmium	0.258	0.0010	0.25	0	103	70	130				
Copper	0.478	0.0050	0.5	0	96	70	130				
Lead	0.518	0.0010	0.5	0	104	70	130				
Zinc	0.489	0.010	0.5	0	98	70	130				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 133** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-011CMSD3** Method: **E200.8**

Analysis Date: **03/27/18 16:29** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.523	0.0010	0.5	0	105	70	130	0.5235	0.1	20	
Cadmium	0.257	0.0010	0.25	0	103	70	130	0.2581	0.5	20	
Copper	0.472	0.0050	0.5	0	94	70	130	0.4781	1.3	20	
Lead	0.516	0.0010	0.5	0	103	70	130	0.518	0.4	20	
Zinc	0.485	0.010	0.5	0	97	70	130	0.4893	0.8	20	

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180328A: 42** SampType: **Method Blank** Lab ID: **MB-40907** Method: **E200.8**

Analysis Date: **03/28/18 14:50** Units: **mg/L** **Prep Info:** Prep Date: **3/26/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	2E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0003									
Lead	ND	3E-05									
Zinc	ND	0.002									

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40918

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180327A: 11** SampType: **Laboratory Control Sample** Lab ID: **LCS-40918** Method: **A4500 N-C**
Analysis Date: **03/27/18 09:07** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	14.9	0.30	14	0.02706	**106**	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A**

Run ID :Run Order: **FIA203-HE_180327A: 12** SampType: **Method Blank** Lab ID: **MB-40918** Method: **A4500 N-C**
Analysis Date: **03/27/18 09:09** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.03	0.01									

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A**

Run ID :Run Order: **FIA203-HE_180327A: 29** SampType: **Sample Matrix Spike** Lab ID: **H18030364-002Ams** Method: **A4500 N-C**
Analysis Date: **03/27/18 09:29** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.928	0.10	1	0	**93**	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A**

Run ID :Run Order: **FIA203-HE_180327A: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-002Amsd** Method: **A4500 N-C**
Analysis Date: **03/27/18 09:30** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.923	0.10	1	0	**92**	90	110	0.9282	**0.5**	20	

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A**

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40919

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180327A: 67** SampType: **Laboratory Control Sample** Lab ID: **LCS-40919** Method: **A4500 N-C**
Analysis Date: **03/27/18 10:19** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	15.0	0.30	14	0.0231	107	90	110				

Associated samples: **H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **FIA203-HE_180327A: 68** SampType: **Method Blank** Lab ID: **MB-40919** Method: **A4500 N-C**
Analysis Date: **03/27/18 10:20** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.02	0.01									

Associated samples: **H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **FIA203-HE_180327A: 70** SampType: **Sample Matrix Spike** Lab ID: **H18030364-011Ams** Method: **A4500 N-C**
Analysis Date: **03/27/18 10:22** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	1.02	0.10	1	0	102	90	110				

Associated samples: **H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **FIA203-HE_180327A: 71** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-011Amsd** Method: **A4500 N-C**
Analysis Date: **03/27/18 10:23** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.994	0.10	1	0	99	90	110	1.022	2.7	20	

Associated samples: **H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40926

Date: *25-Apr-18*

Run ID :Run Order: **FIA202-HE_180327A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-40926** Method: **E365.1**
Analysis Date: **03/27/18 13:22** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.412	0.010	0.4	0	103	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D**

Run ID :Run Order: **FIA202-HE_180327A: 13** SampType: **Method Blank** Lab ID: **MB-40926** Method: **E365.1**
Analysis Date: **03/27/18 13:23** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.0006									

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D**

Run ID :Run Order: **FIA202-HE_180327A: 29** SampType: **Sample Matrix Spike** Lab ID: **H18030364-001Dms** Method: **E365.1**
Analysis Date: **03/27/18 13:39** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.273	0.010	0.2	0.06992	101	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D**

Run ID :Run Order: **FIA202-HE_180327A: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-001Dmsd** Method: **E365.1**
Analysis Date: **03/27/18 13:40** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.276	0.010	0.2	0.06992	103	90	110	0.2726	1.3	20	

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40927

Date: *25-Apr-18*

Run ID :Run Order: **FIA202-HE_180327A: 42** SampType: **Laboratory Control Sample** Lab ID: **LCS-40927** Method: **E365.1**
Analysis Date: **03/27/18 13:53** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.403	0.010	0.4	0	101	90	110				

Associated samples: **H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 43** SampType: **Method Blank** Lab ID: **MB-40927** Method: **E365.1**
Analysis Date: **03/27/18 13:54** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.0006									

Associated samples: **H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 45** SampType: **Sample Matrix Spike** Lab ID: **H18030364-011DMS** Method: **E365.1**
Analysis Date: **03/27/18 13:56** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.185	0.010	0.2	0.00272	91	90	110				

Associated samples: **H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 46** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-011DMSD** Method: **E365.1**
Analysis Date: **03/27/18 13:57** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.182	0.010	0.2	0.00272	90	90	110	0.1853	1.6	20	

Associated samples: **H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 59** SampType: **Sample Matrix Spike** Lab ID: **H18030365-004DMS** Method: **E365.1**
Analysis Date: **03/27/18 14:10** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.323	0.010	0.2	0.1235	100	90	110				

Associated samples: **H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40927

Date: *25-Apr-18*

Run ID :Run Order: **FIA202-HE_180327A: 60** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030365-004DMSD** Method: **E365.1**

Analysis Date: **03/27/18 14:11** Units: **mg/L** **Prep Info:** Prep Date: **3/27/2018** 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	0.317	0.010	0.2	0.1235	**97**	90	110	0.323	**1.8**	20	

Associated samples: **H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40957

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180402A: 33** SampType: **Method Blank** Lab ID: **MB-40957** Method: **E200.8**
Analysis Date: **04/02/18 13:32** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2E-05	2E-05									
Cadmium	ND	2E-05									
Lead	ND	3E-05									
Zinc	ND	0.002									

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402A: 40** SampType: **Laboratory Control Sample** Lab ID: **LCS-40957** Method: **E200.8**
Analysis Date: **04/02/18 13:48** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.520	0.0010	0.5	0.00002332	**104**	85	115				
Cadmium	0.258	0.0010	0.25	0	**103**	85	115				
Lead	0.516	0.0010	0.5	0	**103**	85	115				
Zinc	0.508	0.010	0.5	0	**102**	85	115				

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402A: 47** SampType: **Sample Matrix Spike** Lab ID: **H18030451-001BMS3** Method: **E200.8**
Analysis Date: **04/02/18 14:03** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.806	0.0010	0.5	0.269	**107**	70	130				
Cadmium	0.240	0.0010	0.25	0.000106	**96**	70	130				
Lead	0.518	0.0010	0.5	0.00002822	**104**	70	130				
Zinc	0.484	0.010	0.5	0.00219	**96**	70	130				

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402A: 48** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030451-001BMSD3** Method: **E200.8**
Analysis Date: **04/02/18 14:06** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.796	0.0010	0.5	0.269	**105**	70	130	0.806	**1.3**	20	
Cadmium	0.238	0.0010	0.25	0.000106	**95**	70	130	0.24	**1.0**	20	
Lead	0.514	0.0010	0.5	0.00002822	**103**	70	130	0.518	**0.7**	20	
Zinc	0.475	0.010	0.5	0.00219	**95**	70	130	0.4844	**1.9**	20	

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40957

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180402A: 48** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030451-001BMSD3** Method: **E200.8**
Analysis Date: **04/02/18 14:06** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402B: 21** SampType: **Method Blank** Lab ID: **MB-40957** Method: **E200.8**
Analysis Date: **04/02/18 17:27** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	2E-05									
Cadmium	ND	2E-05									
Lead	ND	3E-05									
Zinc	ND	0.002									

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402B: 30** SampType: **Laboratory Control Sample** Lab ID: **LCS-40957** Method: **E200.8**
Analysis Date: **04/02/18 17:47** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.523	0.0010	0.5	0	105	85	115				
Cadmium	0.260	0.0010	0.25	0	104	85	115				
Lead	0.516	0.0010	0.5	0	103	85	115				
Zinc	0.510	0.010	0.5	0	102	85	115				

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402B: 92** SampType: **Sample Matrix Spike** Lab ID: **H18030445-002FMS3** Method: **E200.8**
Analysis Date: **04/02/18 20:05** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.520	0.0010	0.5	0.00005174	104	70	130				
Cadmium	0.258	0.0010	0.25	0	103	70	130				
Lead	0.517	0.0010	0.5	0	103	70	130				
Zinc	0.504	0.010	0.5	0	101	70	130				

Associated samples: **H18030364-016C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40957

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180402B: 93** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030445-002FMSD3** Method: **E200.8**

Analysis Date: **04/02/18 20:07** Units: **mg/L** **Prep Info:** Prep Date: **3/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.0010	0.5	0.00005174	**103**	70	130	0.5196	**1.3**	20	
Cadmium	0.254	0.0010	0.25	0	**102**	70	130	0.2579	**1.5**	20	
Lead	0.516	0.0010	0.5	0	**103**	70	130	0.5166	**0.1**	20	
Zinc	0.496	0.010	0.5	0	**99**	70	130	0.5045	**1.6**	20	

Associated samples: **H18030364-016C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40967

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180403B: 91** SampType: **Method Blank** Lab ID: **MB-40967** Method: **SW6010B**
Analysis Date: **04/03/18 14:43** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.3									
Zinc	0.2	0.1									

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICP2-HE_180403B: 92** SampType: **Laboratory Fortified Blank** Lab ID: **LFB-40967** Method: **SW6010B**
Analysis Date: **04/03/18 14:47** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	50.9	1.0	50.5	0	**101**	80	120				
Zinc	48.4	1.0	50.5	0.2409	**95**	80	120				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICP2-HE_180403B: 93** SampType: **Laboratory Control Sample** Lab ID: **LCS-40967** Method: **SW6010B**
Analysis Date: **04/03/18 14:50** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	122	1.7	137	0	**89**	76.6	108.8				
Zinc	229	1.0	231	0.2409	**99**	75.3	111.7				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICP2-HE_180403B: 116** SampType: **Serial Dilution** Lab ID: **H18030365-023ADIL** Method: **SW6010B**
Analysis Date: **04/03/18 16:16** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	589	25		0		0	0	607.1	**3.0**	10	
Zinc	1740	7.5		0		0	0	1783	**2.6**	10	

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40967

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180403B: 117** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18030365-023APDS** Method: **SW6010B**

Analysis Date: **04/03/18 16:19** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	1370	5.2	756.6	607.1	**100**	75	125				
Zinc	2490	1.5	756.6	1783	**94**	75	125				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICP2-HE_180403B: 118** SampType: **Sample Matrix Spike** Lab ID: **H18030365-023AMS** Method: **SW6010B**

Analysis Date: **04/03/18 16:23** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	810	5.1	147.2	607.1		75	125				A
Zinc	1980	1.5	147.2	1783		75	125				A

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.

Run ID :Run Order: **ICP2-HE_180403B: 119** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030365-023AMSD** Method: **SW6010B**

Analysis Date: **04/03/18 16:27** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	871	5.1	147.2	607.1		75	125	810.5	**7.2**	20	A
Zinc	2150	1.5	147.2	1783		75	125	1978	**8.4**	20	A

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40967

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180403C: 54** SampType: **Method Blank** Lab ID: **MB-40967** Method: **SW6020**

Analysis Date: **04/03/18 18:39** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.5									
Cadmium	ND	0.05									
Lead	ND	0.07									

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICPMS205-H_180403C: 58** SampType: **Serial Dilution** Lab ID: **H18030365-023ADIL** Method: **SW6020**

Analysis Date: **04/03/18 18:48** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.0	6.9		0		0	0	44.73		10	N
Cadmium	9.84	1.0		0		0	0	9.509	3.4	10	
Lead	233	1.0		0		0	0	227.4	2.4	10	

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICPMS205-H_180403C: 59** SampType: **Laboratory Control Sample** Lab ID: **LCS-40967** Method: **SW6020**

Analysis Date: **04/03/18 18:50** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	166	1.0	196	0	85	71.4	105.1				
Cadmium	96.7	1.0	99	0	98	73.9	106.1				
Lead	105	1.0	105	0	100	74.4	108.6				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICPMS205-H_180403C: 60** SampType: **Laboratory Fortified Blank** Lab ID: **LFB-40967** Method: **SW6020**

Analysis Date: **04/03/18 18:52** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.7	1.0	50.5	0	98	80	120				
Cadmium	25.8	1.0	25.25	0	102	80	120				
Lead	50.7	1.0	50.5	0	100	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40967

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180403C: 60** SampType: **Laboratory Fortified Blank** Lab ID: **LFB-40967** Method: **SW6020**

Analysis Date: **04/03/18 18:52** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

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

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICPMS205-H_180403C: 61** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18030365-023APDS1** Method: **SW6020**

Analysis Date: **04/03/18 18:54** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	116	1.4	73.45	44.73	97	75	125				
Cadmium	83.1	1.0	73.45	9.509	100	75	125				
Lead	304	1.0	73.45	227.4	104	75	125				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICPMS205-H_180403C: 62** SampType: **Sample Matrix Spike** Lab ID: **H18030365-023AMS** Method: **SW6020**

Analysis Date: **04/03/18 18:57** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	196	1.4	147.2	44.73	103	75	125				
Cadmium	86.4	1.0	73.6	9.509	105	75	125				
Lead	410	1.0	147.2	227.4	124	75	125				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.

Run ID :Run Order: **ICPMS205-H_180403C: 63** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030365-023AMSD** Method: **SW6020**

Analysis Date: **04/03/18 18:59** Units: **mg/kg-dry** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	197	1.4	147.2	44.73	103	75	125	196.3	0.2	20	
Cadmium	83.9	1.0	73.6	9.509	101	75	125	86.43	3.0	20	
Lead	406	1.0	147.2	227.4	122	75	125	410	0.9	20	

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 40967

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180404B: 31** SampType: **Method Blank** Lab ID: **MB-40967** Method: **SW6020**

Analysis Date: **04/04/18 13:28** Units: **mg/kg** **Prep Info:** Prep Date: **3/30/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.5									
Cadmium	ND	0.05									
Lead	ND	0.07									

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: c

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180326A: 48** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E353.2**

Analysis Date: **03/26/18 09:53** 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	1.04	0.010	1	0	**104**	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133328

Date: *25-Apr-18*

Run ID :Run Order: **PHSC_101-H_180326A: 7** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **03/26/18 10:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	0.7									

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **PHSC_101-H_180326A: 8** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **03/26/18 10:24** 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	550	4.0	600	2.28	91	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **PHSC_101-H_180326A: 11** SampType: **Sample Duplicate** Lab ID: **H18030350-008ADUP** Method: **A2320 B**

Analysis Date: **03/26/18 11:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	170	4.0		0				164.4	1.8	10	
Bicarbonate as HCO3	200	4.0		0				199.9	1.8	10	

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **PHSC_101-H_180326A: 51** SampType: **Sample Duplicate** Lab ID: **H18030364-013ADUP** Method: **A2320 B**

Analysis Date: **03/26/18 13:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	140	4.0		0				134	1.1	10	
Bicarbonate as HCO3	160	4.0		0				162.9	1.1	10	

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **PHSC_101-H_180326A: 53** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **03/26/18 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	0.7									

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133328

Date: *25-Apr-18*

Run ID :Run Order: **PHSC_101-H_180326A: 53** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **03/26/18 14:02** 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: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **PHSC_101-H_180326A: 54** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **03/26/18 14:08** 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
Alkalinity, Total as CaCO3	570	4.0	600	2.12	95	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **PHSC_101-H_180326A: 57** SampType: **Sample Duplicate** Lab ID: **H18030364-014ADUP** Method: **A2320 B**

Analysis Date: **03/26/18 14:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	120	4.0		0				117	2.0	10	
Bicarbonate as HCO3	140	4.0		0				142.1	2.0	10	

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **PHSC_101-H_180326A: 97** SampType: **Sample Duplicate** Lab ID: **H18030365-016ADUP** Method: **A2320 B**

Analysis Date: **03/26/18 16:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	96	4.0		0				95.05	0.8	10	
Bicarbonate as HCO3	120	4.0		0				115.4	0.8	10	

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133339

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180326A: 49** SampType: **Method Blank** Lab ID: **MBLK** Method: **E353.2**
Analysis Date: **03/26/18 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	0.009	0.007									

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 50** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E353.2**
Analysis Date: **03/26/18 09:55** 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	1.01	0.011	1	0.008701	100	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 56** SampType: **Sample Matrix Spike** Lab ID: **H18030363-001Cms** Method: **E353.2**
Analysis Date: **03/26/18 10:02** 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	1.17	0.011	1	0.1776	100	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 57** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030363-001Cmsd** Method: **E353.2**
Analysis Date: **03/26/18 10:03** 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
Nitrogen, Nitrate+Nitrite as N	1.19	0.011	1	0.1776	101	90	110	1.173	1.2	10	

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 64** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **03/26/18 10:12** 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, Nitrate+Nitrite as N	0.513	0.010	0.5	0	103	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133339

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180326A: 64** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **03/26/18 10:12** 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: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 66** SampType: **Sample Matrix Spike** Lab ID: **H18030364-006DMS** Method: **E353.2**
Analysis Date: **03/26/18 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	1.20	0.011	1	0.1912	101	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 67** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-006DMSD** Method: **E353.2**
Analysis Date: **03/26/18 10:15** 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
Nitrogen, Nitrate+Nitrite as N	1.19	0.011	1	0.1912	100	90	110	1.204	1.5	10	

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 78** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **03/26/18 10:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.507	0.010	0.5	0	101	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA203-HE_180326A: 80** SampType: **Sample Matrix Spike** Lab ID: **H18030364-016DMS** Method: **E353.2**
Analysis Date: **03/26/18 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	1.35	0.011	1	0.3417	101	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133339

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180326A: 81** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-016DMSD** Method: **E353.2**

Analysis Date: **03/26/18 10:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	1.35	0.011	1	0.3417	**101**	90	110	1.354	**0.1**	10	

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133359

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180326B: 7** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E350.1**
Analysis Date: **03/26/18 13:58** 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, Ammonia as N	10.7	0.50	10.3	0	**104**	90	110				

Associated samples: **H18030364-013D, H18030364-015D**

Run ID :Run Order: **FIA203-HE_180326B: 8** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E350.1**
Analysis Date: **03/26/18 13:59** 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, Ammonia as N	1.01	0.055	1	0	**101**	90	110				

Associated samples: **H18030364-013D, H18030364-015D**

Run ID :Run Order: **FIA203-HE_180326B: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E350.1**
Analysis Date: **03/26/18 14:01** 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	0.493	0.050	0.5	0	**99**	90	110				

Associated samples: **H18030364-013D, H18030364-015D**

Run ID :Run Order: **FIA203-HE_180326B: 10** SampType: **Method Blank** Lab ID: **MBLK** Method: **E350.1**
Analysis Date: **03/26/18 14:02** 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, Ammonia as N	ND	0.02									

Associated samples: **H18030364-013D, H18030364-015D**

Run ID :Run Order: **FIA203-HE_180326B: 13** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-013DMSD** Method: **E350.1**
Analysis Date: **03/26/18 14:05** 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
Nitrogen, Ammonia as N	0.826	0.055	1	0	**83**	80	120	0.8413	**1.9**	10	

Associated samples: **H18030364-013D, H18030364-015D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133359

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180326B: 23** SampType: **Sample Matrix Spike** Lab ID: **H18030364-013DMS** Method: **E350.1**
Analysis Date: **03/26/18 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
Nitrogen, Ammonia as N	0.841	0.055	1	0	84	80	120				

Associated samples: **H18030364-013D, H18030364-015D**

Run ID :Run Order: **FIA203-HE_180326B: 38** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E350.1**
Analysis Date: **03/26/18 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	0.486	0.050	0.5	0	97	90	110				

Associated samples: **H18030364-013D, H18030364-015D**

Run ID :Run Order: **FIA203-HE_180326B: 41** SampType: **Sample Matrix Spike** Lab ID: **H18030366-002DMS** Method: **E350.1**
Analysis Date: **03/26/18 14:39** 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
Nitrogen, Ammonia as N	0.937	0.055	1	0.03068	91	80	120				

Associated samples: **H18030364-013D, H18030364-015D**

Run ID :Run Order: **FIA203-HE_180326B: 45** SampType: **Sample Duplicate** Lab ID: **H18030364-015DDUP** Method: **E350.1**
Analysis Date: **03/26/18 14:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	ND	0.050		0				0		20	

Associated samples: **H18030364-013D, H18030364-015D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133370

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180326C: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **03/26/18 17:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0300	0.0010	0.03	0	100	90	110				
Copper	0.0616	0.010	0.06	0	103	90	110				
Lead	0.0593	0.010	0.06	0	99	90	110				
Zinc	0.0624	0.010	0.06	0	104	90	110				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-016B, H18030364-016C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180326C: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **03/26/18 17:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000116	0.0010		0							
Copper	8.07E-05	0.010		0							
Lead	6.52E-05	0.010		0							
Zinc	0.000163	0.010		0							

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-016B, H18030364-016C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180326C: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **03/26/18 17:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.00985	0.0010	0.01	0	98	70	130				
Copper	0.0192	0.010	0.02	0	96	70	130				
Lead	4.80E-05	0.010		0		0	0				
Zinc	0.00973	0.010	0.01	0	97	70	130				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-016B, H18030364-016C, H18030364-017B, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133370

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180326C: 17** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **03/26/18 17:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	2E-05									
Copper	ND	4E-05									
Lead	ND	1E-05									
Zinc	ND	0.0001									

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 18** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **03/26/18 17:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0481	0.0010	0.05	0	**96**	85	115				
Copper	0.0495	0.010	0.05	0	**99**	85	115				
Lead	0.0476	0.010	0.05	0	**95**	85	115				
Zinc	0.0500	0.010	0.05	0	**100**	85	115				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 123** SampType: **Sample Matrix Spike** Lab ID: **H18030366-003BMS** Method: **E200.8**

Analysis Date: **03/26/18 21:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0482	0.0010	0.05	0	**96**	70	130				
Copper	0.0450	0.0050	0.05	0.0004904	**89**	70	130				
Lead	0.0477	0.0010	0.05	0	**95**	70	130				
Zinc	0.0548	0.010	0.05	0.003669	**102**	70	130				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 124** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030366-003BMSD** Method: **E200.8**

Analysis Date: **03/26/18 21:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0485	0.0010	0.05	0	**97**	70	130	0.04822	**0.6**	20	

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133370

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180326C: 124** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030366-003BMSD** Method: **E200.8**

Analysis Date: **03/26/18 21:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0452	0.0050	0.05	0.0004904	89	70	130	0.04499	0.4	20	
Lead	0.0478	0.0010	0.05	0	96	70	130	0.04771	0.1	20	
Zinc	0.0547	0.010	0.05	0.003669	102	70	130	0.05476	0.1	20	

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 160** SampType: **Sample Matrix Spike** Lab ID: **H18030364-010BMS** Method: **E200.8**

Analysis Date: **03/26/18 22:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0510	0.0010	0.05	0.00007816	102	70	130				
Copper	0.0503	0.0050	0.05	0.004882	91	70	130				
Lead	0.0510	0.0010	0.05	0.0001366	102	70	130				
Zinc	0.0699	0.010	0.05	0.01728	105	70	130				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 161** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-010BMSD** Method: **E200.8**

Analysis Date: **03/26/18 22:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0510	0.0010	0.05	0.00007816	102	70	130	0.05099	0.0	20	
Copper	0.0499	0.0050	0.05	0.004882	90	70	130	0.05031	0.7	20	
Lead	0.0506	0.0010	0.05	0.0001366	101	70	130	0.05095	0.6	20	
Zinc	0.0692	0.010	0.05	0.01728	104	70	130	0.0699	1.1	20	

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 207** SampType: **Sample Matrix Spike** Lab ID: **H18030365-003BMS** Method: **E200.8**

Analysis Date: **03/27/18 00:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0481	0.0010	0.05	0.00009648	96	70	130				
Copper	0.0505	0.0050	0.05	0.007291	86	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133370

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180326C: 207** SampType: **Sample Matrix Spike** Lab ID: **H18030365-003BMS** Method: **E200.8**

Analysis Date: **03/27/18 00:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0488	0.0010	0.05	0.0002113	97	70	130				
Zinc	0.0918	0.010	0.05	0.04235	99	70	130				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 208** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030365-003BMSD** Method: **E200.8**

Analysis Date: **03/27/18 00:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0486	0.0010	0.05	0.00009648	97	70	130	0.0481	1.1	20	
Copper	0.0504	0.0050	0.05	0.007291	86	70	130	0.0505	0.3	20	
Lead	0.0493	0.0010	0.05	0.0002113	98	70	130	0.04885	1.0	20	
Zinc	0.0922	0.010	0.05	0.04235	100	70	130	0.09176	0.4	20	

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-016B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180326C: 293** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **03/27/18 03:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0300	0.0010	0.03	0	100	90	110				
Copper	0.0620	0.010	0.06	0	103	90	110				
Lead	0.0595	0.010	0.06	0	99	90	110				
Zinc	0.0624	0.010	0.06	0	104	90	110				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-016B, H18030364-016C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180326C: 294** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **03/27/18 03:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	9.69E-05	0.0010		0							
Copper	8.36E-05	0.010		0							

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133370

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180326C: 294** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **03/27/18 03:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	6.14E-05	0.010		0							
Zinc	0.000270	0.010		0							

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-016B, H18030364-016C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180326C: 295** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **03/27/18 03:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.00999	0.0010	0.01	0	**100**	70	130				
Copper	0.0193	0.010	0.02	0	**97**	70	130				
Lead	4.44E-05	0.010		0		0	0				
Zinc	0.0101	0.010	0.01	0	**101**	70	130				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-016B, H18030364-016C, H18030364-017B, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133376

Date: *25-Apr-18*

Run ID :Run Order: **HGCV202-H_180327A: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV1** Method: **E245.1**

Analysis Date: **03/27/18 09:01** 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
Mercury	0.000101	0.00010	0.0001	0	**101**	95	105				

Associated samples: **H18030364-002C, H18030364-003C, H18030364-004C, H18030364-018A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133377

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180327A: 10** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**
Analysis Date: **03/27/18 09:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.0247	0.10		0		0	0				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **FIA203-HE_180327A: 26** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **03/27/18 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, Total	0.482	0.10	0.5	0	96	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **FIA203-HE_180327A: 40** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **03/27/18 09:42** 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, Total	0.464	0.10	0.5	0	93	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **FIA203-HE_180327A: 65** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **03/27/18 10:16** 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	0.495	0.10	0.5	0	99	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **FIA203-HE_180327A: 66** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**
Analysis Date: **03/27/18 10:17** 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	0.0222	0.10		0		0	0				

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133377

Date: *25-Apr-18*

Run ID :Run Order: **FIA203-HE_180327A: 66** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**

Analysis Date: **03/27/18 10:17** 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

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133379

Date: *25-Apr-18*

Run ID :Run Order: **IC METROHM_180326A: 2** SampType: **Method Blank** Lab ID: **ICB** Method: **E300.0**

Analysis Date: **03/26/18 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	0.01	0.003									
Sulfate	ND	0.01									

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **IC METROHM_180326A: 3** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E300.0**

Analysis Date: **03/26/18 11:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	104	1.0	100	0	**104**	90	110				
Sulfate	418	1.0	400	0	**105**	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **IC METROHM_180326A: 4** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E300.0**

Analysis Date: **03/26/18 11:41** 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	23.8	1.0	25	0.01	**95**	90	110				
Sulfate	96.2	1.0	100	0	**96**	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **IC METROHM_180326A: 6** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **03/26/18 12:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51.5	1.0	50	0	**103**	90	110				
Sulfate	207	1.0	200	0	**103**	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133379

Date: *25-Apr-18*

Run ID :Run Order: **IC METROHM_180326A: 18** SampType: **Sample Matrix Spike** Lab ID: **H18030364-009AMS** Method: **E300.0**

Analysis Date: **03/26/18 15:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	44.4	1.0	25	19.48	100	90	110				
Sulfate	199	1.0	100	99.6	99	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **IC METROHM_180326A: 19** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-009AMSD** Method: **E300.0**

Analysis Date: **03/26/18 15:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	44.3	1.0	25	19.48	99	90	110	44.37	0.1	20	
Sulfate	199	1.0	100	99.6	99	90	110	198.8	0.1	20	

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **IC METROHM_180326A: 20** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **03/26/18 15:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52.2	1.0	50	0	104	90	110				
Sulfate	210	1.0	200	0	105	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **IC METROHM_180326A: 32** SampType: **Sample Matrix Spike** Lab ID: **H18030365-002AMS** Method: **E300.0**

Analysis Date: **03/26/18 18:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	69.1	1.0	25	44.35	99	90	110				
Sulfate	186	1.0	100	87.2	99	90	110				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133379

Date: *25-Apr-18*

Run ID :Run Order: **IC METROHM_180326A: 33** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030365-002AMSD** Method: **E300.0**

Analysis Date: **03/26/18 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
Chloride	69.3	1.0	25	44.35	**100**	90	110	69.07	**0.3**	20	
Sulfate	187	1.0	100	87.2	**99**	90	110	185.7	**0.4**	20	

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A, H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133388

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **03/27/18 11:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0604	0.0050	0.06	0	101	90	110				
Cadmium	0.0303	0.0010	0.03	0	101	90	110				
Copper	0.0615	0.010	0.06	0	103	90	110				
Lead	0.0600	0.010	0.06	0	100	90	110				
Zinc	0.0624	0.010	0.06	0	104	90	110				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **03/27/18 11:55** 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	4.44E-05	0.0050		0							
Cadmium	0.000116	0.0010		0							
Copper	0.000109	0.010		0							
Lead	5.21E-05	0.010		0							
Zinc	0.000315	0.010		0							

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **03/27/18 11:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0105	0.0050	0.01	0	105	70	130				
Cadmium	0.0100	0.0010	0.01	0	100	70	130				
Copper	0.0191	0.010	0.02	0	96	70	130				
Lead	4.45E-05	0.010		0		0	0				
Zinc	0.0100	0.010	0.01	0	100	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133388

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **03/27/18 11:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 17** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **03/27/18 12:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	2E-05									
Cadmium	ND	2E-05									
Lead	ND	1E-05									
Zinc	ND	0.0001									

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 18** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **03/27/18 12:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0478	0.0050	0.05	0	**96**	85	115				
Cadmium	0.0485	0.0010	0.05	0	**97**	85	115				
Lead	0.0475	0.010	0.05	0	**95**	85	115				
Zinc	0.0495	0.010	0.05	0	**99**	85	115				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 78** SampType: **Sample Matrix Spike** Lab ID: **H18030363-001BMS** Method: **E200.8**

Analysis Date: **03/27/18 14:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0485	0.0010	0.05	0.001194	**95**	70	130				
Cadmium	0.0471	0.0010	0.05	0	**94**	70	130				
Lead	0.0500	0.0010	0.05	0.003051	**94**	70	130				
Zinc	0.0636	0.010	0.05	0.01799	**91**	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133388

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 78** SampType: **Sample Matrix Spike** Lab ID: **H18030363-001BMS** Method: **E200.8**

Analysis Date: **03/27/18 14:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 79** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030363-001BMSD** Method: **E200.8**

Analysis Date: **03/27/18 14:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0479	0.0010	0.05	0.001194	93	70	130	0.04853	1.2	20	
Cadmium	0.0465	0.0010	0.05	0	93	70	130	0.04713	1.3	20	
Lead	0.0495	0.0010	0.05	0.003051	93	70	130	0.04999	1.0	20	
Zinc	0.0626	0.010	0.05	0.01799	89	70	130	0.06361	1.5	20	

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 106** SampType: **Sample Matrix Spike** Lab ID: **H18030364-006BMS** Method: **E200.8**

Analysis Date: **03/27/18 15:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0580	0.0010	0.05	0.0103	95	70	130				
Cadmium	0.0464	0.0010	0.05	0.0001547	93	70	130				
Lead	0.0470	0.0010	0.05	0.0001955	94	70	130				
Zinc	0.0552	0.010	0.05	0.009784	91	70	130				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 107** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-006BMSD** Method: **E200.8**

Analysis Date: **03/27/18 15:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0576	0.0010	0.05	0.0103	95	70	130	0.05796	0.6	20	
Cadmium	0.0464	0.0010	0.05	0.0001547	92	70	130	0.04643	0.2	20	
Lead	0.0465	0.0010	0.05	0.0001955	93	70	130	0.04705	1.2	20	
Zinc	0.0550	0.010	0.05	0.009784	90	70	130	0.05518	0.4	20	

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133388

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 107** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-006BMSD** Method: **E200.8**

Analysis Date: **03/27/18 15:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 145** SampType: **Sample Matrix Spike** Lab ID: **H18030364-016BMS** Method: **E200.8**

Analysis Date: **03/27/18 16:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0580	0.0010	0.05	0.008789	98	70	130				
Cadmium	0.0480	0.0010	0.05	0.000172	96	70	130				
Lead	0.0489	0.0010	0.05	0.0005817	97	70	130				
Zinc	0.0825	0.010	0.05	0.03612	93	70	130				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 146** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030364-016BMSD** Method: **E200.8**

Analysis Date: **03/27/18 16:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0572	0.0010	0.05	0.008789	97	70	130	0.05801	1.4	20	
Cadmium	0.0475	0.0010	0.05	0.000172	95	70	130	0.04803	1.0	20	
Lead	0.0485	0.0010	0.05	0.0005817	96	70	130	0.04892	0.9	20	
Zinc	0.0819	0.010	0.05	0.03612	92	70	130	0.08253	0.8	20	

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 224** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **03/27/18 19:52** 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	0.0050	0.06	0	102	90	110				
Cadmium	0.0307	0.0010	0.03	0	102	90	110				
Copper	0.0628	0.010	0.06	0	105	90	110				
Lead	0.0610	0.010	0.06	0	102	90	110				
Zinc	0.0630	0.010	0.06	0	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133388

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 224** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **03/27/18 19:52** 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: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 225** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **03/27/18 19:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.86E-05	0.0050		0							
Cadmium	0.000105	0.0010		0							
Copper	0.000129	0.010		0							
Lead	5.63E-05	0.010		0							
Zinc	0.000276	0.010		0							

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 226** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **03/27/18 19:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0105	0.0050	0.01	0	**105**	70	130				
Cadmium	0.00986	0.0010	0.01	0	**99**	70	130				
Copper	0.0194	0.010	0.02	0	**97**	70	130				
Lead	4.60E-05	0.010		0		0	0				
Zinc	0.0101	0.010	0.01	0	**101**	70	130				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133388

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 232** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **03/27/18 20:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0487	0.0050	0.05	0	97	85	115				
Cadmium	0.0484	0.0010	0.05	0	97	85	115				
Lead	0.0482	0.010	0.05	0	96	85	115				
Zinc	0.0502	0.010	0.05	0	100	85	115				

Associated samples: **H18030364-001B, H18030364-002B, H18030364-003B, H18030364-004B, H18030364-005B, H18030364-006B, H18030364-007B, H18030364-008B, H18030364-009B, H18030364-010B, H18030364-011B, H18030364-012B, H18030364-013B, H18030364-014B, H18030364-015B, H18030364-017B**

Run ID :Run Order: **ICPMS205-H_180327A: 284** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **03/27/18 22:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0600	0.0050	0.06	0	100	90	110				
Cadmium	0.0303	0.0010	0.03	0	101	90	110				
Copper	0.0632	0.010	0.06	0	105	90	110				
Lead	0.0601	0.010	0.06	0	100	90	110				
Zinc	0.0629	0.010	0.06	0	105	90	110				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

Run ID :Run Order: **ICPMS205-H_180327A: 285** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **03/27/18 22:09** 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	4.55E-05	0.0050		0							
Cadmium	0.000116	0.0010		0							
Copper	8.80E-05	0.010		0							
Lead	5.47E-05	0.010		0							
Zinc	0.000313	0.010		0							

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133388

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180327A: 286** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **03/27/18 22:11** 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	0	105	70	130				
Cadmium	0.0101	0.0010	0.01	0	101	70	130				
Copper	0.0198	0.010	0.02	0	99	70	130				
Lead	4.57E-05	0.010		0		0	0				
Zinc	0.0102	0.010	0.01	0	102	70	130				

Associated samples: **H18030364-001B, H18030364-001C, H18030364-002B, H18030364-002C, H18030364-003B, H18030364-003C, H18030364-004B, H18030364-004C, H18030364-005B, H18030364-005C, H18030364-006B, H18030364-006C, H18030364-007B, H18030364-007C, H18030364-008B, H18030364-008C, H18030364-009B, H18030364-009C, H18030364-010B, H18030364-010C, H18030364-011B, H18030364-011C, H18030364-012B, H18030364-012C, H18030364-013B, H18030364-013C, H18030364-014B, H18030364-014C, H18030364-015B, H18030364-015C, H18030364-017B, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133390

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180327A: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **03/27/18 09:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.7	1.0	40	0	99	95	105				
Magnesium	39.1	1.0	40	0	98	95	105				
Potassium	39.7	1.0	40	0	99	95	105				
Sodium	39.6	1.0	40	0	99	95	105				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 12** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **03/27/18 10:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.8	1.0	40	0	100	95	105				
Magnesium	39.4	1.0	40	0	99	95	105				
Potassium	39.3	1.0	40	0	98	95	105				
Sodium	39.3	1.0	40	0	98	95	105				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 13** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV-1** Method: **E200.7**

Analysis Date: **03/27/18 10:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.0	1.0	25	0	100	95	105				
Magnesium	24.7	1.0	25	0	99	95	105				
Potassium	23.9	1.0	25	0	96	95	105				
Sodium	24.0	1.0	25	0	96	95	105				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 16** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **03/27/18 10:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	468	1.0	500	0	94	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133390

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180327A: 16** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **03/27/18 10:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	509	1.0	500	0	102	80	120				
Potassium	-0.0728	1.0		0		0	0				
Sodium	0.00259	1.0		0		0	0				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 17** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **03/27/18 10:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	470	1.0	500	0	94	80	120				
Magnesium	511	1.0	500	0	102	80	120				
Potassium	20.0	1.0	20	0	100	80	120				
Sodium	20.2	1.0	20	0	101	80	120				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 49** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **03/27/18 12:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.8	1.0	25	0	99	90	110				
Magnesium	24.6	1.0	25	0	98	90	110				
Potassium	25.2	1.0	25	0	101	90	110				
Sodium	25.5	1.0	25	0	102	90	110				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 61** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **03/27/18 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.9	1.0	25	0	100	90	110				
Magnesium	24.7	1.0	25	0	99	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133390

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180327A: 61** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **03/27/18 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	24.7	1.0	25	0	99	90	110				
Sodium	25.1	1.0	25	0	100	90	110				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 80** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **03/27/18 14:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.7	1.0	25	0	99	90	110				
Magnesium	24.3	1.0	25	0	97	90	110				
Potassium	23.1	1.0	25	0	93	90	110				
Sodium	23.2	1.0	25	0	93	90	110				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

Run ID :Run Order: **ICP2-HE_180327A: 92** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **03/27/18 15:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.9	1.0	25	0	100	90	110				
Magnesium	24.7	1.0	25	0	99	90	110				
Potassium	23.9	1.0	25	0	95	90	110				
Sodium	24.0	1.0	25	0	96	90	110				

Associated samples: **H18030364-001C, H18030364-002C, H18030364-003C, H18030364-004C, H18030364-005C, H18030364-006C, H18030364-007C, H18030364-008C, H18030364-009C, H18030364-010C, H18030364-011C, H18030364-012C, H18030364-013C, H18030364-014C, H18030364-015C, H18030364-016C, H18030364-017C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133402

Date: *25-Apr-18*

Run ID :Run Order: **FIA202-HE_180327A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**
Analysis Date: **03/27/18 13:19** 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
Phosphorus, Total as P	0.250	0.010	0.25	0	100	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 11** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**
Analysis Date: **03/27/18 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
Phosphorus, Total as P	-0.000470	0.010		0		0	0				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 27** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **03/27/18 13:37** 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	0.0968	0.010	0.1	0	97	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 41** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **03/27/18 13:52** 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
Phosphorus, Total as P	0.0945	0.010	0.1	0	95	90	110				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 93** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**
Analysis Date: **03/27/18 15:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.253	0.010	0.25	0	101	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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133402

Date: *25-Apr-18*

Run ID :Run Order: **FIA202-HE_180327A: 93** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **03/27/18 15:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

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

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

Run ID :Run Order: **FIA202-HE_180327A: 95** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**

Analysis Date: **03/27/18 15:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	-0.00166	0.010		0		0	0				

Associated samples: **H18030364-001D, H18030364-002D, H18030364-003D, H18030364-004D, H18030364-005D, H18030364-006D, H18030364-007D, H18030364-008D, H18030364-009D, H18030364-010D, H18030364-011D, H18030364-012D, H18030364-013D, H18030364-014D, H18030364-015D, H18030364-016D, H18030364-017D**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133435

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180328A: 19** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **03/28/18 13:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0607	0.0050	0.06	0	101	90	110				
Cadmium	0.0302	0.0010	0.03	0	101	90	110				
Copper	0.0623	0.010	0.06	0	104	90	110				
Lead	0.0594	0.010	0.06	0	99	90	110				
Zinc	0.0631	0.010	0.06	0	105	90	110				

Associated samples: **H18030364-003B, H18030364-016B**

Run ID :Run Order: **ICPMS205-H_180328A: 20** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **03/28/18 14:01** 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	3.66E-05	0.0050		0							
Cadmium	0.000114	0.0010		0							
Copper	0.000101	0.010		0							
Lead	5.06E-05	0.010		0							
Zinc	0.000279	0.010		0							

Associated samples: **H18030364-003B, H18030364-016B**

Run ID :Run Order: **ICPMS205-H_180328A: 21** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **03/28/18 14:03** 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	0.0106	0.0050	0.01	0	106	70	130				
Cadmium	0.00988	0.0010	0.01	0	99	70	130				
Copper	0.0192	0.010	0.02	0	96	70	130				
Lead	4.57E-05	0.010		0		0	0				
Zinc	0.0102	0.010	0.01	0	102	70	130				

Associated samples: **H18030364-003B, H18030364-016B**

Run ID :Run Order: **ICPMS205-H_180328A: 26** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **03/28/18 14:14** 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	2E-05									

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133435

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180328A: 26** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**
Analysis Date: **03/28/18 14:14** 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
Cadmium	ND	2E-05									
Copper	ND	4E-05									
Lead	ND	1E-05									
Zinc	ND	0.0001									

Associated samples: **H18030364-003B, H18030364-016B**

Run ID :Run Order: **ICPMS205-H_180328A: 27** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**
Analysis Date: **03/28/18 14:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0482	0.0050	0.05	0	**96**	85	115				
Cadmium	0.0479	0.0010	0.05	0	**96**	85	115				
Copper	0.0492	0.010	0.05	0	**98**	85	115				
Lead	0.0468	0.010	0.05	0	**94**	85	115				
Zinc	0.0501	0.010	0.05	0	**100**	85	115				

Associated samples: **H18030364-003B, H18030364-016B**

Run ID :Run Order: **ICPMS205-H_180328A: 36** SampType: **Sample Matrix Spike** Lab ID: **H18030348-020BMS** Method: **E200.8**
Analysis Date: **03/28/18 14:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.104	0.0010	0.05	0.05437	**100**	70	130				
Cadmium	0.0475	0.0010	0.05	0	**95**	70	130				
Copper	0.0465	0.0050	0.05	0.0002379	**93**	70	130				
Lead	0.0474	0.0010	0.05	0.0003806	**94**	70	130				
Zinc	0.0614	0.010	0.05	0.01296	**97**	70	130				

Associated samples: **H18030364-003B, H18030364-016B**

Run ID :Run Order: **ICPMS205-H_180328A: 37** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030348-020BMSD** Method: **E200.8**
Analysis Date: **03/28/18 14:38** 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	0.105	0.0010	0.05	0.05437	**101**	70	130	0.1045	**0.2**	20	
Cadmium	0.0470	0.0010	0.05	0	**94**	70	130	0.04746	**0.9**	20	

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133435

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180328A: 37** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18030348-020BMSD** Method: **E200.8**

Analysis Date: **03/28/18 14:38** 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
Copper	0.0455	0.0050	0.05	0.0002379	**91**	70	130	0.04654	**2.2**	20	
Lead	0.0467	0.0010	0.05	0.0003806	**93**	70	130	0.04741	**1.6**	20	
Zinc	0.0607	0.010	0.05	0.01296	**95**	70	130	0.06142	**1.2**	20	

Associated samples: **H18030364-003B, H18030364-016B**

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

Client: MT DEQ-Federal Superfund
Work Order: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133537

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180402A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **04/02/18 12:08** 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	0.0604	0.0050	0.06	0	101	90	110				
Cadmium	0.0302	0.0010	0.03	0	101	90	110				
Zinc	0.0612	0.010	0.06	0	102	90	110				

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402A: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **04/02/18 12:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	3.76E-05	0.0050		0							
Cadmium	0.000108	0.0010		0							
Zinc	-0.000386	0.010		0							

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402A: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/18 12:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0102	0.0050	0.01	0	102	70	130				
Cadmium	0.00982	0.0010	0.01	0	98	70	130				
Zinc	0.00932	0.010	0.01	0	93	70	130				

Associated samples: **H18030364-016C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133541

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180402B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **04/02/18 17:01** 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
Lead	0.0600	0.010	0.06	0	100	90	110				

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402B: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **04/02/18 17:03** 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
Lead	7.30E-05	0.010		0							

Associated samples: **H18030364-016C**

Run ID :Run Order: **ICPMS205-H_180402B: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/18 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
Lead	7.72E-05	0.010		0		0	0				

Associated samples: **H18030364-016C**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133579

Date: *25-Apr-18*

Run ID :Run Order: **ICP2-HE_180403B: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6010B**

Analysis Date: **04/03/18 08:31** 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
Copper	0.816	0.010	0.8	0	102	90	110				
Zinc	0.805	0.010	0.8	0	101	90	110				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICP2-HE_180403B: 10** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **SW6010B**

Analysis Date: **04/03/18 08:46** 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
Copper	0.00181	0.010		0		0	0				
Zinc	0.00126	0.010		0		0	0				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **ICP2-HE_180403B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **SW6010B**

Analysis Date: **04/03/18 08:49** 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
Copper	0.510	0.010	0.5	0	102	80	120				
Zinc	0.950	0.010	1	0	95	80	120				

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133589

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180403C: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6020**

Analysis Date: **04/03/18 16:56** 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	0.0605	0.0010	0.06	0	101	90	110				
Cadmium	0.0305	0.0010	0.03	0	102	90	110				
Lead	0.0597	0.0010	0.06	0	99	90	110				

Associated samples: **H18030364-020A, H18030364-021A, H18030364-024A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-033A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133606

Date: *25-Apr-18*

Run ID :Run Order: **ICPMS205-H_180404B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6020**

Analysis Date: **04/04/18 12:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0598	0.0010	0.06	0	100	90	110				
Cadmium	0.0302	0.0010	0.03	0	101	90	110				
Lead	0.0598	0.0010	0.06	0	100	90	110				

Associated samples: **H18030364-019A, H18030364-022A, H18030364-023A, H18030364-025A, H18030364-026A, H18030364-032A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R133645

Date: *25-Apr-18*

Run ID :Run Order: **SOIL DRYING OVEN 2_180405A: 2** SampType: **Sample Duplicate** Lab ID: **H18030364-019ADUP** Method: **D2974**

Analysis Date: **04/05/18 12:15** Units: **wt%** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Moisture	71.6	0.20		0				75.74	5.6	20	

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

Run ID :Run Order: **SOIL DRYING OVEN 2_180405A: 1** SampType: **Sample Duplicate** Lab ID: **H18030364-027ADUP** Method: **D2974**

Analysis Date: **04/05/18 12:15** Units: **wt%** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Moisture	63.5	0.20		0				60.24	5.2	20	

Associated samples: **H18030364-019A, H18030364-020A, H18030364-021A, H18030364-022A, H18030364-023A, H18030364-024A, H18030364-025A, H18030364-026A, H18030364-027A, H18030364-028A, H18030364-029A, H18030364-030A, H18030364-031A, H18030364-032A, H18030364-033A**

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS180323A

Date: *25-Apr-18*

Run ID :Run Order: **ACCU-124 (14410200)_180323A: 4** SampType: **Method Blank** Lab ID: **MB-49_180323A** Method: **A2540 D**

Analysis Date: **03/23/18 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
Solids, Total Suspended TSS @ 105 C	ND	0.3									

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A**

Run ID :Run Order: **ACCU-124 (14410200)_180323A: 5** SampType: **Laboratory Control Sample** Lab ID: **LCS-50_180323A** Method: **A2540 D**

Analysis Date: **03/23/18 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
Solids, Total Suspended TSS @ 105 C	80.0	10	100	0	80	80	120				

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A**

Run ID :Run Order: **ACCU-124 (14410200)_180323A: 5** SampType: **Sample Duplicate** Lab ID: **H18030352-001BDUP** Method: **A2540 D**

Analysis Date: **03/23/18 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
Solids, Total Suspended TSS @ 105 C	120	33		0				110	8.7	5	R

Associated samples: **H18030364-001A, H18030364-002A, H18030364-003A, H18030364-004A, H18030364-005A, H18030364-006A, H18030364-007A, H18030364-008A, H18030364-009A**

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

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: H18030364
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS180326A

Date: *25-Apr-18*

Run ID :Run Order: **ACCU-124 (14410200)_180326A: 2** SampType: **Method Blank** Lab ID: **MB-25_180326A** Method: **A2540 D**

Analysis Date: **03/26/18 11:45** 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
Solids, Total Suspended TSS @ 105 C	ND	0.3									

Associated samples: **H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180326A: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-26_180326A** Method: **A2540 D**

Analysis Date: **03/26/18 11:45** 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
Solids, Total Suspended TSS @ 105 C	86.0	10	100	0	86	80	120				

Associated samples: **H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180326A: 2** SampType: **Sample Duplicate** Lab ID: **H18030364-010ADUP** Method: **A2540 D**

Analysis Date: **03/26/18 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	5.50	10		0				5.167		5	

Associated samples: **H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

Run ID :Run Order: **ACCU-124 (14410200)_180326A: 3** SampType: **Sample Duplicate** Lab ID: **H18030365-003ADUP** Method: **A2540 D**

Analysis Date: **03/26/18 12:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	4.83	10		0				4.833		5	

Associated samples: **H18030364-010A, H18030364-011A, H18030364-012A, H18030364-013A, H18030364-014A, H18030364-015A, H18030364-016A, H18030364-017A**

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

BROOKS APPLIED LABS
18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

April 24, 2018

Energy Laboratories, Inc.
ATTN: Jonathan Dee Hager
PO Box 5688
Helena, MT 59604
jhager@energylab.com

RE: Project ENL-HL1201

Dear Mr. Jonathan Hager,

On March 26, 2018, Brooks Applied Labs (BAL) received five (5) water samples. The samples were logged-in for the analyses of methyl mercury (MeHg) according to the chain-of-custody form. All samples were received and stored according to BAL SOPs and EPA methodology. Samples were filtered by the lab upon receipt. Water samples were pre-preserved with 6N hydrochloric acid and were distilled via EPA Method 1630.

BLK2 from batch B180851 did not ethylate properly during analysis and was reanalyzed as BLK5 in the same sequence. The standard deviation calculated for the blanks from this batch produced a value that was above the limit of 0.015 ng/L. Due to this, a batch specific MDL was calculated as 3x the standard deviation. The MRL was calculated as 3x the MDL. All samples reported from this batch were greater than the calculated MRL.

The results were method blank corrected as described in the calculations section of the relevant BAL SOP(s) and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification (aside from concentration qualifiers) and all associated quality control sample results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Lydia Greaves
Client Services Manager
lydia@brooksapplied.com

Shahriyar Ahmed
Project Coordinator
shahriyar@brooksapplied.com

Report Information

Laboratory Accreditation

BAL 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. BAL 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.brooksapplied.com/resources/certificates-permits/>. 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

AR	as received	**MS**	matrix spike
BAL	Brooks Applied Labs	**MSD**	matrix spike duplicate
BLK	method blank	**ND**	non-detect
BS	blank spike	**NR**	non-reportable
CAL	calibration standard	**N/C**	not calculated
CCB	continuing calibration blank	**PS**	post preparation spike
CCV	continuing calibration verification	**REC**	percent recovery
COC	chain of custody record	**RPD**	relative percent difference
D	dissolved fraction	**SCV**	secondary calibration verification
DUP	duplicate	**SOP**	standard operating procedure
IBL	instrument blank	**SRM**	standard reference material
ICV	initial calibration verification	**T**	total fraction
MDL	method detection limit	**TR**	total recoverable fraction
MRL	method reporting limit		

Definition of Data Qualifiers

(Effective 9/23/09)

E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Result is estimated.
J Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
J-1 Estimated value. A full explanation is presented in the narrative.
J-M Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
J-N Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
M Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
N Spike recovery was not within acceptance criteria. Result is estimated.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X 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 Applied 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 BAL.

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H18030364-002E	1813005-01	Water	Field Blank	03/19/2018	03/26/2018
H18030364-003E	1813005-02	Water	Sample	03/19/2018	03/26/2018
H18030364-004E	1813005-03	Water	Field Duplicate	03/19/2018	03/26/2018
H18030364-018B	1813005-04	Water	Sample	03/19/2018	03/26/2018
H18030364-034A	1813005-05	Water	Trip Blank	03/19/2018	03/26/2018

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	03/29/2018	03/30/2018	B180777	1800442
MeHg	Water	EPA 1630	04/16/2018	04/17/2018	B180851	1800517

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
H18030364-002E										
1813005-01	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B180777	1800442
H18030364-003E										
1813005-02	MeHg	Water	TR	0.759		0.058	0.172	ng/L	B180851	1800517
H18030364-004E										
1813005-03	MeHg	Water	TR	0.819		0.058	0.174	ng/L	B180851	1800517
H18030364-018B										
1813005-04	MeHg	Water	TR	0.402		0.023	0.050	ng/L	B180777	1800442
H18030364-034A										
1813005-05	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B180777	1800442

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Accuracy & Precision Summary

Batch: B180777
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B180777-BS1	**Blank Spike, (1811015)**								
	MeHg		1.000	1.136	ng/L	114%	67-133		
B180777-MS1	**Matrix Spike (1813005-04)**								
	MeHg	0.402	1.000	1.279	ng/L	88%	65-135		
B180777-MSD1	**Matrix Spike Duplicate (1813005-04)**								
	MeHg	0.402	1.000	1.417	ng/L	101%	65-135	10%	35

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Accuracy & Precision Summary

Batch: B180851
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B180851-BS2	**Blank Spike, (1816001)**								
	MeHg		1.000	0.993	ng/L	99%	67-133		
B180851-BS3	**Blank Spike, (1816001)**								
	MeHg		1.000	0.684	ng/L	68%	67-133		
B180851-MS1	**Matrix Spike (1813005-02)**								
	MeHg	0.759	1.000	1.891	ng/L	113%	65-135		
B180851-MSD1	**Matrix Spike Duplicate (1813005-02)**								
	MeHg	0.759	1.000	2.061	ng/L	130%	65-135	9%	35

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Method Blanks & Reporting Limits

Batch: B180777
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B180777-BLK2	0.018	ng/L
B180777-BLK5	0.008	ng/L
B180777-BLK6	-0.0005	ng/L
B180777-BLK7	-0.002	ng/L

Average: 0.006 **Standard Deviation:** 0.009 **MDL:** 0.026
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.057

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Method Blanks & Reporting Limits

Batch: B180851
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B180851-BLK1	0.028	ng/L
B180851-BLK3	0.0007	ng/L
B180851-BLK4	-0.008	ng/L
B180851-BLK5	0.031	ng/L

Average: 0.013 **Standard Deviation:** ***0.020*** **MDL:** 0.066
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.196

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Containers

Lab ID: 1813005-01 **Report Matrix:** Water **Collected:** 03/19/2018
Sample: H18030364-002E **Sample Type:** Field Blank **Received:** 03/26/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250ml	17-0128	6N HCl (PP)	1809001	<2	Cooler - 1813005

Lab ID: 1813005-02 **Report Matrix:** Water **Collected:** 03/19/2018
Sample: H18030364-003E **Sample Type:** Sample **Received:** 03/26/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250ml	17-0128	6N HCl (PP)	1809001	<2	Cooler - 1813005

Lab ID: 1813005-03 **Report Matrix:** Water **Collected:** 03/19/2018
Sample: H18030364-004E **Sample Type:** Field Duplicate **Received:** 03/26/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250ml	17-0128	6N HCl (PP)	1809001	<2	Cooler - 1813005

Lab ID: 1813005-04 **Report Matrix:** Water **Collected:** 03/19/2018
Sample: H18030364-018B **Sample Type:** Sample **Received:** 03/26/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250ml	17-0128	6N HCl (PP)	1809001	<2	Cooler - 1813005

Lab ID: 1813005-05 **Report Matrix:** Water **Collected:** 03/19/2018
Sample: H18030364-034A **Sample Type:** Trip Blank **Received:** 03/26/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-SP	250ml	17-0128	6N HCl (PP)	1809001	<2	Cooler - 1813005

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Shipping Containers

Cooler - 1813005

Received: March 26, 2018 10:00
Tracking No: 1Z37EW970156356517 via UPS
Coolant Type: Ice
Temperature: 3.1 °C

Description: Cooler
Damaged in transit? No
Returned to client? No
Comments: ir8

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

Energy Laboratories Inc
3161 East Lyndale Avenue
Helena, MT 59601
(406) 442-0711

H18030364

CHAIN-OF-CUSTODY RECORD

COPY

Custody Seal: Y N
Intact: Y N
Signature Match: Y N

Shipped By: _____
Receipt Temp: _____

Subcontractor:
Brooks Applied Labs
18804 North Creek Parkway
Bothell, WA 98011

TEL: (206) 632-6206 FAX: (206) 632-6017
Acct #:

Subcontractor's Client:

Sample ID	Matrix	Collection Date	Bottle Type	Requested Tests: SUB-BROOKSRAND
H18030364-002E	Surface Water	03/19/18 12:00 P	1-	1
H18030364-003E	Surface Water	03/19/18 12:15 P	1-	1
H18030364-004E	Surface Water	03/19/18 12:15 P	1-	1
H18030364-018B	Surface Water	03/19/18 11:00 A	1-	1
H18030364-034A	Surface Water	03/19/18 12:00 A	1-	1

check for accuracy.

ENL-HL1201

Earliest Due Date: 4/3/2018

Comments:

QC Level:
STD

	Date/Time		
Relinquished by: [signature]	3-23-18 14:07	**Received by:** Austin Toccone	3/26/18
Relinquished by:		**Received by:**	

Work Order Receipt Checklist

MT DEQ-Federal Superfund H18030364

Login completed by: Jessica C. Smith
Date Received: 3/23/2018
Reviewed by: BL2000\rtooke
Received by: RAT
Reviewed Date: 3/30/2018
Carrier name: Hand Del

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

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:

Cooler 1 was received at 1.4 °C, Cooler 2 at 3.2 °C, and Cooler 3 at 2.5 °C. On Ice. Box 1 was received at 10.5 °C and Box 2 at 8.5 °C. No Ice. JCS 03/23/2018

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Chain of Custody & Analytical Request Record

www.energylab.com

Account Information *(Billing information)*

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 - 1.4
C2-3.2
C3-2.5
B1-10.5
B2-8.5

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk. ,Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
CV 1	CFR-116A	3-19-18	0900	5	W	✓	✓	✓	✓		✓	✓	✓				H18030364
CV 2	Field Blank #1 FC-CFR	3-19-18	1200	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 3	FC-CFR	3-19-18	1215	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 4	FC-CFR Duplicate	3-19-18	1215	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 5	LBR-CFR-02	3-19-18	1400	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 6	CFR-34	3-19-18	1530	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 7	CFR-27H	3-19-18	1645	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 8	CFR-11F	3-19-18	1745	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 9	CFR-07D	3-20-18	0830	5	W	✓	✓	✓	✓		✓	✓	✓				
CV 10	CFR-03A	3-20-18	0930	5	W	✓	✓	✓	✓		✓	✓	✓				

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	3-23-18 12:42	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Rebecca Tooke	3/23/18 12:42	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand	3X+2box	Y N C B	Y N	see com °C	Y N none in boxes	Y N no ice boxes	CC Cash Check_____	$	

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Account Information *(Billing information)*

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 1.4
C2 3.2
C3 2.5
~~B1~~ B1 10.5
~~B2~~ B2 8.5

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk. ,Sulfate, Chloride	Hardness (TR Ca & Mg)	Total As, Cd, Cu, Pb, Zn	See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
C1	1 Field Blank #2 WSC-SBC	3-20-18	1015	5	W	✓	✓	✓	✓		✓	✓	✓				H18030364
C1	2 WSC-SBC	3-20-18	1030	5	W	✓	✓	✓	✓		✓	✓	✓				
C1	3 WSC-SBC Duplicate	3-20-18	1030	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C3	4 SS-25	3-20-18	1130	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	5 MWB-SBC	3-20-18	1215	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C3	6 SBC-P2	3-20-18	1200	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	7 MCWC-MWB	3-20-18	1330	5	W	✓	✓	✓	✓		✓	✓	✓				
B2	8 CFR-116A	3-19-18	0900	1	S									✓			
B2	9 LBR-CFR-02	3-19-18	1400	1	S									✓			
B2	10 LBR-CFR-02 Duplicate	3-19-18	1400	1	S									✓			

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	3-23-18 12:42	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Rebecca Toole	3/23/18 12:42	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand	3x+2Box	Y (N) C B	Y N	see com °C	(Y) N no boxes	(Y) N no boxes	CC Cash Check_____	$	

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Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 1.4
C2 3.2
C3 2.5
B1 10.5
B2 8.5

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/ Solids
V - Vegetation
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O - Other
DW - Drinking Water

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Analysis Requested

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Total As, Cd, Cu, Pb, Zn									See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
B2 1	CFR-34	3-19-18	1530	1	S	✓											H18030364
B2 2	CFR-27H	3-19-18	1645	1	S	✓											
B2 3	CFR-11F	3-19-18	1745	1	S	✓											
B2 4	CFR-07D	3-20-18	0830	1	S	✓											
B2 5	CFR-03A	3-20-18	0930	1	S	✓											
B2 6	CFR-03A Duplicate	3-20-18	0930	1	S	✓											
B2 7	WSC-SBC	3-20-18	1030	1	S	✓											
B2 8	MWB-SBC	3-20-18	1215	1	S	✓											
B1 9	MCWC-MWB	3-20-18	1330	1	S	✓											
B1 10	LC-7.5	3-20-18	1430	1	S	✓											

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	3-23-18 12:42	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Rebecca Locke	3/23/18 12:42	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand	3x +2 boxes	Y (N) C B	Y N	see com °C	(Y) N no boxes	(Y) N no boxes	CC Cash Check_____	$	

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Account Information *(Billing information)*

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 1.4
C2 3.2
C3 25
B1 10.5
B1 5.5

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Total As, Cd, Cu, Pb, Zn	Total Mercury, low level	Methyl Mercury (contract)							See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
B1	1 RTC-1.5	3-20-18	1500	1	S	✓											1418030364
C2	2 CFR-84F	3-19-18	1100	1	W		✓	✓									
C2	3 Field Blank #1 FC-CFR	3-19-18	1200	1	W		✓	✓									
C2	4 FC-CFR	3-19-18	1215	1	W		✓	✓									
C2	5 FC-CFR Duplicate	3-19-18	1215	1	W		✓	✓									
B2	6 SS-25	3-20-18	1130	1	S	✓											
	7																
	8																
	9																
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	3-23-18 12:42	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Rebecca Todd	3/23/18 12:42	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
hand	3x + 2box	Y (N) C B	Y N	see com °C	(Y) N no boxes	(Y) N no boxes	CC Cash Check_____	$	

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 subcontracted data will be clearly notated on your analytical report.

APPENDIX B2

ANALYTICAL LABORATORY RESULTS
2ND QUARTER MONITORING

ANALYTICAL SUMMARY REPORT

June 12, 2018

MT DEQ-Federal Superfund
PO Box 200901
Helena, MT 59620-0901

Work Order: H18050287 Quote ID: H1525 - CFR Monitoring-474374

Project Name: CFROU Monitoring

Energy Laboratories Inc Helena MT received the following 19 samples for MT DEQ-Federal Superfund on 5/11/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18050287-001	CFR-116A	05/09/18 9:45	05/11/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18050287-002	Field Blank #1 FC-CFR	05/09/18 12:00	05/11/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H18050287-003	FC-CFR	05/09/18 12:30	05/11/18	Surface Water	Same As Above
H18050287-004	FC-CFR Duplicate	05/09/18 12:30	05/11/18	Surface Water	Same As Above
H18050287-005	LBR-CFR-02	05/09/18 14:30	05/11/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended

ANALYTICAL SUMMARY REPORT

H18050287-006	CFR-34	05/09/18 15:30	05/11/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18050287-007	CFR-27H	05/09/18 16:45	05/11/18	Surface Water	Same As Above
H18050287-008	CFR-11F	05/09/18 18:00	05/11/18	Surface Water	Same As Above
H18050287-009	CFR-07D	05/10/18 8:00	05/11/18	Surface Water	Same As Above
H18050287-010	CFR-03A	05/10/18 9:00	05/11/18	Surface Water	Same As Above
H18050287-011	WSC-SBC	05/10/18 10:00	05/11/18	Surface Water	Same As Above
H18050287-012	SS-25	05/10/18 11:00	05/11/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18050287-013	MWB-SBC	05/10/18 11:40	05/11/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18050287-014	MWB-SBC Duplicate	05/10/18 11:40	05/11/18	Surface Water	Same As Above
H18050287-015	Field Blank #2 MCWC-MWB	05/10/18 12:30	05/11/18	Surface Water	Same As Above
H18050287-016	MCWC-MWB	05/10/18 12:45	05/11/18	Surface Water	Same As Above

ANALYTICAL SUMMARY REPORT

H18050287-017	SS-19	05/10/18 13:30	05/11/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18050287-018	CFR-84F	05/09/18 11:00	05/11/18	Surface Water	Mercury, Total Recoverable Mercury Digestion by E245.1 Subcontracted, Analytics
H18050287-019	Methyl Hg Blank 17-0218	05/09/18 9:45	05/11/18	Surface Water	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: CFROU Monitoring
Work Order: H18050287

Report Date: 06/12/18

CASE NARRATIVE

Samples for Methyl Mercury were subcontracted to Brooks Applied Labs. The report is included in this data package. abc 6/12/18

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-116A
Lab ID: H18050287-001
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 09:45
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	147	mg/L	D	10		A2540 D	05/14/18 13:37 / SR		-124 (14410200)_180514B	3	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	05/14/18 18:59 / SR		PHSC_101-H_180514A	150	R134693
Bicarbonate as HCO3	73	mg/L		4		A2320 B	05/14/18 18:59 / SR		PHSC_101-H_180514A	150	R134693
Chloride	2	mg/L		1		E300.0	05/14/18 17:47 / SR		IC METROHM_180514A	22	R134723
Sulfate	14	mg/L		1		E300.0	05/14/18 17:47 / SR		IC METROHM_180514A	22	R134723
Hardness as CaCO3	76	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	2	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.02		E353.2	05/14/18 12:35 / kmd		FIA203-HE_180514A	126	R134710
Nitrogen, Total	0.62	mg/L		0.05		A4500 N-C	05/15/18 13:21 / cm	05/15/18 11:45	FIA203-HE_180515A	27	41513
Phosphorus, Total as P	0.218	mg/L		0.003		E365.1	05/15/18 15:14 / kmd	05/15/18 12:25	FIA202-HE_180515B	52	41517
METALS, DISSOLVED											
Arsenic	0.008	mg/L		0.001		E200.8	05/15/18 21:17 / dck		ICPMS205-H_180515B	264	R134786
Cadmium	0.00005	mg/L		0.00003		E200.8	05/15/18 21:17 / dck		ICPMS205-H_180515B	264	R134786
Copper	0.010	mg/L		0.001		E200.8	05/15/18 21:17 / dck		ICPMS205-H_180515B	264	R134786
Lead	0.00026	mg/L	J	0.0003		E200.8	05/15/18 21:17 / dck		ICPMS205-H_180515B	264	R134786
Zinc	0.011	mg/L		0.008		E200.8	05/15/18 21:17 / dck		ICPMS205-H_180515B	264	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.018	mg/L		0.001		E200.8	05/15/18 21:19 / dck	05/14/18 07:56	ICPMS205-H_180515B	265	41487
Cadmium	0.00058	mg/L		0.00003		E200.8	05/15/18 21:19 / dck	05/14/18 07:56	ICPMS205-H_180515B	265	41487
Calcium	21	mg/L		1		E200.7	05/15/18 17:08 / sld	05/14/18 07:56	ICP2-HE_180515C	102	41487
Copper	0.086	mg/L		0.001		E200.8	05/15/18 21:19 / dck	05/14/18 07:56	ICPMS205-H_180515B	265	41487
Lead	0.0137	mg/L		0.0003		E200.8	05/15/18 21:19 / dck	05/14/18 07:56	ICPMS205-H_180515B	265	41487
Magnesium	6	mg/L		1		E200.7	05/15/18 17:08 / sld	05/14/18 07:56	ICP2-HE_180515C	102	41487
Potassium	3	mg/L		1		E200.7	05/16/18 10:29 / sld	05/14/18 07:56	ICP2-HE_180516B	25	41487
Sodium	4	mg/L		1		E200.7	05/16/18 10:29 / sld	05/14/18 07:56	ICP2-HE_180516B	25	41487
Zinc	0.152	mg/L		0.008		E200.8	05/15/18 21:19 / dck	05/14/18 07:56	ICPMS205-H_180515B	265	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 FC-CFR
Lab ID: H18050287-002
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 12:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	05/14/18 13:37 / SR		-124 (14410200)_180514B	5	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L	J	4		A2320 B	05/14/18 19:04 / SR		PHSC_101-H_180514A	152	R134693
Bicarbonate as HCO3	2	mg/L	J	4		A2320 B	05/14/18 19:04 / SR		PHSC_101-H_180514A	152	R134693
Chloride	ND	mg/L		1		E300.0	05/14/18 18:01 / SR		IC METROHM_180514A	23	R134723
Sulfate	ND	mg/L		1		E300.0	05/14/18 18:01 / SR		IC METROHM_180514A	23	R134723
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	3	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02		E353.2	05/14/18 12:36 / kmd		FIA203-HE_180514A	127	R134710
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	05/15/18 13:22 / cm	05/15/18 11:45	FIA203-HE_180515A	28	41513
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	05/15/18 15:19 / kmd	05/15/18 12:26	FIA202-HE_180515B	57	41518
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.001		E200.8	05/15/18 21:20 / dck		ICPMS205-H_180515B	266	R134786
Cadmium	ND	mg/L		0.00003		E200.8	05/15/18 21:20 / dck		ICPMS205-H_180515B	266	R134786
Copper	ND	mg/L		0.001		E200.8	05/15/18 21:20 / dck		ICPMS205-H_180515B	266	R134786
Lead	ND	mg/L		0.0003		E200.8	05/15/18 21:20 / dck		ICPMS205-H_180515B	266	R134786
Zinc	0.0069	mg/L	J	0.008		E200.8	05/15/18 21:20 / dck		ICPMS205-H_180515B	266	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.00010	mg/L	J	0.001		E200.8	05/15/18 21:23 / dck	05/14/18 07:56	ICPMS205-H_180515B	267	41487
Cadmium	ND	mg/L		0.00003		E200.8	05/15/18 21:23 / dck	05/14/18 07:56	ICPMS205-H_180515B	267	41487
Calcium	0.17	mg/L	J	1		E200.7	05/15/18 17:12 / sld	05/14/18 07:56	ICP2-HE_180515C	103	41487
Copper	ND	mg/L		0.001		E200.8	05/15/18 21:23 / dck	05/14/18 07:56	ICPMS205-H_180515B	267	41487
Lead	ND	mg/L		0.0003		E200.8	05/15/18 21:23 / dck	05/14/18 07:56	ICPMS205-H_180515B	267	41487
Magnesium	0.017	mg/L	J	1		E200.7	05/15/18 17:12 / sld	05/14/18 07:56	ICP2-HE_180515C	103	41487
Mercury	ND	mg/L		5E-06		E245.1	05/15/18 11:21 / PN	05/14/18 07:58	HGCV202-H_180515A	30	41491
Potassium	ND	mg/L		1		E200.7	05/16/18 10:33 / sld	05/14/18 07:56	ICP2-HE_180516B	26	41487
Sodium	ND	mg/L		1		E200.7	05/16/18 10:33 / sld	05/14/18 07:56	ICP2-HE_180516B	26	41487

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Field Blank #1 FC-CFR
Lab ID: H18050287-002
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 12:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.003	mg/L	J	0.008		E200.8	05/15/18 21:23 / dck	05/14/18 07:56	ICPMS205-H_180515B	267	41487

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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: H18050287-003
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 12:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	61	mg/L	D	10		A2540 D	05/14/18 13:38 / SR		-124 (14410200)_180514B	6	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	66	mg/L		4		A2320 B	05/14/18 19:10 / SR		PHSC_101-H_180514A	154	R134693
Bicarbonate as HCO3	79	mg/L		4		A2320 B	05/14/18 19:10 / SR		PHSC_101-H_180514A	154	R134693
Chloride	2	mg/L		1		E300.0	05/14/18 18:16 / SR		IC METROHM_180514A	24	R134723
Sulfate	6	mg/L		1		E300.0	05/14/18 18:16 / SR		IC METROHM_180514A	24	R134723
Hardness as CaCO3	67	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	4	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.02		E353.2	05/14/18 12:38 / kmd		FIA203-HE_180514A	128	R134710
Nitrogen, Total	0.70	mg/L		0.05		A4500 N-C	05/15/18 13:26 / cm	05/15/18 11:45	FIA203-HE_180515A	31	41513
Phosphorus, Total as P	0.155	mg/L		0.003		E365.1	05/15/18 15:22 / kmd	05/15/18 12:26	FIA202-HE_180515B	60	41518
METALS, DISSOLVED											
Arsenic	0.007	mg/L		0.001		E200.8	05/15/18 21:25 / dck		ICPMS205-H_180515B	268	R134786
Cadmium	ND	mg/L		0.00003		E200.8	05/15/18 21:25 / dck		ICPMS205-H_180515B	268	R134786
Copper	0.004	mg/L		0.001		E200.8	05/15/18 21:25 / dck		ICPMS205-H_180515B	268	R134786
Lead	0.0005	mg/L		0.0003		E200.8	05/15/18 21:25 / dck		ICPMS205-H_180515B	268	R134786
Zinc	0.0065	mg/L	J	0.008		E200.8	05/15/18 21:25 / dck		ICPMS205-H_180515B	268	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.017	mg/L		0.001		E200.8	05/15/18 21:26 / dck	05/14/18 07:56	ICPMS205-H_180515B	269	41487
Cadmium	0.00017	mg/L		0.00003		E200.8	05/15/18 21:26 / dck	05/14/18 07:56	ICPMS205-H_180515B	269	41487
Calcium	18	mg/L		1		E200.7	05/15/18 17:16 / sld	05/14/18 07:56	ICP2-HE_180515C	104	41487
Copper	0.010	mg/L		0.001		E200.8	05/15/18 21:26 / dck	05/14/18 07:56	ICPMS205-H_180515B	269	41487
Lead	0.0154	mg/L		0.0003		E200.8	05/15/18 21:26 / dck	05/14/18 07:56	ICPMS205-H_180515B	269	41487
Magnesium	5	mg/L		1		E200.7	05/15/18 17:16 / sld	05/14/18 07:56	ICP2-HE_180515C	104	41487
Mercury	0.00064	mg/L	D	0.00001		E245.1	05/15/18 11:43 / PN	05/14/18 07:58	HGCV202-H_180515A	37	41491
Potassium	2	mg/L		1		E200.7	05/16/18 10:37 / sld	05/14/18 07:56	ICP2-HE_180516B	27	41487
Sodium	4	mg/L		1		E200.7	05/16/18 10:37 / sld	05/14/18 07:56	ICP2-HE_180516B	27	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18050287-003
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 12:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.043	mg/L		0.008		E200.8	05/15/18 21:26 / dck	05/14/18 07:56	ICPMS205-H_180515B	269	41487

Report Definitions: RL - Analyte 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: H18050287-004
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 12:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	65	mg/L	D	10		A2540 D	05/14/18 13:38 / SR		-124 (14410200)_180514B	7	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	64	mg/L		4		A2320 B	05/14/18 19:16 / SR		PHSC_101-H_180514A	156	R134693
Bicarbonate as HCO3	78	mg/L		4		A2320 B	05/14/18 19:16 / SR		PHSC_101-H_180514A	156	R134693
Chloride	2	mg/L		1		E300.0	05/14/18 18:31 / SR		IC METROHM_180514A	25	R134723
Sulfate	6	mg/L		1		E300.0	05/14/18 18:31 / SR		IC METROHM_180514A	25	R134723
Hardness as CaCO3	68	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	5	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.02		E353.2	05/14/18 12:39 / kmd		FIA203-HE_180514A	129	R134710
Nitrogen, Total	0.58	mg/L		0.05		A4500 N-C	05/15/18 13:27 / cm	05/15/18 11:45	FIA203-HE_180515A	32	41513
Phosphorus, Total as P	0.138	mg/L		0.003		E365.1	05/15/18 15:23 / kmd	05/15/18 12:26	FIA202-HE_180515B	61	41518
METALS, DISSOLVED											
Arsenic	0.007	mg/L		0.001		E200.8	05/15/18 21:38 / dck		ICPMS205-H_180515B	275	R134786
Cadmium	ND	mg/L		0.00003		E200.8	05/15/18 21:38 / dck		ICPMS205-H_180515B	275	R134786
Copper	0.003	mg/L		0.001		E200.8	05/15/18 21:38 / dck		ICPMS205-H_180515B	275	R134786
Lead	0.0005	mg/L		0.0003		E200.8	05/15/18 21:38 / dck		ICPMS205-H_180515B	275	R134786
Zinc	0.009	mg/L		0.008		E200.8	05/15/18 21:38 / dck		ICPMS205-H_180515B	275	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.018	mg/L		0.001		E200.8	05/15/18 21:40 / dck	05/14/18 07:56	ICPMS205-H_180515B	276	41487
Cadmium	0.00019	mg/L		0.00003		E200.8	05/15/18 21:40 / dck	05/14/18 07:56	ICPMS205-H_180515B	276	41487
Calcium	19	mg/L		1		E200.7	05/15/18 17:20 / sld	05/14/18 07:56	ICP2-HE_180515C	105	41487
Copper	0.010	mg/L		0.001		E200.8	05/15/18 21:40 / dck	05/14/18 07:56	ICPMS205-H_180515B	276	41487
Lead	0.0151	mg/L		0.0003		E200.8	05/15/18 21:40 / dck	05/14/18 07:56	ICPMS205-H_180515B	276	41487
Magnesium	5	mg/L		1		E200.7	05/15/18 17:20 / sld	05/14/18 07:56	ICP2-HE_180515C	105	41487
Mercury	0.00067	mg/L	D	0.00001		E245.1	05/15/18 11:46 / PN	05/14/18 07:58	HGCV202-H_180515A	38	41491
Potassium	2	mg/L		1		E200.7	05/16/18 10:41 / sld	05/14/18 07:56	ICP2-HE_180516B	28	41487
Sodium	4	mg/L		1		E200.7	05/16/18 10:41 / sld	05/14/18 07:56	ICP2-HE_180516B	28	41487

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: FC-CFR Duplicate
Lab ID: H18050287-004
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 12:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.054	mg/L		0.008		E200.8	05/15/18 21:40 / dck	05/14/18 07:56	ICPMS205-H_180515B	276	41487

Report Definitions: RL - Analyte 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: H18050287-005
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 14:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	71	mg/L	D	10		A2540 D	05/14/18 13:38 / SR		-124 (14410200)_180514B	8	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	57	mg/L		4		A2320 B	05/14/18 19:22 / SR		PHSC_101-H_180514A	158	R134693
Bicarbonate as HCO3	69	mg/L		4		A2320 B	05/14/18 19:22 / SR		PHSC_101-H_180514A	158	R134693
Chloride	1	mg/L		1		E300.0	05/14/18 18:45 / SR		IC METROHM_180514A	26	R134723
Sulfate	6	mg/L		1		E300.0	05/14/18 18:45 / SR		IC METROHM_180514A	26	R134723
Hardness as CaCO3	63	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	6	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.019	mg/L	J	0.02		E353.2	05/14/18 12:42 / kmd		FIA203-HE_180514A	132	R134710
Nitrogen, Total	0.49	mg/L		0.05		A4500 N-C	05/15/18 13:28 / cm	05/15/18 11:45	FIA203-HE_180515A	33	41513
Phosphorus, Total as P	0.151	mg/L		0.003		E365.1	05/15/18 15:24 / kmd	05/15/18 12:26	FIA202-HE_180515B	62	41518
METALS, DISSOLVED											
Arsenic	0.005	mg/L		0.001		E200.8	05/15/18 21:42 / dck		ICPMS205-H_180515B	277	R134786
Cadmium	ND	mg/L		0.00003		E200.8	05/15/18 21:42 / dck		ICPMS205-H_180515B	277	R134786
Copper	0.002	mg/L		0.001		E200.8	05/15/18 21:42 / dck		ICPMS205-H_180515B	277	R134786
Lead	0.00020	mg/L	J	0.0003		E200.8	05/15/18 21:42 / dck		ICPMS205-H_180515B	277	R134786
Zinc	0.0046	mg/L	J	0.008		E200.8	05/15/18 21:42 / dck		ICPMS205-H_180515B	277	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.010	mg/L		0.001		E200.8	05/15/18 21:44 / dck	05/14/18 07:56	ICPMS205-H_180515B	278	41487
Cadmium	0.00010	mg/L		0.00003		E200.8	05/15/18 21:44 / dck	05/14/18 07:56	ICPMS205-H_180515B	278	41487
Calcium	18	mg/L		1		E200.7	05/15/18 17:23 / sld	05/14/18 07:56	ICP2-HE_180515C	106	41487
Copper	0.007	mg/L		0.001		E200.8	05/15/18 21:44 / dck	05/14/18 07:56	ICPMS205-H_180515B	278	41487
Lead	0.0045	mg/L		0.0003		E200.8	05/15/18 21:44 / dck	05/14/18 07:56	ICPMS205-H_180515B	278	41487
Magnesium	4	mg/L		1		E200.7	05/15/18 17:23 / sld	05/14/18 07:56	ICP2-HE_180515C	106	41487
Mercury	0.0000147	mg/L		5E-06		E245.1	05/15/18 11:37 / PN	05/14/18 07:58	HGCV202-H_180515A	35	41491
Potassium	2	mg/L		1		E200.7	05/16/18 10:45 / sld	05/14/18 07:56	ICP2-HE_180516B	29	41487
Sodium	3	mg/L		1		E200.7	05/16/18 10:45 / sld	05/14/18 07:56	ICP2-HE_180516B	29	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18050287-005
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 14:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.019	mg/L		0.008		E200.8	05/15/18 21:44 / dck	05/14/18 07:56	ICPMS205-H_180515B	: 278	41487

Report Definitions: RL - Analyte 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-34
Lab ID: H18050287-006
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 15:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	163	mg/L	D	10		A2540 D	05/14/18 13:38 / SR		-124 (14410200)_180514B	9	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	91	mg/L		4		A2320 B	05/14/18 19:27 / SR		PHSC_101-H_180514A	160	R134693
Bicarbonate as HCO3	110	mg/L		4		A2320 B	05/14/18 19:27 / SR		PHSC_101-H_180514A	160	R134693
Chloride	7	mg/L		1		E300.0	05/14/18 19:00 / SR		IC METROHM_180514A	27	R134723
Sulfate	39	mg/L		1		E300.0	05/14/18 19:00 / SR		IC METROHM_180514A	27	R134723
Hardness as CaCO3	130	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	7	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.02		E353.2	05/14/18 12:44 / kmd		FIA203-HE_180514A	133	R134710
Nitrogen, Total	0.74	mg/L		0.05		A4500 N-C	05/15/18 13:29 / cm	05/15/18 11:45	FIA203-HE_180515A	34	41513
Phosphorus, Total as P	0.228	mg/L		0.003		E365.1	05/15/18 15:25 / kmd	05/15/18 12:26	FIA202-HE_180515B	63	41518
METALS, DISSOLVED											
Arsenic	0.018	mg/L		0.001		E200.8	05/15/18 21:46 / dck		ICPMS205-H_180515B	279	R134786
Cadmium	0.00008	mg/L		0.00003		E200.8	05/15/18 21:46 / dck		ICPMS205-H_180515B	279	R134786
Copper	0.021	mg/L		0.001		E200.8	05/15/18 21:46 / dck		ICPMS205-H_180515B	279	R134786
Lead	0.0004	mg/L		0.0003		E200.8	05/15/18 21:46 / dck		ICPMS205-H_180515B	279	R134786
Zinc	0.012	mg/L		0.008		E200.8	05/15/18 21:46 / dck		ICPMS205-H_180515B	279	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.052	mg/L		0.001		E200.8	05/15/18 21:48 / dck	05/14/18 07:56	ICPMS205-H_180515B	280	41487
Cadmium	0.00087	mg/L		0.00003		E200.8	05/15/18 21:48 / dck	05/14/18 07:56	ICPMS205-H_180515B	280	41487
Calcium	38	mg/L		1		E200.7	05/15/18 17:27 / sld	05/14/18 07:56	ICP2-HE_180515C	107	41487
Copper	0.300	mg/L		0.001		E200.8	05/15/18 21:48 / dck	05/14/18 07:56	ICPMS205-H_180515B	280	41487
Lead	0.0378	mg/L		0.0003		E200.8	05/15/18 21:48 / dck	05/14/18 07:56	ICPMS205-H_180515B	280	41487
Magnesium	9	mg/L		1		E200.7	05/15/18 17:27 / sld	05/14/18 07:56	ICP2-HE_180515C	107	41487
Potassium	4	mg/L		1		E200.7	05/16/18 10:48 / sld	05/14/18 07:56	ICP2-HE_180516B	30	41487
Sodium	11	mg/L		1		E200.7	05/16/18 10:48 / sld	05/14/18 07:56	ICP2-HE_180516B	30	41487
Zinc	0.199	mg/L		0.008		E200.8	05/15/18 21:48 / dck	05/14/18 07:56	ICPMS205-H_180515B	280	41487

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-27H
Lab ID: H18050287-007
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 16:45
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	140	mg/L	D	10		A2540 D	05/14/18 13:39 / SR		I24 (14410200)_180514B	10	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	90	mg/L		4		A2320 B	05/14/18 19:33 / SR		PHSC_101-H_180514A	162	R134693
Bicarbonate as HCO3	110	mg/L		4		A2320 B	05/14/18 19:33 / SR		PHSC_101-H_180514A	162	R134693
Chloride	7	mg/L		1		E300.0	05/14/18 19:15 / SR		IC METROHM_180514A	28	R134723
Sulfate	43	mg/L		1		E300.0	05/14/18 19:15 / SR		IC METROHM_180514A	28	R134723
Hardness as CaCO3	130	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	8	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.02		E353.2	05/14/18 12:45 / kmd		FIA203-HE_180514A	134	R134710
Nitrogen, Total	0.72	mg/L		0.05		A4500 N-C	05/15/18 13:30 / cm	05/15/18 11:45	FIA203-HE_180515A	35	41513
Phosphorus, Total as P	0.208	mg/L		0.003		E365.1	05/15/18 15:26 / kmd	05/15/18 12:26	FIA202-HE_180515B	64	41518
METALS, DISSOLVED											
Arsenic	0.019	mg/L		0.001		E200.8	05/15/18 21:50 / dck		ICPMS205-H_180515B	281	R134786
Cadmium	0.00008	mg/L		0.00003		E200.8	05/15/18 21:50 / dck		ICPMS205-H_180515B	281	R134786
Copper	0.022	mg/L		0.001		E200.8	05/15/18 21:50 / dck		ICPMS205-H_180515B	281	R134786
Lead	0.0004	mg/L		0.0003		E200.8	05/15/18 21:50 / dck		ICPMS205-H_180515B	281	R134786
Zinc	0.012	mg/L		0.008		E200.8	05/15/18 21:50 / dck		ICPMS205-H_180515B	281	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.051	mg/L		0.001		E200.8	05/15/18 21:52 / dck	05/14/18 07:56	ICPMS205-H_180515B	282	41487
Cadmium	0.00081	mg/L		0.00003		E200.8	05/15/18 21:52 / dck	05/14/18 07:56	ICPMS205-H_180515B	282	41487
Calcium	38	mg/L		1		E200.7	05/15/18 17:38 / sld	05/14/18 07:56	ICP2-HE_180515C	110	41487
Copper	0.284	mg/L		0.001		E200.8	05/15/18 21:52 / dck	05/14/18 07:56	ICPMS205-H_180515B	282	41487
Lead	0.0329	mg/L		0.0003		E200.8	05/15/18 21:52 / dck	05/14/18 07:56	ICPMS205-H_180515B	282	41487
Magnesium	8	mg/L		1		E200.7	05/15/18 17:38 / sld	05/14/18 07:56	ICP2-HE_180515C	110	41487
Potassium	4	mg/L		1		E200.7	05/16/18 11:00 / sld	05/14/18 07:56	ICP2-HE_180516B	33	41487
Sodium	11	mg/L		1		E200.7	05/16/18 11:00 / sld	05/14/18 07:56	ICP2-HE_180516B	33	41487
Zinc	0.179	mg/L		0.008		E200.8	05/15/18 21:52 / dck	05/14/18 07:56	ICPMS205-H_180515B	282	41487

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-11F
Lab ID: H18050287-008
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 18:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	66	mg/L	D	10		A2540 D	05/14/18 13:39 / SR		I24 (14410200)_180514B	11	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	91	mg/L		4		A2320 B	05/14/18 19:39 / SR		PHSC_101-H_180514A	164	R134693
Bicarbonate as HCO3	110	mg/L		4		A2320 B	05/14/18 19:39 / SR		PHSC_101-H_180514A	164	R134693
Chloride	9	mg/L		1		E300.0	05/14/18 19:29 / SR		IC METROHM_180514A	29	R134723
Sulfate	50	mg/L		1		E300.0	05/14/18 19:29 / SR		IC METROHM_180514A	29	R134723
Hardness as CaCO3	141	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	9	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.02		E353.2	05/14/18 12:46 / kmd		FIA203-HE_180514A	135	R134710
Nitrogen, Total	0.57	mg/L		0.05		A4500 N-C	05/15/18 13:31 / cm	05/15/18 11:45	FIA203-HE_180515A	36	41513
Phosphorus, Total as P	0.123	mg/L		0.003		E365.1	05/15/18 15:27 / kmd	05/15/18 12:26	FIA202-HE_180515B	65	41518
METALS, DISSOLVED											
Arsenic	0.020	mg/L		0.001		E200.8	05/15/18 21:54 / dck		ICPMS205-H_180515B	283	R134786
Cadmium	0.00005	mg/L		0.00003		E200.8	05/15/18 21:54 / dck		ICPMS205-H_180515B	283	R134786
Copper	0.014	mg/L		0.001		E200.8	05/15/18 21:54 / dck		ICPMS205-H_180515B	283	R134786
Lead	0.00025	mg/L	J	0.0003		E200.8	05/15/18 21:54 / dck		ICPMS205-H_180515B	283	R134786
Zinc	0.008	mg/L		0.008		E200.8	05/15/18 21:54 / dck		ICPMS205-H_180515B	283	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.039	mg/L		0.001		E200.8	05/15/18 21:56 / dck	05/14/18 07:56	ICPMS205-H_180515B	284	41487
Cadmium	0.00052	mg/L		0.00003		E200.8	05/15/18 21:56 / dck	05/14/18 07:56	ICPMS205-H_180515B	284	41487
Calcium	42	mg/L		1		E200.7	05/15/18 17:42 / sld	05/14/18 07:56	ICP2-HE_180515C	111	41487
Copper	0.127	mg/L		0.001		E200.8	05/15/18 21:56 / dck	05/14/18 07:56	ICPMS205-H_180515B	284	41487
Lead	0.0180	mg/L		0.0003		E200.8	05/15/18 21:56 / dck	05/14/18 07:56	ICPMS205-H_180515B	284	41487
Magnesium	9	mg/L		1		E200.7	05/15/18 17:42 / sld	05/14/18 07:56	ICP2-HE_180515C	111	41487
Potassium	4	mg/L		1		E200.7	05/16/18 11:03 / sld	05/14/18 07:56	ICP2-HE_180516B	34	41487
Sodium	12	mg/L		1		E200.7	05/16/18 11:03 / sld	05/14/18 07:56	ICP2-HE_180516B	34	41487
Zinc	0.094	mg/L		0.008		E200.8	05/15/18 21:56 / dck	05/14/18 07:56	ICPMS205-H_180515B	284	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18050287-009
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 08:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	66	mg/L	D	10		A2540 D	05/14/18 13:39 / SR		I24 (14410200)_180514B	12	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	91	mg/L		4		A2320 B	05/14/18 19:45 / SR		PHSC_101-H_180514A	166	R134693
Bicarbonate as HCO3	110	mg/L		4		A2320 B	05/14/18 19:45 / SR		PHSC_101-H_180514A	166	R134693
Chloride	8	mg/L		1		E300.0	05/14/18 19:44 / SR		IC METROHM_180514A	30	R134723
Sulfate	51	mg/L		1		E300.0	05/14/18 19:44 / SR		IC METROHM_180514A	30	R134723
Hardness as CaCO3	133	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	10	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.02		E353.2	05/14/18 12:47 / kmd		FIA203-HE_180514A	136	R134710
Nitrogen, Total	0.57	mg/L		0.05		A4500 N-C	05/15/18 13:33 / cm	05/15/18 11:45	FIA203-HE_180515A	37	41513
Phosphorus, Total as P	0.113	mg/L		0.003		E365.1	05/15/18 15:28 / kmd	05/15/18 12:26	FIA202-HE_180515B	66	41518
METALS, DISSOLVED											
Arsenic	0.019	mg/L		0.001		E200.8	05/15/18 22:04 / dck		ICPMS205-H_180515B	288	R134786
Cadmium	0.00006	mg/L		0.00003		E200.8	05/15/18 22:04 / dck		ICPMS205-H_180515B	288	R134786
Copper	0.013	mg/L		0.001		E200.8	05/15/18 22:04 / dck		ICPMS205-H_180515B	288	R134786
Lead	0.00023	mg/L	J	0.0003		E200.8	05/15/18 22:04 / dck		ICPMS205-H_180515B	288	R134786
Zinc	0.011	mg/L		0.008		E200.8	05/15/18 22:04 / dck		ICPMS205-H_180515B	288	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.037	mg/L		0.001		E200.8	05/15/18 22:06 / dck	05/14/18 07:56	ICPMS205-H_180515B	289	41487
Cadmium	0.00045	mg/L		0.00003		E200.8	05/15/18 22:06 / dck	05/14/18 07:56	ICPMS205-H_180515B	289	41487
Calcium	40	mg/L		1		E200.7	05/15/18 17:46 / sld	05/14/18 07:56	ICP2-HE_180515C	112	41487
Copper	0.122	mg/L		0.001		E200.8	05/15/18 22:06 / dck	05/14/18 07:56	ICPMS205-H_180515B	289	41487
Lead	0.0150	mg/L		0.0003		E200.8	05/15/18 22:06 / dck	05/14/18 07:56	ICPMS205-H_180515B	289	41487
Magnesium	8	mg/L		1		E200.7	05/15/18 17:46 / sld	05/14/18 07:56	ICP2-HE_180515C	112	41487
Potassium	3	mg/L		1		E200.7	05/16/18 11:07 / sld	05/14/18 07:56	ICP2-HE_180516B	35	41487
Sodium	11	mg/L		1		E200.7	05/16/18 11:07 / sld	05/14/18 07:56	ICP2-HE_180516B	35	41487
Zinc	0.091	mg/L		0.008		E200.8	05/15/18 22:06 / dck	05/14/18 07:56	ICPMS205-H_180515B	289	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18050287-010
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 09:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	32	mg/L	D	10		A2540 D	05/14/18 13:39 / SR		I24 (14410200)_180514B	13	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	82	mg/L		4		A2320 B	05/14/18 19:51 / SR		PHSC_101-H_180514A	168	R134693
Bicarbonate as HCO3	99	mg/L		4		A2320 B	05/14/18 19:51 / SR		PHSC_101-H_180514A	168	R134693
Chloride	9	mg/L		1		E300.0	05/14/18 19:58 / SR		IC METROHM_180514A	31	R134723
Sulfate	40	mg/L		1		E300.0	05/14/18 19:58 / SR		IC METROHM_180514A	31	R134723
Hardness as CaCO3	118	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	11	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	05/14/18 12:48 / kmd		FIA203-HE_180514A	137	R134710
Nitrogen, Total	0.50	mg/L		0.05		A4500 N-C	05/15/18 13:34 / cm	05/15/18 11:45	FIA203-HE_180515A	38	41513
Phosphorus, Total as P	0.081	mg/L		0.003		E365.1	05/15/18 15:29 / kmd	05/15/18 12:26	FIA202-HE_180515B	67	41518
METALS, DISSOLVED											
Arsenic	0.019	mg/L		0.001		E200.8	05/15/18 22:08 / dck		ICPMS205-H_180515B	290	R134786
Cadmium	0.00005	mg/L		0.00003		E200.8	05/15/18 22:08 / dck		ICPMS205-H_180515B	290	R134786
Copper	0.009	mg/L		0.001		E200.8	05/15/18 22:08 / dck		ICPMS205-H_180515B	290	R134786
Lead	0.00016	mg/L	J	0.0003		E200.8	05/15/18 22:08 / dck		ICPMS205-H_180515B	290	R134786
Zinc	0.0075	mg/L	J	0.008		E200.8	05/15/18 22:08 / dck		ICPMS205-H_180515B	290	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.024	mg/L		0.001		E200.8	05/15/18 22:09 / dck	05/14/18 07:56	ICPMS205-H_180515B	291	41487
Cadmium	0.00024	mg/L		0.00003		E200.8	05/15/18 22:09 / dck	05/14/18 07:56	ICPMS205-H_180515B	291	41487
Calcium	35	mg/L		1		E200.7	05/15/18 18:05 / sld	05/14/18 07:56	ICP2-HE_180515C	117	41487
Copper	0.040	mg/L		0.001		E200.8	05/15/18 22:09 / dck	05/14/18 07:56	ICPMS205-H_180515B	291	41487
Lead	0.0045	mg/L		0.0003		E200.8	05/15/18 22:09 / dck	05/14/18 07:56	ICPMS205-H_180515B	291	41487
Magnesium	7	mg/L		1		E200.7	05/15/18 18:05 / sld	05/14/18 07:56	ICP2-HE_180515C	117	41487
Potassium	3	mg/L		1		E200.7	05/16/18 11:26 / sld	05/14/18 07:56	ICP2-HE_180516B	40	41487
Sodium	11	mg/L		1		E200.7	05/16/18 11:26 / sld	05/14/18 07:56	ICP2-HE_180516B	40	41487
Zinc	0.036	mg/L		0.008		E200.8	05/15/18 22:09 / dck	05/14/18 07:56	ICPMS205-H_180515B	291	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18050287-011
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 10:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	67	mg/L	D	10		A2540 D	05/14/18 13:39 / SR		I24 (14410200)_180514B	14	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	82	mg/L		4		A2320 B	05/14/18 19:57 / SR		PHSC_101-H_180514A	170	R134693
Bicarbonate as HCO3	99	mg/L		4		A2320 B	05/14/18 19:57 / SR		PHSC_101-H_180514A	170	R134693
Chloride	0.71	mg/L	J	1		E300.0	05/14/18 21:26 / SR		IC METROHM_180514A	36	R134723
Sulfate	15	mg/L		1		E300.0	05/14/18 21:26 / SR		IC METROHM_180514A	36	R134723
Hardness as CaCO3	96	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	12	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.02		E353.2	05/14/18 12:52 / kmd		FIA203-HE_180514A	140	R134710
Nitrogen, Total	0.47	mg/L		0.05		A4500 N-C	05/15/18 13:40 / cm	05/15/18 11:46	FIA203-HE_180515A	43	41514
Phosphorus, Total as P	0.090	mg/L		0.003		E365.1	05/15/18 15:30 / kmd	05/15/18 12:26	FIA202-HE_180515B	68	41518
METALS, DISSOLVED											
Arsenic	0.005	mg/L		0.001		E200.8	05/15/18 22:11 / dck		ICPMS205-H_180515B	292	R134786
Cadmium	0.00003	mg/L		0.00003		E200.8	05/15/18 22:11 / dck		ICPMS205-H_180515B	292	R134786
Copper	0.006	mg/L		0.001		E200.8	05/15/18 22:11 / dck		ICPMS205-H_180515B	292	R134786
Lead	0.00008	mg/L	J	0.0003		E200.8	05/15/18 22:11 / dck		ICPMS205-H_180515B	292	R134786
Zinc	0.0044	mg/L	J	0.008		E200.8	05/15/18 22:11 / dck		ICPMS205-H_180515B	292	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.013	mg/L		0.001		E200.8	05/15/18 22:13 / dck	05/14/18 07:56	ICPMS205-H_180515B	293	41487
Cadmium	0.00024	mg/L		0.00003		E200.8	05/15/18 22:13 / dck	05/14/18 07:56	ICPMS205-H_180515B	293	41487
Calcium	29	mg/L		1		E200.7	05/15/18 18:08 / sld	05/14/18 07:56	ICP2-HE_180515C	118	41487
Copper	0.068	mg/L		0.001		E200.8	05/15/18 22:13 / dck	05/14/18 07:56	ICPMS205-H_180515B	293	41487
Lead	0.0069	mg/L		0.0003		E200.8	05/15/18 22:13 / dck	05/14/18 07:56	ICPMS205-H_180515B	293	41487
Magnesium	6	mg/L		1		E200.7	05/15/18 18:08 / sld	05/14/18 07:56	ICP2-HE_180515C	118	41487
Potassium	2	mg/L		1		E200.7	05/16/18 11:30 / sld	05/14/18 07:56	ICP2-HE_180516B	41	41487
Sodium	2	mg/L		1		E200.7	05/16/18 11:30 / sld	05/14/18 07:56	ICP2-HE_180516B	41	41487
Zinc	0.035	mg/L		0.008		E200.8	05/15/18 22:13 / dck	05/14/18 07:56	ICPMS205-H_180515B	293	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18050287-012
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 11:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	16	mg/L	D	5		A2540 D	05/14/18 13:40 / SR		I24 (14410200)_180514B	16	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	74	mg/L		4		A2320 B	05/14/18 20:03 / SR		PHSC_101-H_180514A	172	R134693
Bicarbonate as HCO3	90	mg/L		4		A2320 B	05/14/18 20:03 / SR		PHSC_101-H_180514A	172	R134693
Chloride	10	mg/L		1		E300.0	05/14/18 21:41 / SR		IC METROHM_180514A	37	R134723
Sulfate	48	mg/L		1		E300.0	05/14/18 21:41 / SR		IC METROHM_180514A	37	R134723
Hardness as CaCO3	112	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	13	R134831
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/16/18 13:01 / kmd		FIA203-HE_180516B	77	R134788
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	05/14/18 12:53 / kmd		FIA203-HE_180514A	141	R134710
Nitrogen, Total	0.51	mg/L		0.05		A4500 N-C	05/15/18 13:41 / cm	05/15/18 11:46	FIA203-HE_180515A	44	41514
Phosphorus, Total as P	0.081	mg/L		0.003		E365.1	05/16/18 14:56 / cm	05/16/18 14:34	FIA202-HE_180516B	14	41538
METALS, DISSOLVED											
Arsenic	0.028	mg/L		0.001		E200.8	05/15/18 22:15 / dck		ICPMS205-H_180515B	294	R134786
Cadmium	0.00006	mg/L		0.00003		E200.8	05/15/18 22:15 / dck		ICPMS205-H_180515B	294	R134786
Copper	0.009	mg/L		0.001		E200.8	05/15/18 22:15 / dck		ICPMS205-H_180515B	294	R134786
Lead	0.00022	mg/L	J	0.0003		E200.8	05/15/18 22:15 / dck		ICPMS205-H_180515B	294	R134786
Zinc	0.010	mg/L		0.008		E200.8	05/15/18 22:15 / dck		ICPMS205-H_180515B	294	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.032	mg/L		0.001		E200.8	05/15/18 22:17 / dck	05/14/18 07:56	ICPMS205-H_180515B	295	41487
Cadmium	0.00022	mg/L		0.00003		E200.8	05/15/18 22:17 / dck	05/14/18 07:56	ICPMS205-H_180515B	295	41487
Calcium	33	mg/L		1		E200.7	05/15/18 18:12 / sld	05/14/18 07:56	ICP2-HE_180515C	119	41487
Copper	0.018	mg/L		0.001		E200.8	05/15/18 22:17 / dck	05/14/18 07:56	ICPMS205-H_180515B	295	41487
Lead	0.0026	mg/L		0.0003		E200.8	05/15/18 22:17 / dck	05/14/18 07:56	ICPMS205-H_180515B	295	41487
Magnesium	7	mg/L		1		E200.7	05/15/18 18:12 / sld	05/14/18 07:56	ICP2-HE_180515C	119	41487
Potassium	4	mg/L		1		E200.7	05/16/18 11:33 / sld	05/14/18 07:56	ICP2-HE_180516B	42	41487
Sodium	13	mg/L		1		E200.7	05/16/18 11:33 / sld	05/14/18 07:56	ICP2-HE_180516B	42	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Project: CFROU Monitoring
Client Sample ID: SS-25
Collection Date: 05/10/18 11:00
DateReceived: 05/11/18
Lab ID: H18050287-012
Report Date: 06/12/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.027	mg/L		0.008		E200.8	05/15/18 22:17 / dck	05/14/18 07:56	ICPMS205-H_180515B	: 295	41487

Report Definitions: RL - Analyte 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: H18050287-013
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 11:40
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	23	mg/L	D	10		A2540 D	05/14/18 13:40 / SR		I24 (14410200)_180514B	17	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	56	mg/L		4		A2320 B	05/14/18 20:09 / SR		PHSC_101-H_180514A	174	R134693
Bicarbonate as HCO3	68	mg/L		4		A2320 B	05/14/18 20:09 / SR		PHSC_101-H_180514A	174	R134693
Chloride	2	mg/L		1		E300.0	05/14/18 21:55 / SR		IC METROHM_180514A	38	R134723
Sulfate	38	mg/L		1		E300.0	05/14/18 21:55 / SR		IC METROHM_180514A	38	R134723
Hardness as CaCO3	84	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	14	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.019	mg/L	J	0.02		E353.2	05/14/18 12:54 / kmd		FIA203-HE_180514A	142	R134710
Nitrogen, Total	0.47	mg/L		0.05		A4500 N-C	05/15/18 13:42 / cm	05/15/18 11:46	FIA203-HE_180515A	45	41514
Phosphorus, Total as P	0.077	mg/L		0.003		E365.1	05/16/18 15:11 / cm	05/16/18 14:34	FIA202-HE_180516B	28	41538
METALS, DISSOLVED											
Arsenic	0.040	mg/L		0.001		E200.8	05/15/18 22:31 / dck		ICPMS205-H_180515B	302	R134786
Cadmium	0.00004	mg/L		0.00003		E200.8	05/15/18 22:31 / dck		ICPMS205-H_180515B	302	R134786
Copper	0.009	mg/L		0.001		E200.8	05/15/18 22:31 / dck		ICPMS205-H_180515B	302	R134786
Lead	0.0003	mg/L		0.0003		E200.8	05/15/18 22:31 / dck		ICPMS205-H_180515B	302	R134786
Zinc	0.0077	mg/L	J	0.008		E200.8	05/15/18 22:31 / dck		ICPMS205-H_180515B	302	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.045	mg/L		0.001		E200.8	05/15/18 22:33 / dck	05/14/18 07:56	ICPMS205-H_180515B	303	41487
Cadmium	0.00019	mg/L		0.00003		E200.8	05/15/18 22:33 / dck	05/14/18 07:56	ICPMS205-H_180515B	303	41487
Calcium	25	mg/L		1		E200.7	05/15/18 18:23 / sld	05/14/18 07:56	ICP2-HE_180515C	122	41487
Copper	0.019	mg/L		0.001		E200.8	05/15/18 22:33 / dck	05/14/18 07:56	ICPMS205-H_180515B	303	41487
Lead	0.0039	mg/L		0.0003		E200.8	05/15/18 22:33 / dck	05/14/18 07:56	ICPMS205-H_180515B	303	41487
Magnesium	5	mg/L		1		E200.7	05/15/18 18:23 / sld	05/14/18 07:56	ICP2-HE_180515C	122	41487
Potassium	2	mg/L		1		E200.7	05/15/18 18:23 / sld	05/14/18 07:56	ICP2-HE_180515C	122	41487
Sodium	8	mg/L		1		E200.7	05/15/18 18:23 / sld	05/14/18 07:56	ICP2-HE_180515C	122	41487
Zinc	0.020	mg/L		0.008		E200.8	05/15/18 22:33 / dck	05/14/18 07:56	ICPMS205-H_180515B	303	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 Duplicate
Lab ID: H18050287-014
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 11:40
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	25	mg/L	D	10		A2540 D	05/14/18 13:40 / SR		I24 (14410200)_180514B	18	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	57	mg/L		4		A2320 B	05/14/18 20:14 / SR		PHSC_101-H_180514A	176	R134693
Bicarbonate as HCO3	69	mg/L		4		A2320 B	05/14/18 20:14 / SR		PHSC_101-H_180514A	176	R134693
Chloride	2	mg/L		1		E300.0	05/14/18 22:10 / SR		IC METROHM_180514A	39	R134723
Sulfate	37	mg/L		1		E300.0	05/14/18 22:10 / SR		IC METROHM_180514A	39	R134723
Hardness as CaCO3	84	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	15	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.019	mg/L	J	0.02		E353.2	05/14/18 12:55 / kmd		FIA203-HE_180514A	143	R134710
Nitrogen, Total	0.49	mg/L		0.05		A4500 N-C	05/15/18 13:43 / cm	05/15/18 11:46	FIA203-HE_180515A	46	41514
Phosphorus, Total as P	0.091	mg/L		0.003		E365.1	05/16/18 14:59 / cm	05/16/18 14:34	FIA202-HE_180516B	17	41538
METALS, DISSOLVED											
Arsenic	0.040	mg/L		0.001		E200.8	05/15/18 22:35 / dck		ICPMS205-H_180515B	304	R134786
Cadmium	0.00004	mg/L		0.00003		E200.8	05/15/18 22:35 / dck		ICPMS205-H_180515B	304	R134786
Copper	0.009	mg/L		0.001		E200.8	05/15/18 22:35 / dck		ICPMS205-H_180515B	304	R134786
Lead	0.0003	mg/L		0.0003		E200.8	05/15/18 22:35 / dck		ICPMS205-H_180515B	304	R134786
Zinc	0.0079	mg/L	J	0.008		E200.8	05/15/18 22:35 / dck		ICPMS205-H_180515B	304	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.046	mg/L		0.001		E200.8	05/15/18 22:37 / dck	05/14/18 07:56	ICPMS205-H_180515B	305	41487
Cadmium	0.00021	mg/L		0.00003		E200.8	05/15/18 22:37 / dck	05/14/18 07:56	ICPMS205-H_180515B	305	41487
Calcium	25	mg/L		1		E200.7	05/15/18 18:27 / sld	05/14/18 07:56	ICP2-HE_180515C	123	41487
Copper	0.019	mg/L		0.001		E200.8	05/15/18 22:37 / dck	05/14/18 07:56	ICPMS205-H_180515B	305	41487
Lead	0.0039	mg/L		0.0003		E200.8	05/15/18 22:37 / dck	05/14/18 07:56	ICPMS205-H_180515B	305	41487
Magnesium	5	mg/L		1		E200.7	05/15/18 18:27 / sld	05/14/18 07:56	ICP2-HE_180515C	123	41487
Potassium	2	mg/L		1		E200.7	05/15/18 18:27 / sld	05/14/18 07:56	ICP2-HE_180515C	123	41487
Sodium	8	mg/L		1		E200.7	05/15/18 18:27 / sld	05/14/18 07:56	ICP2-HE_180515C	123	41487
Zinc	0.021	mg/L		0.008		E200.8	05/15/18 22:37 / dck	05/14/18 07:56	ICPMS205-H_180515B	305	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 MCWC-MWB
Lab ID: H18050287-015
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 12:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	05/14/18 13:41 / SR		I24 (14410200)_180514B	19	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L	J	4		A2320 B	05/14/18 20:20 / SR		PHSC_101-H_180514A	178	R134693
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/14/18 20:20 / SR		PHSC_101-H_180514A	178	R134693
Chloride	ND	mg/L		1		E300.0	05/14/18 22:25 / SR		IC METROHM_180514A	40	R134723
Sulfate	ND	mg/L		1		E300.0	05/14/18 22:25 / SR		IC METROHM_180514A	40	R134723
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	16	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02		E353.2	05/14/18 12:59 / kmd		FIA203-HE_180514A	146	R134710
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	05/15/18 13:45 / cm	05/15/18 11:46	FIA203-HE_180515A	47	41514
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	05/16/18 15:00 / cm	05/16/18 14:34	FIA202-HE_180516B	18	41538
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.001		E200.8	05/15/18 22:39 / dck		ICPMS205-H_180515B	306	R134786
Cadmium	ND	mg/L		0.00003		E200.8	05/15/18 22:39 / dck		ICPMS205-H_180515B	306	R134786
Copper	ND	mg/L		0.001		E200.8	05/15/18 22:39 / dck		ICPMS205-H_180515B	306	R134786
Lead	ND	mg/L		0.0003		E200.8	05/15/18 22:39 / dck		ICPMS205-H_180515B	306	R134786
Zinc	0.009	mg/L		0.008		E200.8	05/15/18 22:39 / dck		ICPMS205-H_180515B	306	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.00009	mg/L	J	0.001		E200.8	05/15/18 22:41 / dck	05/14/18 07:56	ICPMS205-H_180515B	307	41487
Cadmium	ND	mg/L		0.00003		E200.8	05/15/18 22:41 / dck	05/14/18 07:56	ICPMS205-H_180515B	307	41487
Calcium	0.17	mg/L	J	1		E200.7	05/15/18 18:31 / sld	05/14/18 07:56	ICP2-HE_180515C	124	41487
Copper	ND	mg/L		0.001		E200.8	05/15/18 22:41 / dck	05/14/18 07:56	ICPMS205-H_180515B	307	41487
Lead	ND	mg/L		0.0003		E200.8	05/15/18 22:41 / dck	05/14/18 07:56	ICPMS205-H_180515B	307	41487
Magnesium	0.018	mg/L	J	1		E200.7	05/15/18 18:31 / sld	05/14/18 07:56	ICP2-HE_180515C	124	41487
Potassium	ND	mg/L		1		E200.7	05/15/18 18:31 / sld	05/14/18 07:56	ICP2-HE_180515C	124	41487
Sodium	ND	mg/L		1		E200.7	05/15/18 18:31 / sld	05/14/18 07:56	ICP2-HE_180515C	124	41487
Zinc	ND	mg/L		0.008		E200.8	05/15/18 22:41 / dck	05/14/18 07:56	ICPMS205-H_180515B	307	41487

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: MCWC-MWB
Lab ID: H18050287-016
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 12:45
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	43	mg/L	D	10		A2540 D	05/14/18 13:41 / SR		I24 (14410200)_180514B	20	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	45	mg/L		4		A2320 B	05/14/18 20:26 / SR		PHSC_101-H_180514A	180	R134693
Bicarbonate as HCO3	54	mg/L		4		A2320 B	05/14/18 20:26 / SR		PHSC_101-H_180514A	180	R134693
Chloride	0.84	mg/L	J	1		E300.0	05/14/18 22:39 / SR		IC METROHM_180514A	41	R134723
Sulfate	10	mg/L		1		E300.0	05/14/18 22:39 / SR		IC METROHM_180514A	41	R134723
Hardness as CaCO3	49	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	17	R134831
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	05/14/18 13:03 / kmd		FIA203-HE_180514A	149	R134710
Nitrogen, Total	0.52	mg/L		0.05		A4500 N-C	05/15/18 13:48 / cm	05/15/18 11:46	FIA203-HE_180515A	50	41514
Phosphorus, Total as P	0.110	mg/L		0.003		E365.1	05/16/18 15:01 / cm	05/16/18 14:34	FIA202-HE_180516B	19	41538
METALS, DISSOLVED											
Arsenic	0.042	mg/L		0.001		E200.8	05/15/18 22:49 / dck		ICPMS205-H_180515B	311	R134786
Cadmium	0.00004	mg/L		0.00003		E200.8	05/15/18 22:49 / dck		ICPMS205-H_180515B	311	R134786
Copper	0.010	mg/L		0.001		E200.8	05/15/18 22:49 / dck		ICPMS205-H_180515B	311	R134786
Lead	0.0004	mg/L		0.0003		E200.8	05/15/18 22:49 / dck		ICPMS205-H_180515B	311	R134786
Zinc	0.014	mg/L		0.008		E200.8	05/15/18 22:49 / dck		ICPMS205-H_180515B	311	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.051	mg/L		0.001		E200.8	05/15/18 22:51 / dck	05/14/18 07:56	ICPMS205-H_180515B	312	41487
Cadmium	0.00035	mg/L		0.00003		E200.8	05/15/18 22:51 / dck	05/14/18 07:56	ICPMS205-H_180515B	312	41487
Calcium	14	mg/L		1		E200.7	05/15/18 18:35 / sld	05/14/18 07:56	ICP2-HE_180515C	125	41487
Copper	0.030	mg/L		0.001		E200.8	05/15/18 22:51 / dck	05/14/18 07:56	ICPMS205-H_180515B	312	41487
Lead	0.0074	mg/L		0.0003		E200.8	05/15/18 22:51 / dck	05/14/18 07:56	ICPMS205-H_180515B	312	41487
Magnesium	3	mg/L		1		E200.7	05/15/18 18:35 / sld	05/14/18 07:56	ICP2-HE_180515C	125	41487
Potassium	2	mg/L		1		E200.7	05/15/18 18:35 / sld	05/14/18 07:56	ICP2-HE_180515C	125	41487
Sodium	6	mg/L		1		E200.7	05/15/18 18:35 / sld	05/14/18 07:56	ICP2-HE_180515C	125	41487
Zinc	0.040	mg/L		0.008		E200.8	05/15/18 22:51 / dck	05/14/18 07:56	ICPMS205-H_180515B	312	41487

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SS-19
Lab ID: H18050287-017
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 13:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	55	mg/L	D	10		A2540 D	05/14/18 13:41 / SR		I24 (14410200)_180514B	21	TSS180514A
INORGANICS											
Alkalinity, Total as CaCO3	68	mg/L		4		A2320 B	05/14/18 20:31 / SR		PHSC_101-H_180514A	182	R134693
Bicarbonate as HCO3	83	mg/L		4		A2320 B	05/14/18 20:31 / SR		PHSC_101-H_180514A	182	R134693
Chloride	8	mg/L		1		E300.0	05/14/18 22:54 / SR		IC METROHM_180514A	42	R134723
Sulfate	31	mg/L		1		E300.0	05/14/18 22:54 / SR		IC METROHM_180514A	42	R134723
Hardness as CaCO3	92	mg/L		1		A2340 B	05/18/18 07:47 / sld		WATERCALC_180518A	18	R134831
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	05/16/18 13:02 / kmd		FIA203-HE_180516B	78	R134788
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.02		E353.2	05/14/18 13:04 / kmd		FIA203-HE_180514A	150	R134710
Nitrogen, Total	0.67	mg/L		0.05		A4500 N-C	05/15/18 13:49 / cm	05/15/18 11:46	FIA203-HE_180515A	51	41514
Phosphorus, Total as P	0.217	mg/L		0.003		E365.1	05/16/18 15:02 / cm	05/16/18 14:34	FIA202-HE_180516B	20	41538
METALS, DISSOLVED											
Arsenic	0.012	mg/L		0.001		E200.8	05/15/18 22:53 / dck		ICPMS205-H_180515B	313	R134786
Cadmium	0.00011	mg/L		0.00003		E200.8	05/15/18 22:53 / dck		ICPMS205-H_180515B	313	R134786
Copper	0.017	mg/L		0.001		E200.8	05/15/18 22:53 / dck		ICPMS205-H_180515B	313	R134786
Lead	0.0004	mg/L		0.0003		E200.8	05/15/18 22:53 / dck		ICPMS205-H_180515B	313	R134786
Zinc	0.030	mg/L		0.008		E200.8	05/15/18 22:53 / dck		ICPMS205-H_180515B	313	R134786
METALS, TOTAL RECOVERABLE											
Arsenic	0.016	mg/L		0.001		E200.8	05/15/18 22:55 / dck	05/14/18 07:56	ICPMS205-H_180515B	314	41487
Cadmium	0.00040	mg/L		0.00003		E200.8	05/15/18 22:55 / dck	05/14/18 07:56	ICPMS205-H_180515B	314	41487
Calcium	28	mg/L		1		E200.7	05/15/18 18:39 / sld	05/14/18 07:56	ICP2-HE_180515C	126	41487
Copper	0.046	mg/L		0.001		E200.8	05/15/18 22:55 / dck	05/14/18 07:56	ICPMS205-H_180515B	314	41487
Lead	0.0086	mg/L		0.0003		E200.8	05/15/18 22:55 / dck	05/14/18 07:56	ICPMS205-H_180515B	314	41487
Magnesium	6	mg/L		1		E200.7	05/15/18 18:39 / sld	05/14/18 07:56	ICP2-HE_180515C	126	41487
Potassium	4	mg/L		1		E200.7	05/15/18 18:39 / sld	05/14/18 07:56	ICP2-HE_180515C	126	41487
Sodium	13	mg/L		1		E200.7	05/15/18 18:39 / sld	05/14/18 07:56	ICP2-HE_180515C	126	41487

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SS-19
Lab ID: H18050287-017
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/10/18 13:30
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.093	mg/L		0.008		E200.8	05/15/18 22:55 / dck	05/14/18 07:56	ICPMS205-H_180515B	314	41487

Report Definitions: RL - Analyte 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-84F
Lab ID: H18050287-018
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 11:00
DateReceived: 05/11/18
Report Date: 06/12/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Mercury	0.00018	mg/L	D	0.00001		E245.1	05/17/18 11:38 / PN	05/14/18 07:58	HGCV202-H_180517A	: 25	41491

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Methyl Hg Blank 17-0218
Lab ID: H18050287-019
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 05/09/18 09:45
DateReceived: 05/11/18
Report Date: 06/12/18

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 180515wa-hg202

Date: *12-Jun-18*

Run ID :Run Order: **HGCV202-H_180515A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **05/15/18 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
Mercury	9.68E-05	0.00010	0.0001	0	97	90	110				

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C**

Run ID :Run Order: **HGCV202-H_180515A: 22** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E245.1**

Analysis Date: **05/15/18 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
Mercury	9.53E-05	0.00010	0.0001	0	95	90	110				

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C**

Run ID :Run Order: **HGCV202-H_180515A: 33** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E245.1**

Analysis Date: **05/15/18 11:31** 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
Mercury	9.77E-05	0.00010	0.0001	0	98	90	110				

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 180517wa-hg202

Date: *12-Jun-18*

Run ID :Run Order: **HGCV202-H_180517A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **05/17/18 10:42** 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
Mercury	9.52E-05	0.00010	0.0001	0	95	90	110				

Associated samples: **H18050287-018B**

Run ID :Run Order: **HGCV202-H_180517A: 19** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E245.1**

Analysis Date: **05/17/18 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
Mercury	9.67E-05	0.00010	0.0001	0	97	90	110				

Associated samples: **H18050287-018B**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41487

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180515C: 92** SampType: **Method Blank** Lab ID: **MB-41487** Method: **E200.7**
Analysis Date: **05/15/18 16:30** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.2	0.01									
Magnesium	0.02	0.009									
Potassium	ND	0.05									
Sodium	ND	0.02									

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 93** SampType: **Laboratory Control Sample** Lab ID: **LCS-41487** Method: **E200.7**
Analysis Date: **05/15/18 16:34** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.8	1.0	25	0.1576	**103**	85	115				
Magnesium	25.2	1.0	25	0.0196	**101**	85	115				
Potassium	25.2	1.0	25	0	**101**	85	115				
Sodium	25.2	1.0	25	0	**101**	85	115				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 95** SampType: **Serial Dilution** Lab ID: **H18050284-015CDIL** Method: **E200.7**
Analysis Date: **05/15/18 16:42** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	4.45	1.0		0		0	0	4.248	**4.6**	10	
Magnesium	0.692	1.0		0		0	0	0.691		10	
Potassium	ND	1.0		0		0	0	0.2675		10	
Sodium	0.497	1.0		0		0	0	0.4982		10	N

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 99** SampType: **Sample Matrix Spike** Lab ID: **H18050284-015CMS3** Method: **E200.7**
Analysis Date: **05/15/18 16:57** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	29.9	1.0	25	4.248	**103**	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41487

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180515C: 99** SampType: **Sample Matrix Spike** Lab ID: **H18050284-015CMS3** Method: **E200.7**
Analysis Date: **05/15/18 16:57** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	25.9	1.0	25	0.691	101	70	130				
Potassium	27.0	1.0	25	0.2675	107	70	130				
Sodium	26.9	1.0	25	0.4982	106	70	130				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 100** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050284-015CMSD3** Method: **E200.7**
Analysis Date: **05/15/18 17:01** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	29.3	1.0	25	4.248	100	70	130	29.9	2.1	20	
Magnesium	25.3	1.0	25	0.691	98	70	130	25.9	2.3	20	
Potassium	28.9	1.0	25	0.2675	115	70	130	27.05	6.8	20	
Sodium	26.6	1.0	25	0.4982	104	70	130	26.89	1.2	20	

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 113** SampType: **Serial Dilution** Lab ID: **H18050287-009CDIL** Method: **E200.7**
Analysis Date: **05/15/18 17:50** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.8	1.0		0		0	0	39.51	0.7	10	
Magnesium	8.68	1.0		0		0	0	8.398	3.3	10	
Potassium	3.25	1.0		0		0	0	3.362	3.2	10	
Sodium	11.3	1.0		0		0	0	11.24	0.1	10	

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 115** SampType: **Sample Matrix Spike** Lab ID: **H18050287-009CMS3** Method: **E200.7**
Analysis Date: **05/15/18 17:57** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	63.9	1.0	25	39.51	97	70	130				
Magnesium	32.7	1.0	25	8.398	97	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41487

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180515C: 115** SampType: **Sample Matrix Spike** Lab ID: **H18050287-009CMS3** Method: **E200.7**
Analysis Date: **05/15/18 17:57** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	31.2	1.0	25	3.362	111	70	130				
Sodium	39.4	1.0	25	11.24	113	70	130				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 116** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-009CMSD3** Method: **E200.7**
Analysis Date: **05/15/18 18:01** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	65.0	1.0	25	39.51	102	70	130	63.88	1.8	20	
Magnesium	33.4	1.0	25	8.398	100	70	130	32.68	2.2	20	
Potassium	32.5	1.0	25	3.362	116	70	130	31.22	4.0	20	
Sodium	41.0	1.0	25	11.24	119	70	130	39.41	3.9	20	

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180516B: 23** SampType: **Method Blank** Lab ID: **MB-41487** Method: **E200.7**
Analysis Date: **05/16/18 10:22** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.2	0.01									
Magnesium	0.03	0.009									
Potassium	ND	0.05									
Sodium	ND	0.02									

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180516B: 24** SampType: **Laboratory Control Sample** Lab ID: **LCS-41487** Method: **E200.7**
Analysis Date: **05/16/18 10:26** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.3	1.0	25	0.1818	104	85	115				
Magnesium	25.9	1.0	25	0.02593	104	85	115				
Potassium	24.7	1.0	25	0	99	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41487

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180516B: 24** SampType: **Laboratory Control Sample** Lab ID: **LCS-41487** Method: **E200.7**
Analysis Date: **05/16/18 10:26** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	24.6	1.0	25	0	98	85	115				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180516B: 36** SampType: **Serial Dilution** Lab ID: **H18050287-009CDIL** Method: **E200.7**
Analysis Date: **05/16/18 11:11** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	38.3	1.0		0		0	0	40.04	4.6	10	
Magnesium	8.43	1.0		0		0	0	8.555	1.4	10	
Potassium	3.05	1.0		0		0	0	3.415	11	10	R
Sodium	10.4	1.0		0		0	0	11.35	9.1	10	

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180516B: 38** SampType: **Sample Matrix Spike** Lab ID: **H18050287-009CMS3** Method: **E200.7**
Analysis Date: **05/16/18 11:18** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	67.4	1.0	25	40.04	109	70	130				
Magnesium	34.8	1.0	25	8.555	105	70	130				
Potassium	30.4	1.0	25	3.415	108	70	130				
Sodium	37.7	1.0	25	11.35	106	70	130				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180516B: 39** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-009CMSD3** Method: **E200.7**
Analysis Date: **05/16/18 11:22** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	67.6	1.0	25	40.04	110	70	130	67.41	0.3	20	
Magnesium	34.6	1.0	25	8.555	104	70	130	34.82	0.5	20	
Potassium	31.5	1.0	25	3.415	112	70	130	30.44	3.3	20	
Sodium	39.1	1.0	25	11.35	111	70	130	37.74	3.4	20	

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

Client: MT DEQ-Federal Superfund
Work Order: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41487

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180516B: 39** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-009CMSD3** Method: **E200.7**

Analysis Date: **05/16/18 11:22** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41487

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 235** SampType: **Method Blank** Lab ID: **MB-41487** Method: **E200.8**
Analysis Date: **05/15/18 20:19** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0002									
Lead	ND	4E-05									
Zinc	ND	0.001									

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 253** SampType: **Laboratory Control Sample** Lab ID: **LCS-41487** Method: **E200.8**
Analysis Date: **05/15/18 20:55** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 5	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	85	115				
Cadmium	0.249	0.0010	0.25	0	100	85	115				
Copper	0.514	0.0050	0.5	0	103	85	115				
Lead	0.515	0.0010	0.5	0	103	85	115				
Zinc	0.498	0.010	0.5	0	100	85	115				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 254** SampType: **Sample Matrix Spike** Lab ID: **H18050284-015CMS3** Method: **E200.8**
Analysis Date: **05/15/18 20:57** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.0002251	102	70	130				
Cadmium	0.256	0.0010	0.25	0	102	70	130				
Copper	0.521	0.0050	0.5	0.007938	103	70	130				
Lead	0.535	0.0010	0.5	0.001163	107	70	130				
Zinc	0.507	0.010	0.5	0.002911	101	70	130				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41487

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 255** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050284-015CMSD3** Method: **E200.8**

Analysis Date: **05/15/18 20:59** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.0002251	102	70	130	0.5097	0.1	20	
Cadmium	0.253	0.0010	0.25	0	101	70	130	0.2557	0.9	20	
Copper	0.515	0.0050	0.5	0.007938	101	70	130	0.5206	1.1	20	
Lead	0.526	0.0010	0.5	0.001163	105	70	130	0.5346	1.6	20	
Zinc	0.505	0.010	0.5	0.002911	100	70	130	0.5066	0.3	20	

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 296** SampType: **Sample Matrix Spike** Lab ID: **H18050287-009CMS3** Method: **E200.8**

Analysis Date: **05/15/18 22:19** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.540	0.0010	0.5	0.0373	100	70	130				
Cadmium	0.245	0.0010	0.25	0.0004454	98	70	130				
Copper	0.623	0.0050	0.5	0.1218	100	70	130				
Lead	0.525	0.0010	0.5	0.01501	102	70	130				
Zinc	0.577	0.010	0.5	0.09106	97	70	130				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 297** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-009CMSD3** Method: **E200.8**

Analysis Date: **05/15/18 22:21** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.542	0.0010	0.5	0.0373	101	70	130	0.5395	0.4	20	
Cadmium	0.255	0.0010	0.25	0.0004454	102	70	130	0.2454	4.0	20	
Copper	0.639	0.0050	0.5	0.1218	103	70	130	0.6234	2.5	20	
Lead	0.543	0.0010	0.5	0.01501	106	70	130	0.5252	3.3	20	
Zinc	0.581	0.010	0.5	0.09106	98	70	130	0.5767	0.7	20	

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41491

Date: *12-Jun-18*

Run ID :Run Order: **HGCV202-H_180515A: 11** SampType: **Method Blank** Lab ID: **MB-41493** Method: **E245.1**
Analysis Date: **05/15/18 10:24** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1E-06									

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-018B**

Run ID :Run Order: **HGCV202-H_180515A: 13** SampType: **Laboratory Control Sample** Lab ID: **LCS-41491** Method: **E245.1**
Analysis Date: **05/15/18 10:30** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.02E-05	0.00010	0.000075	0	94	90	110				

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-018B**

Run ID :Run Order: **HGCV202-H_180515A: 20** SampType: **Sample Matrix Spike** Lab ID: **H18050251-001BMS** Method: **E245.1**
Analysis Date: **05/15/18 10:51** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	6.93E-05	0.00010	0.000075	0	92	70	130				

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-018B**

Run ID :Run Order: **HGCV202-H_180515A: 21** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050251-001BMSD** Method: **E245.1**
Analysis Date: **05/15/18 10:54** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.07E-05	5.0E-05	0.000075	0	94	70	130	0.00006932	1.9	20	

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-018B**

Run ID :Run Order: **HGCV202-H_180517A: 24** SampType: **Method Blank** Lab ID: **MB-41491** Method: **E245.1**
Analysis Date: **05/17/18 11:35** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1E-06									

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-018B**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41513

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180515A: 11** SampType: **Laboratory Control Sample** Lab ID: **LCS-41513** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:02** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	15.2	0.30	14	0	109	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A**

Run ID :Run Order: **FIA203-HE_180515A: 12** SampType: **Method Blank** Lab ID: **MB-41513** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:03** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.01									

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A**

Run ID :Run Order: **FIA203-HE_180515A: 29** SampType: **Sample Matrix Spike** Lab ID: **H18050287-002AMS** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:23** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	1.01	0.10	1	0	101	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A**

Run ID :Run Order: **FIA203-HE_180515A: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-002AMSD** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:24** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.989	0.10	1	0	99	90	110	1.013	2.4	20	

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A**

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

Client: MT DEQ-Federal Superfund
Work Order: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41514

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180515A: 41** SampType: **Laboratory Control Sample** Lab ID: **LCS-41514** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:37** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	15.0	0.30	14	0	107	90	110				

Associated samples: **H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **FIA203-HE_180515A: 42** SampType: **Method Blank** Lab ID: **MB-41514** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:39** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.01									

Associated samples: **H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **FIA203-HE_180515A: 48** SampType: **Sample Matrix Spike** Lab ID: **H18050287-015AMS** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:46** 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
Nitrogen, Total	0.976	0.10	1	0	98	90	110				

Associated samples: **H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **FIA203-HE_180515A: 49** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-015AMSD** Method: **A4500 N-C**
Analysis Date: **05/15/18 13:47** 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
Nitrogen, Total	0.968	0.10	1	0	97	90	110	0.9757	0.8	20	

Associated samples: **H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41517

Date: *12-Jun-18*

Run ID :Run Order: **FIA202-HE_180515B: 21** SampType: **Laboratory Control Sample** Lab ID: **LCS-41517** Method: **E365.1**
Analysis Date: **05/15/18 14:37** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.426	0.010	0.4	0.00068	106	90	110				

Associated samples: **H18050287-001D**

Run ID :Run Order: **FIA202-HE_180515B: 22** SampType: **Method Blank** Lab ID: **MB-41517** Method: **E365.1**
Analysis Date: **05/15/18 14:38** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.0007	0.0006									

Associated samples: **H18050287-001D**

Run ID :Run Order: **FIA202-HE_180515B: 24** SampType: **Sample Matrix Spike** Lab ID: **H18050284-004CMS** Method: **E365.1**
Analysis Date: **05/15/18 14:43** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.248	0.010	0.2	0.03288	108	90	110				

Associated samples: **H18050287-001D**

Run ID :Run Order: **FIA202-HE_180515B: 25** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050284-004CMSD** Method: **E365.1**
Analysis Date: **05/15/18 14:44** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.251	0.010	0.2	0.03288	109	90	110	0.248	1.1	20	

Associated samples: **H18050287-001D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41518

Date: *12-Jun-18*

Run ID :Run Order: **FIA202-HE_180515B: 55** SampType: **Laboratory Control Sample** Lab ID: **LCS-41518** Method: **E365.1**
Analysis Date: **05/15/18 15:17** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.426	0.010	0.4	0	106	90	110				

Associated samples: **H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

Run ID :Run Order: **FIA202-HE_180515B: 56** SampType: **Method Blank** Lab ID: **MB-41518** Method: **E365.1**
Analysis Date: **05/15/18 15:18** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.0006									

Associated samples: **H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

Run ID :Run Order: **FIA202-HE_180515B: 58** SampType: **Sample Matrix Spike** Lab ID: **H18050287-002DMS** Method: **E365.1**
Analysis Date: **05/15/18 15:20** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.206	0.010	0.2	0	103	90	110				

Associated samples: **H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

Run ID :Run Order: **FIA202-HE_180515B: 59** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-002DMSD** Method: **E365.1**
Analysis Date: **05/15/18 15:21** Units: **mg/L** **Prep Info:** Prep Date: **5/15/2018** 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	0.213	0.010	0.2	0	107	90	110	0.2062	3.3	20	

Associated samples: **H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41538

Date: *12-Jun-18*

Run ID :Run Order: **FIA202-HE_180516B: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-41538** Method: **E365.1**
Analysis Date: **05/16/18 14:54** Units: **mg/L** **Prep Info:** Prep Date: **5/16/2018** 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	0.430	0.010	0.4	0.00089	107	90	110				

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA202-HE_180516B: 13** SampType: **Method Blank** Lab ID: **MB-41538** Method: **E365.1**
Analysis Date: **05/16/18 14:55** Units: **mg/L** **Prep Info:** Prep Date: **5/16/2018** 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	0.0009	0.0006									

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA202-HE_180516B: 15** SampType: **Sample Matrix Spike** Lab ID: **H18050287-012Dms** Method: **E365.1**
Analysis Date: **05/16/18 14:57** Units: **mg/L** **Prep Info:** Prep Date: **5/16/2018** 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	0.317	0.010	0.2	0.08074	118	90	110				S

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA202-HE_180516B: 16** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-012Dmsd** Method: **E365.1**
Analysis Date: **05/16/18 14:58** Units: **mg/L** **Prep Info:** Prep Date: **5/16/2018** 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	0.307	0.010	0.2	0.08074	113	90	110	0.3171	3.2	20	S

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA202-HE_180516B: 29** SampType: **Sample Matrix Spike** Lab ID: **H18050287-013DMS** Method: **E365.1**
Analysis Date: **05/16/18 15:12** Units: **mg/L** **Prep Info:** Prep Date: **5/16/2018** 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	0.311	0.010	0.2	0.07725	117	90	110				S

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41538

Date: *12-Jun-18*

Run ID :Run Order: **FIA202-HE_180516B: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-013DMSD** Method: **E365.1**

Analysis Date: **05/16/18 15:13** Units: **mg/L** **Prep Info:** Prep Date: **5/16/2018** 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	0.312	0.010	0.2	0.07725	117	90	110	0.3114	0.2	20	S

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134693

Date: *12-Jun-18*

Run ID :Run Order: **PHSC_101-H_180514A: 142** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **05/14/18 17:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	2									

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **PHSC_101-H_180514A: 143** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **05/14/18 17:42** 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
Alkalinity, Total as CaCO3	600	4.0	600	0	100	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **PHSC_101-H_180514A: 146** SampType: **Sample Duplicate** Lab ID: **H18050284-021ADUP** Method: **A2320 B**

Analysis Date: **05/14/18 18:47** 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
Alkalinity, Total as CaCO3	100	4.0		0				104.4	0.1	10	
Bicarbonate as HCO3	130	4.0		0				126.8	0.1	10	

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **PHSC_101-H_180514A: 186** SampType: **Sample Duplicate** Lab ID: **H18050292-001ADUP** Method: **A2320 B**

Analysis Date: **05/14/18 20:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	220	4.0		0				220	1.7	10	
Bicarbonate as HCO3	270	4.0		0				267.8	1.7	10	

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134710

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180514A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E353.2**
Analysis Date: **05/14/18 10:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	1.01	0.010	1	0	101	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 10** SampType: **Method Blank** Lab ID: **MBLK** Method: **E353.2**
Analysis Date: **05/14/18 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	ND	0.009									

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 15** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E353.2**
Analysis Date: **05/14/18 10:19** 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	0.919	0.011	1	0	92	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 116** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **05/14/18 12:23** 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
Nitrogen, Nitrate+Nitrite as N	0.466	0.010	0.5	0	93	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 124** SampType: **Sample Matrix Spike** Lab ID: **H18050285-001BMS** Method: **E353.2**
Analysis Date: **05/14/18 12:33** 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
Nitrogen, Nitrate+Nitrite as N	0.997	0.011	1	0.1257	87	90	110				S

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

Client: MT DEQ-Federal Superfund
Work Order: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134710

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180514A: 124** SampType: **Sample Matrix Spike** Lab ID: **H18050285-001BMS** Method: **E353.2**
Analysis Date: **05/14/18 12:33** 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

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 125** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050285-001BMSD** Method: **E353.2**
Analysis Date: **05/14/18 12:34** 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, Nitrate+Nitrite as N	1.01	0.011	1	0.1257	88	90	110	0.997	1.3	10	S

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 130** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **05/14/18 12:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.460	0.010	0.5	0	92	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 138** SampType: **Sample Matrix Spike** Lab ID: **H18050287-010DMS** Method: **E353.2**
Analysis Date: **05/14/18 12:50** 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	0.910	0.011	1	0.03147	88	90	110				S

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 139** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-010DMSD** Method: **E353.2**
Analysis Date: **05/14/18 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
Nitrogen, Nitrate+Nitrite as N	0.894	0.011	1	0.03147	86	90	110	0.9105	1.8	10	S

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134710

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180514A: 145** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**

Analysis Date: **05/14/18 12:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.450	0.010	0.5	0	90	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 147** SampType: **Sample Matrix Spike** Lab ID: **H18050287-015DMS** Method: **E353.2**

Analysis Date: **05/14/18 13:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.856	0.011	1	0	86	90	110				S

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180514A: 148** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-015DMSD** Method: **E353.2**

Analysis Date: **05/14/18 13:01** 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	0.865	0.011	1	0	87	90	110	0.8564	1.0	10	S

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D, H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134723

Date: *12-Jun-18*

Run ID :Run Order: **IC METROHM_180514A: 2** SampType: **Method Blank** Lab ID: **ICB** Method: **E300.0**

Analysis Date: **05/14/18 12:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.009									
Sulfate	ND	0.01									

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **IC METROHM_180514A: 3** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E300.0**

Analysis Date: **05/14/18 12:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	103	1.0	100	0	103	90	110				
Sulfate	411	1.0	400	0	103	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **IC METROHM_180514A: 4** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E300.0**

Analysis Date: **05/14/18 12:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23.8	1.0	25	0	95	90	110				
Sulfate	94.7	1.0	100	0	95	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **IC METROHM_180514A: 20** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **05/14/18 17:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51.1	1.0	50	0	102	90	110				
Sulfate	203	1.0	200	0	101	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134723

Date: *12-Jun-18*

Run ID :Run Order: **IC METROHM_180514A: 32** SampType: **Sample Matrix Spike** Lab ID: **H18050287-010AMS** Method: **E300.0**

Analysis Date: **05/14/18 20:13** 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	33.7	1.0	25	8.549	101	90	110				
Sulfate	141	1.0	100	40.21	100	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **IC METROHM_180514A: 33** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-010AMSD** Method: **E300.0**

Analysis Date: **05/14/18 20:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	32.7	1.0	25	8.549	97	90	110	33.72	3.1	20	
Sulfate	135	1.0	100	40.21	95	90	110	140.6	4.0	20	

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **IC METROHM_180514A: 34** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **05/14/18 20:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50.7	1.0	50	0	101	90	110				
Sulfate	201	1.0	200	0	100	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **IC METROHM_180514A: 45** SampType: **Sample Matrix Spike** Lab ID: **H18050292-001AMS** Method: **E300.0**

Analysis Date: **05/14/18 23:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	31.7	1.0	25	7.826	96	90	110				
Sulfate	108	1.0	100	14.33	94	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134723

Date: *12-Jun-18*

Run ID :Run Order: **IC METROHM_180514A: 46** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050292-001AMSD** Method: **E300.0**

Analysis Date: **05/14/18 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
Chloride	31.9	1.0	25	7.826	**96**	90	110	31.74	**0.4**	20	
Sulfate	109	1.0	100	14.33	**94**	90	110	108.1	**0.5**	20	

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134743

Date: *12-Jun-18*

Run ID :Run Order: **HGCV202-H_180515A: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV1** Method: **E245.1**

Analysis Date: **05/15/18 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
Mercury	9.74E-05	0.00010	0.0001	0	97	95	105				

Associated samples: **H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134750

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180515C: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **05/15/18 10:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	40.0	1.0	40	0	100	95	105				
Magnesium	39.4	1.0	40	0	99	95	105				
Potassium	41.6	1.0	40	0	104	95	105				
Sodium	41.6	1.0	40	0	104	95	105				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 7** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV-1** Method: **E200.7**

Analysis Date: **05/15/18 10:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.9	1.0	25	0	99	95	105				
Magnesium	24.3	1.0	25	0	97	95	105				
Potassium	26.2	1.0	25	0	105	95	105				
Sodium	26.2	1.0	25	0	105	95	105				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **05/15/18 11:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	476	1.0	500	0	95	80	120				
Magnesium	527	1.0	500	0	105	80	120				
Potassium	-0.0282	1.0		0		0	0				
Sodium	0.0201	1.0		0		0	0				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **05/15/18 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	480	1.0	500	0	96	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134750

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180515C: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **05/15/18 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	530	1.0	500	0	106	80	120				
Potassium	19.8	1.0	20	0	99	80	120				
Sodium	19.8	1.0	20	0	99	80	120				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 96** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **05/15/18 16:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.4	1.0	25	0	102	90	110				
Magnesium	24.8	1.0	25	0	99	90	110				
Potassium	25.3	1.0	25	0	101	90	110				
Sodium	25.3	1.0	25	0	101	90	110				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 108** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **05/15/18 17:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.3	1.0	25	0	97	90	110				
Magnesium	23.7	1.0	25	0	95	90	110				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

Run ID :Run Order: **ICP2-HE_180515C: 120** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **05/15/18 18:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.1	1.0	25	0	101	90	110				
Magnesium	24.5	1.0	25	0	98	90	110				
Potassium	26.8	1.0	25	0	107	90	110				
Sodium	27.0	1.0	25	0	108	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134750

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180515C: 120** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **05/15/18 18:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C, H18050287-013C, H18050287-014C, H18050287-015C, H18050287-016C, H18050287-017C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134751

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180515A: 10** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**

Analysis Date: **05/15/18 13:01** 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, Total	-0.00715	0.10		0		0	0				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **FIA203-HE_180515A: 26** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**

Analysis Date: **05/15/18 13:20** 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, Total	0.509	0.10	0.5	0	**102**	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **FIA203-HE_180515A: 40** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**

Analysis Date: **05/15/18 13:36** 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, Total	0.503	0.10	0.5	0	**101**	90	110				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134762

Date: *12-Jun-18*

Run ID :Run Order: **FIA202-HE_180515B: 9** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**

Analysis Date: **05/15/18 14:18** 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
Phosphorus, Total as P	0.000200	0.010		0		0	0				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

Run ID :Run Order: **FIA202-HE_180515B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **05/15/18 14:19** 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
Phosphorus, Total as P	0.268	0.010	0.25	0	107	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

Run ID :Run Order: **FIA202-HE_180515B: 15** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **05/15/18 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	0.268	0.010	0.25	0	107	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

Run ID :Run Order: **FIA202-HE_180515B: 44** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **05/15/18 15:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0973	0.010	0.1	0	97	90	110				

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

Run ID :Run Order: **FIA202-HE_180515B: 54** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **05/15/18 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
Phosphorus, Total as P	0.0983	0.010	0.1	0	98	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134762

Date: *12-Jun-18*

Run ID :Run Order: **FIA202-HE_180515B: 54** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **05/15/18 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

Associated samples: **H18050287-001D, H18050287-002D, H18050287-003D, H18050287-004D, H18050287-005D, H18050287-006D, H18050287-007D, H18050287-008D, H18050287-009D, H18050287-010D, H18050287-011D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134786

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **05/15/18 10:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0605	0.0050	0.06	0	101	90	110				
Cadmium	0.0300	0.0010	0.03	0	100	90	110				
Copper	0.0612	0.010	0.06	0	102	90	110				
Lead	0.0614	0.010	0.06	0	102	90	110				
Zinc	0.0621	0.010	0.06	0	103	90	110				

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **05/15/18 10:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.14E-06	0.0050		0							
Cadmium	0.000213	0.0010		0							
Copper	0.000133	0.010		0							
Lead	-0.000128	0.010		0							
Zinc	0.000453	0.010		0							

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/15/18 10:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0102	0.0050	0.01	0	102	70	130				
Cadmium	0.0102	0.0010	0.01	0	102	70	130				
Copper	0.0194	0.010	0.02	0	97	70	130				
Lead	-0.000152	0.010		0		0	0				
Zinc	0.0103	0.010	0.01	0	103	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134786

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/15/18 10:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 99** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **05/15/18 14:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0607	0.0050	0.06	0	**101**	90	110				
Cadmium	0.0304	0.0010	0.03	0	**101**	90	110				
Copper	0.0619	0.010	0.06	0	**103**	90	110				
Lead	0.0596	0.010	0.06	0	**99**	90	110				
Zinc	0.0628	0.010	0.06	0	**105**	90	110				

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 100** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **05/15/18 14:55** 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	-5.63E-06	0.0050		0							
Cadmium	0.000236	0.0010		0							
Copper	0.000143	0.010		0							
Lead	5.23E-05	0.010		0							
Zinc	0.000391	0.010		0							

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134786

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 101** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/15/18 14:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0103	0.0050	0.01	0	103	70	130				
Cadmium	0.00989	0.0010	0.01	0	99	70	130				
Copper	0.0195	0.010	0.02	0	98	70	130				
Lead	4.71E-05	0.010		0		0	0				
Zinc	0.0105	0.010	0.01	0	105	70	130				

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 107** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **05/15/18 15:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0488	0.0050	0.05	0	98	85	115				
Cadmium	0.0485	0.0010	0.05	0	97	85	115				
Copper	0.0491	0.010	0.05	0	98	85	115				
Lead	0.0483	0.010	0.05	0	97	85	115				
Zinc	0.0506	0.010	0.05	0	101	85	115				

Associated samples: **H18050287-001B, H18050287-002B, H18050287-003B, H18050287-004B, H18050287-005B, H18050287-006B, H18050287-007B, H18050287-008B, H18050287-009B, H18050287-010B, H18050287-011B, H18050287-012B, H18050287-013B, H18050287-014B, H18050287-015B, H18050287-016B, H18050287-017B**

Run ID :Run Order: **ICPMS205-H_180515B: 180** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **05/15/18 17:55** 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	0.0610	0.0050	0.06	0	102	90	110				
Cadmium	0.0303	0.0010	0.03	0	101	90	110				
Copper	0.0613	0.010	0.06	0	102	90	110				
Lead	0.0589	0.010	0.06	0	98	90	110				
Zinc	0.0617	0.010	0.06	0	103	90	110				

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134786

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 181** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **05/15/18 17:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.03E-05	0.0050		0							
Cadmium	0.000219	0.0010		0							
Copper	0.000164	0.010		0							
Lead	5.61E-05	0.010		0							
Zinc	0.000471	0.010		0							

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 182** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/15/18 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	0.0103	0.0050	0.01	0	103	70	130				
Cadmium	0.00999	0.0010	0.01	0	100	70	130				
Copper	0.0191	0.010	0.02	0	96	70	130				
Lead	5.23E-05	0.010		0		0	0				
Zinc	0.00999	0.010	0.01	0	100	70	130				

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 226** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **05/15/18 20:01** 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	0.0608	0.0050	0.06	0	101	90	110				
Cadmium	0.0308	0.0010	0.03	0	103	90	110				
Copper	0.0612	0.010	0.06	0	102	90	110				
Lead	0.0622	0.010	0.06	0	104	90	110				
Zinc	0.0620	0.010	0.06	0	103	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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134786

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 226** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **05/15/18 20:01** 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

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 227** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **05/15/18 20:03** 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	5.68E-05	0.0050		0							
Cadmium	0.000236	0.0010		0							
Copper	9.16E-05	0.010		0							
Lead	4.90E-05	0.010		0							
Zinc	0.000248	0.010		0							

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

Run ID :Run Order: **ICPMS205-H_180515B: 228** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/15/18 20:05** 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	0.0104	0.0050	0.01	0	104	70	130				
Cadmium	0.0100	0.0010	0.01	0	100	70	130				
Copper	0.0195	0.010	0.02	0	98	70	130				
Lead	3.55E-05	0.010		0		0	0				
Zinc	0.0102	0.010	0.01	0	102	70	130				

Associated samples: **H18050287-001B, H18050287-001C, H18050287-002B, H18050287-002C, H18050287-003B, H18050287-003C, H18050287-004B, H18050287-004C, H18050287-005B, H18050287-005C, H18050287-006B, H18050287-006C, H18050287-007B, H18050287-007C, H18050287-008B, H18050287-008C, H18050287-009B, H18050287-009C, H18050287-010B, H18050287-010C, H18050287-011B, H18050287-011C, H18050287-012B, H18050287-012C, H18050287-013B, H18050287-013C, H18050287-014B, H18050287-014C, H18050287-015B, H18050287-015C, H18050287-016B, H18050287-016C, H18050287-017B, H18050287-017C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134786

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 233** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **05/15/18 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	ND	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0001									
Lead	ND	3E-05									
Zinc	ND	0.0003									

Associated samples: **H18050287-001B, H18050287-002B, H18050287-003B, H18050287-004B, H18050287-005B, H18050287-006B, H18050287-007B, H18050287-008B, H18050287-009B, H18050287-010B, H18050287-011B, H18050287-012B, H18050287-013B, H18050287-014B, H18050287-015B, H18050287-016B, H18050287-017B**

Run ID :Run Order: **ICPMS205-H_180515B: 270** SampType: **Sample Matrix Spike** Lab ID: **H18050287-003BMS** Method: **E200.8**

Analysis Date: **05/15/18 21:28** 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	0.0546	0.0010	0.05	0.006609	96	70	130				
Cadmium	0.0491	0.0010	0.05	0	98	70	130				
Copper	0.0526	0.0050	0.05	0.003579	98	70	130				
Lead	0.0492	0.0010	0.05	0.0005036	97	70	130				
Zinc	0.0566	0.010	0.05	0.006501	100	70	130				

Associated samples: **H18050287-001B, H18050287-002B, H18050287-003B, H18050287-004B, H18050287-005B, H18050287-006B, H18050287-007B, H18050287-008B, H18050287-009B, H18050287-010B, H18050287-011B, H18050287-012B, H18050287-013B, H18050287-014B, H18050287-015B, H18050287-016B, H18050287-017B**

Run ID :Run Order: **ICPMS205-H_180515B: 271** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-003BMSD** Method: **E200.8**

Analysis Date: **05/15/18 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	0.0546	0.0010	0.05	0.006609	96	70	130	0.05464	0.1	20	
Cadmium	0.0494	0.0010	0.05	0	99	70	130	0.04907	0.8	20	
Copper	0.0527	0.0050	0.05	0.003579	98	70	130	0.05263	0.2	20	
Lead	0.0481	0.0010	0.05	0.0005036	95	70	130	0.0492	2.2	20	
Zinc	0.0561	0.010	0.05	0.006501	99	70	130	0.05661	0.9	20	

Associated samples: **H18050287-001B, H18050287-002B, H18050287-003B, H18050287-004B, H18050287-005B, H18050287-006B, H18050287-007B, H18050287-008B, H18050287-009B, H18050287-010B, H18050287-011B, H18050287-012B, H18050287-013B, H18050287-014B, H18050287-015B, H18050287-016B, H18050287-017B**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134786

Date: *12-Jun-18*

Run ID :Run Order: **ICPMS205-H_180515B: 316** SampType: **Sample Matrix Spike** Lab ID: **H18050287-013BMS** Method: **E200.8**

Analysis Date: **05/15/18 22:59** 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	0.0888	0.0010	0.05	0.03977	98	70	130				
Cadmium	0.0491	0.0010	0.05	0.00003686	98	70	130				
Copper	0.0574	0.0050	0.05	0.008519	98	70	130				
Lead	0.0480	0.0010	0.05	0.0003289	95	70	130				
Zinc	0.0576	0.010	0.05	0.007695	100	70	130				

Associated samples: **H18050287-001B, H18050287-002B, H18050287-003B, H18050287-004B, H18050287-005B, H18050287-006B, H18050287-007B, H18050287-008B, H18050287-009B, H18050287-010B, H18050287-011B, H18050287-012B, H18050287-013B, H18050287-014B, H18050287-015B, H18050287-016B, H18050287-017B**

Run ID :Run Order: **ICPMS205-H_180515B: 317** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050287-013BMSD** Method: **E200.8**

Analysis Date: **05/15/18 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	0.0891	0.0010	0.05	0.03977	99	70	130	0.08879	0.3	20	
Cadmium	0.0485	0.0010	0.05	0.00003686	97	70	130	0.04914	1.3	20	
Copper	0.0578	0.0050	0.05	0.008519	99	70	130	0.05736	0.8	20	
Lead	0.0476	0.0010	0.05	0.0003289	94	70	130	0.04797	0.8	20	
Zinc	0.0584	0.010	0.05	0.007695	101	70	130	0.05764	1.3	20	

Associated samples: **H18050287-001B, H18050287-002B, H18050287-003B, H18050287-004B, H18050287-005B, H18050287-006B, H18050287-007B, H18050287-008B, H18050287-009B, H18050287-010B, H18050287-011B, H18050287-012B, H18050287-013B, H18050287-014B, H18050287-015B, H18050287-016B, H18050287-017B**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134788

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180516B: 51** SampType: **Method Blank** Lab ID: **MBLK** Method: **E350.1**
Analysis Date: **05/16/18 12:30** 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, Ammonia as N	ND	0.02									

Associated samples: **H18050287-012D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180516B: 52** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E350.1**
Analysis Date: **05/16/18 12:31** 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, Ammonia as N	10.6	0.50	10.3	0	103	90	110				

Associated samples: **H18050287-012D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180516B: 54** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E350.1**
Analysis Date: **05/16/18 12:33** 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
Nitrogen, Ammonia as N	0.996	0.055	1	0	100	90	110				

Associated samples: **H18050287-012D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180516B: 67** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E350.1**
Analysis Date: **05/16/18 12:49** 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
Nitrogen, Ammonia as N	0.478	0.050	0.5	0	96	90	110				

Associated samples: **H18050287-012D, H18050287-017D**

Run ID :Run Order: **FIA203-HE_180516B: 73** SampType: **Sample Matrix Spike** Lab ID: **H18050284-020CMS** Method: **E350.1**
Analysis Date: **05/16/18 12:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.967	0.055	1	0	97	80	120				

Associated samples: **H18050287-012D, H18050287-017D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134788

Date: *12-Jun-18*

Run ID :Run Order: **FIA203-HE_180516B: 74** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050284-020CMSD** Method: **E350.1**

Analysis Date: **05/16/18 12:57** 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, Ammonia as N	0.969	0.055	1	0	**97**	80	120	0.967	**0.2**	10	

Associated samples: **H18050287-012D, H18050287-017D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134790

Date: *12-Jun-18*

Run ID :Run Order: **FIA202-HE_180516B: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **05/16/18 14:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.263	0.010	0.25	0	105	90	110				

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA202-HE_180516B: 10** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **05/16/18 14:52** 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
Phosphorus, Total as P	0.0975	0.010	0.1	0	98	90	110				

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA202-HE_180516B: 11** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**

Analysis Date: **05/16/18 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
Phosphorus, Total as P	-0.00116	0.010		0		0	0				

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

Run ID :Run Order: **FIA202-HE_180516B: 27** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **05/16/18 15:09** 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
Phosphorus, Total as P	0.0992	0.010	0.1	0	99	90	110				

Associated samples: **H18050287-012D, H18050287-013D, H18050287-014D, H18050287-015D, H18050287-016D, H18050287-017D**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134791

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180516B: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **05/16/18 09:18** 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
Potassium	39.8	1.0	40	0	100	95	105				
Sodium	39.7	1.0	40	0	99	95	105				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C**

Run ID :Run Order: **ICP2-HE_180516B: 7** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV-1** Method: **E200.7**

Analysis Date: **05/16/18 09:21** 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
Potassium	24.8	1.0	25	0	99	95	105				
Sodium	24.8	1.0	25	0	99	95	105				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C**

Run ID :Run Order: **ICP2-HE_180516B: 10** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **05/16/18 09:33** 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
Potassium	-0.0224	1.0		0		0	0				
Sodium	0.00232	1.0		0		0	0				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C**

Run ID :Run Order: **ICP2-HE_180516B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **05/16/18 09:37** 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
Potassium	20.3	1.0	20	0	101	80	120				
Sodium	20.3	1.0	20	0	102	80	120				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134791

Date: *12-Jun-18*

Run ID :Run Order: **ICP2-HE_180516B: 19** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **05/16/18 10:06** 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
Potassium	24.8	1.0	25	0	**99**	90	110				
Sodium	24.6	1.0	25	0	**99**	90	110				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C**

Run ID :Run Order: **ICP2-HE_180516B: 31** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **05/16/18 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
Potassium	26.9	1.0	25	0	**108**	90	110				
Sodium	27.0	1.0	25	0	**108**	90	110				

Associated samples: **H18050287-001C, H18050287-002C, H18050287-003C, H18050287-004C, H18050287-005C, H18050287-006C, H18050287-007C, H18050287-008C, H18050287-009C, H18050287-010C, H18050287-011C, H18050287-012C**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R134814

Date: *12-Jun-18*

Run ID :Run Order: **HGCV202-H_180517A: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV1** Method: **E245.1**

Analysis Date: **05/17/18 10:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.47E-05	0.00010	0.0001	0	95	95	105				

Associated samples: **H18050287-018B**

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: H18050287
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS180514A

Date: *12-Jun-18*

Run ID :Run Order: **ACCU-124 (14410200)_180514B: 1** SampType: **Method Blank** Lab ID: **MB-1_180514A** Method: **A2540 D**

Analysis Date: **05/14/18 13:36** 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
Solids, Total Suspended TSS @ 105 C	ND	0.3									

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180514B: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-2_180514A** Method: **A2540 D**

Analysis Date: **05/14/18 13:37** 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
Solids, Total Suspended TSS @ 105 C	86.0	10	100	0	**86**	80	120				

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180514B: 4** SampType: **Sample Duplicate** Lab ID: **H18050287-001ADUP** Method: **A2540 D**

Analysis Date: **05/14/18 13:37** 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
Solids, Total Suspended TSS @ 105 C	147	10		0				147	**0.0**	5	

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180514B: 1** SampType: **Sample Duplicate** Lab ID: **H18050287-011ADUP** Method: **A2540 D**

Analysis Date: **05/14/18 13:40** 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
Solids, Total Suspended TSS @ 105 C	69.0	10		0				67	**2.9**	5	

Associated samples: **H18050287-001A, H18050287-002A, H18050287-003A, H18050287-004A, H18050287-005A, H18050287-006A, H18050287-007A, H18050287-008A, H18050287-009A, H18050287-010A, H18050287-011A, H18050287-012A, H18050287-013A, H18050287-014A, H18050287-015A, H18050287-016A, H18050287-017A**

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

BROOKS APPLIED LABS
18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

June 11, 2018

Energy Laboratories, Inc.
ATTN: Jonathan Dee Hager
PO Box 5688
Helena, MT 59604
jhager@energylab.com

RE: Project ENL-HL1201

Dear Mr. Jonathan Hager,

On May 15, 2018, Brooks Applied Labs (BAL) received five (5) water samples. The samples were logged-in for the analyses of methyl mercury (MeHg) according to the chain-of-custody form. All samples were received and stored according to BAL SOPs and EPA methodology. Samples were filtered by the lab upon receipt. Water samples were pre-preserved with 6N hydrochloric acid and were distilled via EPA Method 1630.

The results were method blank corrected as described in the calculations section of the relevant BAL SOP(s) and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification (aside from concentration qualifiers) and all associated quality control sample results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Lydia Greaves
Client Services Manager
lydia@brooksapplied.com

Shahriyar Ahmed
Project Coordinator
shahriyar@brooksapplied.com

Report Information

Laboratory Accreditation

BAL 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. BAL 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.brooksapplied.com/resources/certificates-permits/>. 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

AR	as received	**MS**	matrix spike
BAL	Brooks Applied Labs	**MSD**	matrix spike duplicate
BLK	method blank	**ND**	non-detect
BS	blank spike	**NR**	non-reportable
CAL	calibration standard	**N/C**	not calculated
CCB	continuing calibration blank	**PS**	post preparation spike
CCV	continuing calibration verification	**REC**	percent recovery
COC	chain of custody record	**RPD**	relative percent difference
D	dissolved fraction	**SCV**	secondary calibration verification
DUP	duplicate	**SOP**	standard operating procedure
IBL	instrument blank	**SRM**	standard reference material
ICV	initial calibration verification	**T**	total fraction
MDL	method detection limit	**TR**	total recoverable fraction
MRL	method reporting limit		

Definition of Data Qualifiers

(Effective 9/23/09)

E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Please see narrative for explanation.
J Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
J-1 Estimated value. A full explanation is presented in the narrative.
M Duplicate precision (RPD) was not within acceptance criteria. Please see narrative for explanation.
N Spike recovery was not within acceptance criteria. Please see narrative for explanation.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X 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 Applied 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 BAL.

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H18050287-002E	1820009-01	Water	Sample	05/09/2018	05/15/2018
H18050287-003E	1820009-02	Water	Sample	05/09/2018	05/15/2018
H18050287-004E	1820009-03	Water	Sample	05/09/2018	05/15/2018
H18050287-018A	1820009-04	Water	Sample	05/09/2018	05/15/2018
H18050287-019A	1820009-05	Water	Sample	05/09/2018	05/15/2018

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	05/30/2018	05/31/2018	B181216	1800735

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
H18050287-002E										
1820009-01	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B181216	1800735
H18050287-003E										
1820009-02	MeHg	Water	TR	2.09		0.023	0.050	ng/L	B181216	1800735
H18050287-004E										
1820009-03	MeHg	Water	TR	1.57		0.023	0.050	ng/L	B181216	1800735
H18050287-018A										
1820009-04	MeHg	Water	TR	0.877		0.023	0.050	ng/L	B181216	1800735
H18050287-019A										
1820009-05	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B181216	1800735

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Accuracy & Precision Summary

Batch: B181216
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B181216-BS1	**Blank Spike, (1820024)**								
	MeHg		1.000	0.976	ng/L	98%	67-133		
B181216-MS4	**Matrix Spike (1820026-25)**								
	MeHg	ND	1.000	1.128	ng/L	113%	65-135		
B181216-MSD4	**Matrix Spike Duplicate (1820026-25)**								
	MeHg	ND	1.000	1.005	ng/L	100%	65-135	12%	35

Method Blanks & Reporting Limits

Batch: B181216
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B181216-BLK1	0.004	ng/L
B181216-BLK2	0.018	ng/L
B181216-BLK3	0.006	ng/L
B181216-BLK4	0.0008	ng/L

Average: 0.007 **Standard Deviation:** 0.008 **MDL:** 0.023
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.049

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Containers

Lab ID: 1820009-01 **Report Matrix:** Water **Collected:** 05/09/2018
Sample: H18050287-002E **Sample Type:** Sample **Received:** 05/15/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2mL 6N HCl (PP)	1816006	<2	Cooler - 1820009

Lab ID: 1820009-02 **Report Matrix:** Water **Collected:** 05/09/2018
Sample: H18050287-003E **Sample Type:** Sample **Received:** 05/15/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2mL 6N HCl (PP)	1816006	<2	Cooler - 1820009

Lab ID: 1820009-03 **Report Matrix:** Water **Collected:** 05/09/2018
Sample: H18050287-004E **Sample Type:** Sample **Received:** 05/15/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2mL 6N HCl (PP)	1816006	<2	Cooler - 1820009

Lab ID: 1820009-04 **Report Matrix:** Water **Collected:** 05/09/2018
Sample: H18050287-018A **Sample Type:** Sample **Received:** 05/15/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2mL 6N HCl (PP)	1816006	<2	Cooler - 1820009

Lab ID: 1820009-05 **Report Matrix:** Water **Collected:** 05/09/2018
Sample: H18050287-019A **Sample Type:** Sample **Received:** 05/15/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2mL 6N HCl (PP)	1816006	<2	Cooler - 1820009

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Shipping Containers

Cooler - 1820009

Received: May 15, 2018 10:00
Tracking No: 1Z37EW970156912273 via UPS
Coolant Type: Ice
Temperature: 2.5 °C

Description: Cooler
Damaged in transit? No
Returned to client? No
Comments: IR#16

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

CHAIN-OF-CUSTODY RECORD

Energy Laboratories Inc
3161 East Lyndale Avenue
Helena, MT 59601
(406) 442-0711

H18050287

Custody Seal: Y N
Intact: Y N
Signature Match: Y N

Shipped By: _____
Receipt Temp: _____

Subcontractor:
Brooks Applied Labs
18804 North Creek Parkway
Bothell, WA 98011

TEL: (206) 632-6206 FAX: (206) 632-6017
Acct #:

Subcontractor's Client:

Preset	Sample ID	Matrix	Collection Date	Bottle Type	Requested Tests: SUB-BROOKSRAND
☐	H18050287-002E	Surface Water	05/09/18 12:00 P	1-	1
☐	H18050287-003E	Surface Water	05/09/18 12:30 P	1-	1
☐	H18050287-004E	Surface Water	05/09/18 12:30 P	1-	1
☐	H18050287-018A	Surface Water	05/09/18 11:00 A	1-	1
☐	H18050287-019A	Surface Water	05/09/18 09:45 A	1-	1

Earliest Due Date: 5/22/2018

Comments:

QC Level:
STD

	Date/Time		
Relinquished by:	5-11-18 ~~5-11~~ 16:05	**Received by:**	5/15/18 10:00
Relinquished by:		**Received by:**	

Work Order Receipt Checklist

MT DEQ-Federal Superfund H18050287

Login completed by: Jessica C. Smith
Date Received: 5/11/2018
Reviewed by: BL2000\rtooke
Received by: JCS
Reviewed Date: 5/18/2018
Carrier name: Hand Del

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

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:

Methyl-mercury Blank was in a separate cooler and the temp was not recorded on the COC. Cooler 1 was received at 0.6 °C, Cooler 2 at 0.3 °C, Cooler 3 at 0.2 °C, Cooler 4 at 0.2 °C and Cooler 5 18.7 °C. All On Ice except Cooler 5 that contained only the Methyl-mercury blank. JCS 05/11/2018

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Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email
Special Report/Formats:	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

All dissolved samples field filtered

C1 0.4
C2 0.3
C3 0.4
C4 0.2

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk., Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1	1 CFR-116A	5-9-18	0945	5	W	✓	✓	✓	✓		✓	✓	✓				H18050287
	2 Field Blank #1 FC-CFR	5-9-18	1200	5	W	✓	✓	✓	✓		✓	✓	✓				
	3 FC-CFR	5-9-18	1230	5	W	✓	✓	✓	✓		✓	✓	✓				
	4 FC-CFR Duplicate	5-9-18	1230	5	W	✓	✓	✓	✓		✓	✓	✓				
C2	5 LBR-CFR-02	5-9-18	1430	5	W	✓	✓	✓	✓		✓	✓	✓				
	6 CFR-34	5-9-18	1530	5	W	✓	✓	✓	✓		✓	✓	✓				
	7 CFR-27H	5-9-18	1645	5	W	✓	✓	✓	✓		✓	✓	✓				
	8 CFR-11F	5-9-18	1800	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	9 CFR-07D	5-10-18	0800	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	10 CFR-03A	5-10-18	0900	5	W	✓	✓	✓	✓		✓	✓	✓				

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	5-11-18 12:20	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Jessica Smith	5-11-18 12:20	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	yes	Y N C B	Y N	see °C comments	Y N	Y N	CC Cash Check	$	

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 subcontracted data will be clearly notated on your analytical report.

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Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All dissolved samples field filtered

C1 0.6
C2 0.3
C3 0.4
C4 0.2

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

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Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk., Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C3	1 WSC-SBC	5-10-18	1000	5	W	✓	✓	✓	✓		✓	✓	✓				H18050287
C3	2 SS-25	5-10-18	1100	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C4	3 MWB-SBC	5-10-18	1140	5	W	✓	✓	✓	✓		✓	✓	✓				
	4 MWB-SBC Duplicate	5-10-18	1140	5	W	✓	✓	✓	✓		✓	✓	✓				
	5 Field Blank #2 MCWC-MWB	5-10-18	1230	5	W	✓	✓	✓	✓		✓	✓	✓				
	6 MCWC-MWB	5-10-18	1245	5	W	✓	✓	✓	✓		✓	✓	✓				
	7 SS-19	5-10-18	1330	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
	8																
	9																
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	5-11-18 12:20				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				JESSICA SMITH	5-11-18 12:20	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	yes	Y N C B	Y N	°C see comments	Y N	Y N	CC Cash Check_____	$	

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Chain of Custody & Analytical Request Record

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Page 3 of 3

Account Information *(Billing information)*

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 0.6
C2 0.3
C3 0.4
C4 0.2

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Total Mercury, low level	Methyl Mercury (contract)								See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1	1 CFR-84F	5-9-18	1100	1	W	✓	✓										H18050287
	2 Field Blank #1 FC-CFR	5-9-18	1200	1	W	✓	✓										
	3 FC-CFR	5-9-18	1230	1	W	✓	✓										
	4 FC-CFR Duplicate	5-9-18	1230	1	W	✓	✓										
	5																
	6																
	7																
	8																
	9																
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	5-11-18 12:20				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Jessica Smith	5-11-18 12:20	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
Hand	yes	Y N C B	Y N	see comments °C	Y N	Y N	CC Cash Check_____	$	

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 subcontracted data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

July 05, 2018

MT DEQ-Federal Superfund
PO Box 200901
Helena, MT 59620-0901

Work Order: H18060101 Quote ID: H1525 - CFR Monitoring-474374

Project Name: CFROU Monitoring

Energy Laboratories Inc Helena MT received the following 19 samples for MT DEQ-Federal Superfund on 6/5/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18060101-001	CFR-116A	06/04/18 9:30	06/05/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18060101-002	Field Blank #1 FC-CFR	06/04/18 12:15	06/05/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H18060101-003	FC-CFR	06/04/18 12:30	06/05/18	Surface Water	Same As Above
H18060101-004	FC-CFR Duplicate	06/04/18 12:30	06/05/18	Surface Water	Same As Above
H18060101-005	LBR-CFR-02	06/04/18 14:30	06/05/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18060101-006	CFR-34	06/04/18 15:30	06/05/18	Surface Water	Same As Above

ANALYTICAL SUMMARY REPORT

H18060101-007	CFR-27H	06/04/18 16:30	06/05/18	Surface Water	Same As Above
H18060101-008	CFR-11F	06/04/18 17:45	06/05/18	Surface Water	Same As Above
H18060101-009	CFR-07D	06/05/18 8:00	06/05/18	Surface Water	Same As Above
H18060101-010	Field Blank #2 CFR-03A	06/05/18 9:00	06/05/18	Surface Water	Same As Above
H18060101-011	CFR-03A	06/05/18 9:15	06/05/18	Surface Water	Same As Above
H18060101-012	WSC-SBC	06/05/18 10:15	06/05/18	Surface Water	Same As Above
H18060101-013	SS-25	06/05/18 11:30	06/05/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18060101-014	SS-25 Duplicate	06/05/18 11:30	06/05/18	Surface Water	Same As Above
H18060101-015	MWB-SBC	06/05/18 12:30	06/05/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18060101-016	MCWC-MWB	06/05/18 13:30	06/05/18	Surface Water	Same As Above
H18060101-017	SBC-P2	06/05/18 12:15	06/05/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18060101-018	CFR-84F	06/04/18 11:30	06/05/18	Surface Water	Mercury, Total Recoverable Mercury Digestion by E245.1 Subcontracted, Analytics
H18060101-019	Methyl Hg Trip Blank	06/04/18 11:30	06/05/18	Trip Blank	Subcontracted, Analytics

ANALYTICAL SUMMARY REPORT

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

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

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

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-116A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-001
Collection Date: 06/04/18 09:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	64	mg/L	D	4	0.3	A2540 D	06/06/18 13:53 / SR			-124 (14410200)_180606A	3	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	78	mg/L		4	2	A2320 B	06/06/18 10:33 / SR			PHSC_101-H_180606A	37	R135314
Bicarbonate as HCO3	95	mg/L		4	2	A2320 B	06/06/18 10:33 / SR			PHSC_101-H_180606A	37	R135314
Chloride	2	mg/L		1	0.009	E300.0	06/06/18 12:00 / SR			IC METROHM_180606A	11	R135350
Sulfate	22	mg/L		1	0.01	E300.0	06/06/18 12:00 / SR			IC METROHM_180606A	11	R135350
Hardness as CaCO3	97	mg/L		1	1	A2340 B	06/11/18 12:57 / sld			WATERCALC_180611A	1	R135444
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02	0.009	E353.2	06/06/18 15:20 / km			FIA203-HE_180606C	17	R135346
Nitrogen, Total	0.34	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:19 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	20	41759
Phosphorus, Total as P	0.090	mg/L		0.003	0.0006	E365.1	06/07/18 14:35 / cm	06/07/18 11:55	E365.1	FIA202-HE_180607A	16	41772
METALS, DISSOLVED												
Arsenic	0.014	mg/L		0.001	0.00004	E200.8	06/08/18 15:55 / dck			ICPMS205-H_180608A	54	R135436
Cadmium	0.00007	mg/L		0.00003	0.00003	E200.8	06/08/18 15:55 / dck			ICPMS205-H_180608A	54	R135436
Copper	0.014	mg/L		0.001	0.0001	E200.8	06/08/18 15:55 / dck			ICPMS205-H_180608A	54	R135436
Lead	0.00016	mg/L	J	0.0003	0.00003	E200.8	06/08/18 15:55 / dck			ICPMS205-H_180608A	54	R135436
Zinc	0.011	mg/L		0.008	0.0003	E200.8	06/08/18 15:55 / dck			ICPMS205-H_180608A	54	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.017	mg/L		0.001	0.00004	E200.8	06/08/18 19:41 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	98	41758
Cadmium	0.00025	mg/L		0.00003	0.00003	E200.8	06/08/18 19:41 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	98	41758
Calcium	28	mg/L		1	0.09	E200.7	06/07/18 12:30 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	26	41758
Copper	0.046	mg/L		0.001	0.0002	E200.8	06/08/18 19:41 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	98	41758
Lead	0.0058	mg/L		0.0003	0.00004	E200.8	06/08/18 19:41 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	98	41758
Magnesium	7	mg/L		1	0.2	E200.7	06/07/18 12:30 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	26	41758
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 12:30 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	26	41758
Sodium	6	mg/L		1	0.03	E200.7	06/07/18 12:30 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	26	41758
Zinc	0.065	mg/L		0.008	0.001	E200.8	06/08/18 19:41 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	98	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 FC-CFR
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-002
Collection Date: 06/04/18 12:15
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1	0.3	A2540 D	06/06/18 13:54 / SR			-124 (14410200)_180606A	5	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	2	mg/L	J	4	2	A2320 B	06/06/18 10:38 / SR			PHSC_101-H_180606A	39	R135314
Bicarbonate as HCO3	2	mg/L	J	4	2	A2320 B	06/06/18 10:38 / SR			PHSC_101-H_180606A	39	R135314
Chloride	ND	mg/L		1	0.009	E300.0	06/06/18 12:14 / SR			IC METROHM_180606A	12	R135350
Sulfate	ND	mg/L		1	0.01	E300.0	06/06/18 12:14 / SR			IC METROHM_180606A	12	R135350
Hardness as CaCO3	ND	mg/L		1	1	A2340 B	06/11/18 12:57 / sld			WATERCALC_180611A	2	R135444
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	06/06/18 15:21 / km			FIA203-HE_180606C	18	R135346
Nitrogen, Total	ND	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:23 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	23	41759
Phosphorus, Total as P	ND	mg/L		0.003	0.0006	E365.1	06/07/18 14:49 / cm	06/07/18 11:55	E365.1	FIA202-HE_180607A	29	41772
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.001	0.00004	E200.8	06/08/18 15:57 / dck			ICPMS205-H_180608A	55	R135436
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 15:57 / dck			ICPMS205-H_180608A	55	R135436
Copper	ND	mg/L		0.001	0.0001	E200.8	06/08/18 15:57 / dck			ICPMS205-H_180608A	55	R135436
Lead	ND	mg/L		0.0003	0.00003	E200.8	06/08/18 15:57 / dck			ICPMS205-H_180608A	55	R135436
Zinc	0.0078	mg/L	J	0.008	0.0003	E200.8	06/08/18 15:57 / dck			ICPMS205-H_180608A	55	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	ND	mg/L		0.001	0.00004	E200.8	06/08/18 19:43 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	99	41758
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 19:43 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	99	41758
Calcium	ND	mg/L		1	0.09	E200.7	06/07/18 12:49 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	31	41758
Copper	0.0002	mg/L	J	0.001	0.0002	E200.8	06/08/18 19:43 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	99	41758
Lead	ND	mg/L		0.0003	0.00004	E200.8	06/08/18 19:43 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	99	41758
Magnesium	ND	mg/L		1	0.009	E200.7	06/07/18 12:49 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	31	41758
Mercury	2.0E-06	mg/L	J	5E-06	1E-06	E245.1	06/13/18 16:08 / dck	06/12/18 09:05	E245.1	HGCV202-H_180613A	61	41826
Potassium	ND	mg/L		1	0.06	E200.7	06/07/18 12:49 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	31	41758
Sodium	ND	mg/L		1	0.03	E200.7	06/07/18 12:49 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	31	41758
Zinc	ND	mg/L		0.008	0.001	E200.8	06/08/18 19:43 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	99	41758

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: FC-CFR
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-003
Collection Date: 06/04/18 12:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	42	mg/L	D	4	0.3	A2540 D	06/06/18 13:54 / SR			-124 (14410200)_180606A	6	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	80	mg/L		4	2	A2320 B	06/06/18 10:44 / SR			PHSC_101-H_180606A	41	R135314
Bicarbonate as HCO3	97	mg/L		4	2	A2320 B	06/06/18 10:44 / SR			PHSC_101-H_180606A	41	R135314
Chloride	1	mg/L		1	0.009	E300.0	06/06/18 12:29 / SR			IC METROHM_180606A	13	R135350
Sulfate	6	mg/L		1	0.01	E300.0	06/06/18 12:29 / SR			IC METROHM_180606A	13	R135350
Hardness as CaCO3	81	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	1	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02	0.009	E353.2	06/06/18 15:22 / km			FIA203-HE_180606C	19	R135346
Nitrogen, Total	0.33	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:24 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	24	41759
Phosphorus, Total as P	0.074	mg/L		0.003	0.0006	E365.1	06/11/18 14:38 / cm	06/11/18 12:43	E365.1	FIA202-HE_180611A	14	41803
METALS, DISSOLVED												
Arsenic	0.007	mg/L		0.001	0.00004	E200.8	06/08/18 15:59 / dck			ICPMS205-H_180608A	56	R135436
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 15:59 / dck			ICPMS205-H_180608A	56	R135436
Copper	0.002	mg/L		0.001	0.0001	E200.8	06/08/18 15:59 / dck			ICPMS205-H_180608A	56	R135436
Lead	0.0003	mg/L		0.0003	0.00003	E200.8	06/11/18 14:11 / sld			ICPMS205-H_180611A	24	R135450
Zinc	0.0058	mg/L	J	0.008	0.0003	E200.8	06/08/18 15:59 / dck			ICPMS205-H_180608A	56	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.014	mg/L		0.001	0.00004	E200.8	06/08/18 19:45 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	100	41758
Cadmium	0.00010	mg/L		0.00003	0.00003	E200.8	06/08/18 19:45 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	100	41758
Calcium	23	mg/L		1	0.09	E200.7	06/07/18 13:00 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	34	41758
Copper	0.005	mg/L		0.001	0.0002	E200.8	06/08/18 19:45 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	100	41758
Lead	0.0095	mg/L		0.0003	0.00004	E200.8	06/08/18 19:45 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	100	41758
Magnesium	6	mg/L		1	0.2	E200.7	06/07/18 13:00 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	34	41758
Mercury	0.00034	mg/L	D	0.00001	5E-06	E245.1	06/13/18 17:27 / dck	06/12/18 09:05	E245.1	HGCV202-H_180613A	73	41826
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 13:00 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	34	41758
Sodium	4	mg/L		1	0.03	E200.7	06/07/18 13:00 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	34	41758
Zinc	0.033	mg/L		0.008	0.001	E200.8	06/11/18 17:43 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	129	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-004
Collection Date: 06/04/18 12:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	42	mg/L	D	4	0.3	A2540 D	06/06/18 13:54 / SR			-124 (14410200)_180606A	7	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	80	mg/L		4	2	A2320 B	06/06/18 10:49 / SR			PHSC_101-H_180606A	43	R135314
Bicarbonate as HCO3	97	mg/L		4	2	A2320 B	06/06/18 10:49 / SR			PHSC_101-H_180606A	43	R135314
Chloride	2	mg/L		1	0.009	E300.0	06/06/18 12:43 / SR			IC METROHM_180606A	14	R135350
Sulfate	6	mg/L		1	0.01	E300.0	06/06/18 12:43 / SR			IC METROHM_180606A	14	R135350
Hardness as CaCO3	84	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	2	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02	0.009	E353.2	06/06/18 15:23 / km			FIA203-HE_180606C	20	R135346
Nitrogen, Total	0.34	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:25 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	25	41759
Phosphorus, Total as P	0.078	mg/L		0.003	0.0006	E365.1	06/11/18 14:39 / cm	06/11/18 12:43	E365.1	FIA202-HE_180611A	15	41803
METALS, DISSOLVED												
Arsenic	0.007	mg/L		0.001	0.00004	E200.8	06/08/18 16:01 / dck			ICPMS205-H_180608A	57	R135436
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 16:01 / dck			ICPMS205-H_180608A	57	R135436
Copper	0.002	mg/L		0.001	0.0001	E200.8	06/08/18 16:01 / dck			ICPMS205-H_180608A	57	R135436
Lead	0.0004	mg/L		0.0003	0.00003	E200.8	06/11/18 14:13 / sld			ICPMS205-H_180611A	25	R135450
Zinc	0.0063	mg/L	J	0.008	0.0003	E200.8	06/08/18 16:01 / dck			ICPMS205-H_180608A	57	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.015	mg/L		0.001	0.00004	E200.8	06/08/18 19:46 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	101	41758
Cadmium	0.00011	mg/L		0.00003	0.00003	E200.8	06/08/18 19:46 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	101	41758
Calcium	24	mg/L		1	0.09	E200.7	06/07/18 13:04 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	35	41758
Copper	0.006	mg/L		0.001	0.0002	E200.8	06/08/18 19:46 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	101	41758
Lead	0.0102	mg/L		0.0003	0.00004	E200.8	06/08/18 19:46 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	101	41758
Magnesium	6	mg/L		1	0.2	E200.7	06/07/18 13:04 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	35	41758
Mercury	0.00039	mg/L	D	0.00001	5E-06	E245.1	06/13/18 17:30 / dck	06/12/18 09:05	E245.1	HGCV202-H_180613A	74	41826
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 13:04 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	35	41758
Sodium	4	mg/L		1	0.03	E200.7	06/07/18 13:04 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	35	41758
Zinc	0.034	mg/L		0.008	0.001	E200.8	06/11/18 17:45 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	130	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-005
Collection Date: 06/04/18 14:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	12	mg/L	D	4	0.3	A2540 D	06/06/18 13:55 / SR			-124 (14410200)_180606A	8	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	89	mg/L		4	2	A2320 B	06/06/18 10:54 / SR			PHSC_101-H_180606A	45	R135314
Bicarbonate as HCO3	110	mg/L		4	2	A2320 B	06/06/18 10:54 / SR			PHSC_101-H_180606A	45	R135314
Chloride	1	mg/L		1	0.009	E300.0	06/06/18 12:58 / SR			IC METROHM_180606A	15	R135350
Sulfate	7	mg/L		1	0.01	E300.0	06/06/18 12:58 / SR			IC METROHM_180606A	15	R135350
Hardness as CaCO3	84	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	3	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.018	mg/L	J	0.02	0.009	E353.2	06/06/18 15:25 / km			FIA203-HE_180606C	21	R135346
Nitrogen, Total	0.34	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:26 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	26	41759
Phosphorus, Total as P	0.057	mg/L		0.003	0.0006	E365.1	06/11/18 14:40 / cm	06/11/18 12:43	E365.1	FIA202-HE_180611A	16	41803
METALS, DISSOLVED												
Arsenic	0.007	mg/L		0.001	0.00004	E200.8	06/08/18 16:03 / dck			ICPMS205-H_180608A	58	R135436
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 16:03 / dck			ICPMS205-H_180608A	58	R135436
Copper	0.001	mg/L		0.001	0.0001	E200.8	06/08/18 16:03 / dck			ICPMS205-H_180608A	58	R135436
Lead	0.00004	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:03 / dck			ICPMS205-H_180608A	58	R135436
Zinc	0.0046	mg/L	J	0.008	0.0003	E200.8	06/08/18 16:03 / dck			ICPMS205-H_180608A	58	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.007	mg/L		0.001	0.00004	E200.8	06/08/18 19:48 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	102	41758
Cadmium	0.00003	mg/L	J	0.00003	0.00003	E200.8	06/08/18 19:48 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	102	41758
Calcium	25	mg/L		1	0.09	E200.7	06/07/18 13:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	36	41758
Copper	0.002	mg/L		0.001	0.0002	E200.8	06/08/18 19:48 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	102	41758
Lead	0.0009	mg/L		0.0003	0.00004	E200.8	06/11/18 17:47 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	131	41758
Magnesium	6	mg/L		1	0.2	E200.7	06/07/18 13:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	36	41758
Potassium	1	mg/L		1	0.06	E200.7	06/07/18 13:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	36	41758
Sodium	4	mg/L		1	0.03	E200.7	06/07/18 13:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	36	41758
Zinc	0.007	mg/L	J	0.008	0.001	E200.8	06/11/18 17:47 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	131	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-34
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-006
Collection Date: 06/04/18 15:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	64	mg/L	D	4	0.3	A2540 D	06/06/18 13:55 / SR			-124 (14410200)_180606A	9	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	97	mg/L		4	2	A2320 B	06/06/18 10:59 / SR			PHSC_101-H_180606A	47	R135314
Bicarbonate as HCO3	120	mg/L		4	2	A2320 B	06/06/18 10:59 / SR			PHSC_101-H_180606A	47	R135314
Chloride	4	mg/L		1	0.009	E300.0	06/06/18 13:12 / SR			IC METROHM_180606A	16	R135350
Sulfate	41	mg/L		1	0.01	E300.0	06/06/18 13:12 / SR			IC METROHM_180606A	16	R135350
Hardness as CaCO3	128	mg/L		1	1	A2340 B	06/11/18 12:57 / sld			WATERCALC_180611A	3	R135444
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.02	0.009	E353.2	06/06/18 15:26 / km			FIA203-HE_180606C	22	R135346
Nitrogen, Total	0.46	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:28 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	27	41759
Phosphorus, Total as P	0.110	mg/L		0.003	0.0006	E365.1	06/11/18 14:41 / cm	06/11/18 12:43	E365.1	FIA202-HE_180611A	17	41803
METALS, DISSOLVED												
Arsenic	0.026	mg/L		0.001	0.00004	E200.8	06/08/18 16:05 / dck			ICPMS205-H_180608A	59	R135436
Cadmium	0.00013	mg/L		0.00003	0.00003	E200.8	06/08/18 16:05 / dck			ICPMS205-H_180608A	59	R135436
Copper	0.028	mg/L		0.001	0.0001	E200.8	06/08/18 16:05 / dck			ICPMS205-H_180608A	59	R135436
Lead	0.0004	mg/L		0.0003	0.00003	E200.8	06/11/18 14:15 / sld			ICPMS205-H_180611A	26	R135450
Zinc	0.021	mg/L		0.008	0.0003	E200.8	06/08/18 16:05 / dck			ICPMS205-H_180608A	59	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.038	mg/L		0.001	0.00004	E200.8	06/08/18 19:50 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	103	41758
Cadmium	0.00046	mg/L		0.00003	0.00003	E200.8	06/08/18 19:50 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	103	41758
Calcium	38	mg/L		1	0.09	E200.7	06/07/18 13:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	37	41758
Copper	0.120	mg/L		0.001	0.0002	E200.8	06/08/18 19:50 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	103	41758
Lead	0.0150	mg/L		0.0003	0.00004	E200.8	06/08/18 19:50 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	103	41758
Magnesium	8	mg/L		1	0.2	E200.7	06/07/18 13:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	37	41758
Potassium	3	mg/L		1	0.06	E200.7	06/07/18 13:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	37	41758
Sodium	8	mg/L		1	0.03	E200.7	06/07/18 13:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	37	41758
Zinc	0.096	mg/L		0.008	0.001	E200.8	06/08/18 19:50 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	103	41758

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-27H
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-007
Collection Date: 06/04/18 16:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	52	mg/L	D	4	0.3	A2540 D	06/06/18 13:55 / SR			124 (14410200)_180606A	10	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	88	mg/L		4	2	A2320 B	06/06/18 11:04 / SR			PHSC_101-H_180606A	49	R135314
Bicarbonate as HCO3	110	mg/L		4	2	A2320 B	06/06/18 11:04 / SR			PHSC_101-H_180606A	49	R135314
Chloride	4	mg/L		1	0.009	E300.0	06/06/18 13:27 / SR			IC METROHM_180606A	17	R135350
Sulfate	42	mg/L		1	0.01	E300.0	06/06/18 13:27 / SR			IC METROHM_180606A	17	R135350
Hardness as CaCO3	125	mg/L		1	1	A2340 B	06/11/18 12:57 / sld			WATERCALC_180611A	4	R135444
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02	0.009	E353.2	06/06/18 15:27 / km			FIA203-HE_180606C	23	R135346
Nitrogen, Total	0.41	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:32 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	31	41759
Phosphorus, Total as P	0.101	mg/L		0.003	0.0006	E365.1	06/11/18 14:43 / cm	06/11/18 12:43	E365.1	FIA202-HE_180611A	18	41803
METALS, DISSOLVED												
Arsenic	0.026	mg/L		0.001	0.00004	E200.8	06/08/18 16:06 / dck			ICPMS205-H_180608A	60	R135436
Cadmium	0.00013	mg/L		0.00003	0.00003	E200.8	06/08/18 16:06 / dck			ICPMS205-H_180608A	60	R135436
Copper	0.025	mg/L		0.001	0.0001	E200.8	06/08/18 16:06 / dck			ICPMS205-H_180608A	60	R135436
Lead	0.0004	mg/L		0.0003	0.00003	E200.8	06/11/18 14:17 / sld			ICPMS205-H_180611A	27	R135450
Zinc	0.024	mg/L		0.008	0.0003	E200.8	06/08/18 16:06 / dck			ICPMS205-H_180608A	60	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.038	mg/L		0.001	0.00004	E200.8	06/08/18 19:52 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	104	41758
Cadmium	0.00038	mg/L		0.00003	0.00003	E200.8	06/08/18 19:52 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	104	41758
Calcium	37	mg/L		1	0.09	E200.7	06/07/18 13:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	38	41758
Copper	0.142	mg/L		0.001	0.0002	E200.8	06/08/18 19:52 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	104	41758
Lead	0.0133	mg/L		0.0003	0.00004	E200.8	06/08/18 19:52 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	104	41758
Magnesium	8	mg/L		1	0.2	E200.7	06/07/18 13:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	38	41758
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 13:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	38	41758
Sodium	8	mg/L		1	0.03	E200.7	06/07/18 13:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	38	41758
Zinc	0.084	mg/L		0.008	0.001	E200.8	06/08/18 19:52 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	104	41758

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-11F
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-008
Collection Date: 06/04/18 17:45
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	25	mg/L	D	4	0.3	A2540 D	06/06/18 13:55 / SR			124 (14410200)_180606A	11	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	89	mg/L		4	2	A2320 B	06/06/18 11:10 / SR			PHSC_101-H_180606A	51	R135314
Bicarbonate as HCO3	110	mg/L		4	2	A2320 B	06/06/18 11:10 / SR			PHSC_101-H_180606A	51	R135314
Chloride	4	mg/L		1	0.009	E300.0	06/06/18 13:42 / SR			IC METROHM_180606A	18	R135350
Sulfate	49	mg/L		1	0.01	E300.0	06/06/18 13:42 / SR			IC METROHM_180606A	18	R135350
Hardness as CaCO3	126	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	4	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.02	0.009	E353.2	06/06/18 15:31 / km			FIA203-HE_180606C	26	R135346
Nitrogen, Total	0.36	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:34 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	32	41759
Phosphorus, Total as P	0.075	mg/L		0.003	0.0006	E365.1	06/11/18 14:44 / cm	06/11/18 12:43	E365.1	FIA202-HE_180611A	19	41803
METALS, DISSOLVED												
Arsenic	0.027	mg/L		0.001	0.00004	E200.8	06/08/18 16:08 / dck			ICPMS205-H_180608A	61	R135436
Cadmium	0.00006	mg/L		0.00003	0.00003	E200.8	06/11/18 14:19 / sld			ICPMS205-H_180611A	28	R135450
Copper	0.014	mg/L		0.001	0.0001	E200.8	06/08/18 16:08 / dck			ICPMS205-H_180608A	61	R135436
Lead	0.00016	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:08 / dck			ICPMS205-H_180608A	61	R135436
Zinc	0.009	mg/L		0.008	0.0003	E200.8	06/08/18 16:08 / dck			ICPMS205-H_180608A	61	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.032	mg/L		0.001	0.00004	E200.8	06/08/18 19:54 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	105	41758
Cadmium	0.00020	mg/L		0.00003	0.00003	E200.8	06/08/18 19:54 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	105	41758
Calcium	38	mg/L		1	0.09	E200.7	06/07/18 13:19 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	39	41758
Copper	0.047	mg/L		0.001	0.0002	E200.8	06/08/18 19:54 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	105	41758
Lead	0.0062	mg/L		0.0003	0.00004	E200.8	06/08/18 19:54 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	105	41758
Magnesium	8	mg/L		1	0.2	E200.7	06/07/18 13:19 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	39	41758
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 13:19 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	39	41758
Sodium	7	mg/L		1	0.03	E200.7	06/07/18 13:19 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	39	41758
Zinc	0.043	mg/L		0.008	0.001	E200.8	06/11/18 17:49 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	132	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-009
Collection Date: 06/05/18 08:00
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	19	mg/L	D	4	0.3	A2540 D	06/06/18 13:56 / SR			124 (14410200)_180606A	12	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	84	mg/L		4	2	A2320 B	06/06/18 11:15 / SR			PHSC_101-H_180606A	53	R135314
Bicarbonate as HCO3	100	mg/L		4	2	A2320 B	06/06/18 11:15 / SR			PHSC_101-H_180606A	53	R135314
Chloride	4	mg/L		1	0.009	E300.0	06/06/18 13:56 / SR			IC METROHM_180606A	19	R135350
Sulfate	45	mg/L		1	0.01	E300.0	06/06/18 13:56 / SR			IC METROHM_180606A	19	R135350
Hardness as CaCO3	123	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	5	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02	0.009	E353.2	06/06/18 15:32 / km			FIA203-HE_180606C	27	R135346
Nitrogen, Total	0.34	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:35 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	33	41759
Phosphorus, Total as P	0.062	mg/L		0.003	0.0006	E365.1	06/11/18 14:45 / cm	06/11/18 12:44	E365.1	FIA202-HE_180611A	20	41803
METALS, DISSOLVED												
Arsenic	0.025	mg/L		0.001	0.00004	E200.8	06/08/18 16:10 / dck			ICPMS205-H_180608A	62	R135436
Cadmium	0.00006	mg/L		0.00003	0.00003	E200.8	06/11/18 14:21 / sld			ICPMS205-H_180611A	29	R135450
Copper	0.011	mg/L		0.001	0.0001	E200.8	06/08/18 16:10 / dck			ICPMS205-H_180608A	62	R135436
Lead	0.00013	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:10 / dck			ICPMS205-H_180608A	62	R135436
Zinc	0.011	mg/L		0.008	0.0003	E200.8	06/08/18 16:10 / dck			ICPMS205-H_180608A	62	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.030	mg/L		0.001	0.00004	E200.8	06/08/18 20:10 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	113	41758
Cadmium	0.00020	mg/L		0.00003	0.00003	E200.8	06/08/18 20:10 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	113	41758
Calcium	37	mg/L		1	0.09	E200.7	06/07/18 13:23 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	40	41758
Copper	0.043	mg/L		0.001	0.0002	E200.8	06/08/18 20:10 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	113	41758
Lead	0.0052	mg/L		0.0003	0.00004	E200.8	06/08/18 20:10 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	113	41758
Magnesium	7	mg/L		1	0.2	E200.7	06/07/18 13:23 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	40	41758
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 13:23 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	40	41758
Sodium	7	mg/L		1	0.03	E200.7	06/07/18 13:23 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	40	41758
Zinc	0.035	mg/L		0.008	0.001	E200.8	06/11/18 17:51 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	133	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 CFR-03A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-010
Collection Date: 06/05/18 09:00
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1	0.3	A2540 D	06/06/18 13:56 / SR			124 (14410200)_180606A	13	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	ND	mg/L		4	2	A2320 B	06/06/18 11:20 / SR			PHSC_101-H_180606A	55	R135314
Bicarbonate as HCO3	ND	mg/L		4	2	A2320 B	06/06/18 11:20 / SR			PHSC_101-H_180606A	55	R135314
Chloride	ND	mg/L		1	0.009	E300.0	06/06/18 14:54 / SR			IC METROHM_180606A	22	R135350
Sulfate	ND	mg/L		1	0.01	E300.0	06/06/18 14:54 / SR			IC METROHM_180606A	22	R135350
Hardness as CaCO3	ND	mg/L		1	1	A2340 B	06/11/18 12:57 / sld			WATERCALC_180611A	5	R135444
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	06/06/18 15:33 / km			FIA203-HE_180606C	28	R135346
Nitrogen, Total	ND	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:36 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	34	41759
Phosphorus, Total as P	ND	mg/L		0.003	0.0006	E365.1	06/11/18 14:46 / cm	06/11/18 12:44	E365.1	FIA202-HE_180611A	21	41803
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.001	0.00004	E200.8	06/08/18 16:22 / dck			ICPMS205-H_180608A	68	R135436
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 16:22 / dck			ICPMS205-H_180608A	68	R135436
Copper	ND	mg/L		0.001	0.0001	E200.8	06/08/18 16:22 / dck			ICPMS205-H_180608A	68	R135436
Lead	ND	mg/L		0.0003	0.00003	E200.8	06/08/18 16:22 / dck			ICPMS205-H_180608A	68	R135436
Zinc	0.011	mg/L		0.008	0.0003	E200.8	06/08/18 16:22 / dck			ICPMS205-H_180608A	68	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	ND	mg/L		0.001	0.00004	E200.8	06/08/18 20:12 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	114	41758
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 20:12 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	114	41758
Calcium	ND	mg/L		1	0.09	E200.7	06/07/18 13:27 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	41	41758
Copper	0.0004	mg/L	J	0.001	0.0002	E200.8	06/08/18 20:12 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	114	41758
Lead	ND	mg/L		0.0003	0.00004	E200.8	06/08/18 20:12 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	114	41758
Magnesium	ND	mg/L		1	0.009	E200.7	06/07/18 13:27 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	41	41758
Potassium	ND	mg/L		1	0.06	E200.7	06/07/18 13:27 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	41	41758
Sodium	ND	mg/L		1	0.03	E200.7	06/07/18 13:27 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	41	41758
Zinc	ND	mg/L		0.008	0.001	E200.8	06/08/18 20:12 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	114	41758

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-03A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-011
Collection Date: 06/05/18 09:15
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	11	mg/L	D	4	0.3	A2540 D	06/06/18 13:56 / SR			124 (14410200)_180606A	14	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	74	mg/L		4	2	A2320 B	06/06/18 11:26 / SR			PHSC_101-H_180606A	57	R135314
Bicarbonate as HCO3	89	mg/L		4	2	A2320 B	06/06/18 11:26 / SR			PHSC_101-H_180606A	57	R135314
Chloride	4	mg/L		1	0.009	E300.0	06/06/18 15:09 / SR			IC METROHM_180606A	23	R135350
Sulfate	26	mg/L		1	0.01	E300.0	06/06/18 15:09 / SR			IC METROHM_180606A	23	R135350
Hardness as CaCO3	95	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	6	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.014	mg/L	J	0.02	0.009	E353.2	06/06/18 15:36 / km			FIA203-HE_180606C	31	R135346
Nitrogen, Total	0.31	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:39 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	37	41759
Phosphorus, Total as P	0.061	mg/L		0.003	0.0006	E365.1	06/11/18 14:47 / cm	06/11/18 12:44	E365.1	FIA202-HE_180611A	22	41803
METALS, DISSOLVED												
Arsenic	0.017	mg/L		0.001	0.00004	E200.8	06/08/18 16:24 / dck			ICPMS205-H_180608A	69	R135436
Cadmium	0.00005	mg/L		0.00003	0.00003	E200.8	06/08/18 16:24 / dck			ICPMS205-H_180608A	69	R135436
Copper	0.008	mg/L		0.001	0.0001	E200.8	06/08/18 16:24 / dck			ICPMS205-H_180608A	69	R135436
Lead	0.00011	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:24 / dck			ICPMS205-H_180608A	69	R135436
Zinc	0.009	mg/L		0.008	0.0003	E200.8	06/08/18 16:24 / dck			ICPMS205-H_180608A	69	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.018	mg/L		0.001	0.00004	E200.8	06/08/18 20:14 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	115	41758
Cadmium	0.00010	mg/L		0.00003	0.00003	E200.8	06/08/18 20:14 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	115	41758
Calcium	29	mg/L		1	0.09	E200.7	06/07/18 13:31 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	42	41758
Copper	0.016	mg/L		0.001	0.0002	E200.8	06/08/18 20:14 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	115	41758
Lead	0.0013	mg/L		0.0003	0.00004	E200.8	06/08/18 20:14 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	115	41758
Magnesium	5	mg/L		1	0.2	E200.7	06/07/18 13:31 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	42	41758
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 13:31 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	42	41758
Sodium	6	mg/L		1	0.03	E200.7	06/07/18 13:31 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	42	41758
Zinc	0.017	mg/L		0.008	0.001	E200.8	06/11/18 17:53 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	134	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-012
Collection Date: 06/05/18 10:15
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	28	mg/L	D	4	0.3	A2540 D	06/06/18 13:56 / SR			124 (14410200)_180606A	16	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	67	mg/L		4	2	A2320 B	06/06/18 11:31 / SR			PHSC_101-H_180606A	59	R135314
Bicarbonate as HCO3	81	mg/L		4	2	A2320 B	06/06/18 11:31 / SR			PHSC_101-H_180606A	59	R135314
Chloride	0.54	mg/L	J	1	0.009	E300.0	06/06/18 15:24 / SR			IC METROHM_180606A	24	R135350
Sulfate	14	mg/L		1	0.01	E300.0	06/06/18 15:24 / SR			IC METROHM_180606A	24	R135350
Hardness as CaCO3	74	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	7	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.02	0.009	E353.2	06/06/18 15:38 / km			FIA203-HE_180606C	32	R135346
Nitrogen, Total	0.19	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:43 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	40	41759
Phosphorus, Total as P	0.026	mg/L		0.003	0.0006	E365.1	06/11/18 14:48 / cm	06/11/18 12:44	E365.1	FIA202-HE_180611A	23	41803
METALS, DISSOLVED												
Arsenic	0.008	mg/L		0.001	0.00004	E200.8	06/08/18 16:26 / dck			ICPMS205-H_180608A	70	R135436
Cadmium	0.00003	mg/L		0.00003	0.00003	E200.8	06/11/18 14:23 / sld			ICPMS205-H_180611A	30	R135450
Copper	0.006	mg/L		0.001	0.0001	E200.8	06/08/18 16:26 / dck			ICPMS205-H_180608A	70	R135436
Lead	ND	mg/L		0.0003	0.00003	E200.8	06/08/18 16:26 / dck			ICPMS205-H_180608A	70	R135436
Zinc	0.0054	mg/L	J	0.008	0.0003	E200.8	06/08/18 16:26 / dck			ICPMS205-H_180608A	70	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.011	mg/L		0.001	0.00004	E200.8	06/08/18 20:16 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	116	41758
Cadmium	0.00011	mg/L		0.00003	0.00003	E200.8	06/08/18 20:16 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	116	41758
Calcium	23	mg/L		1	0.09	E200.7	06/07/18 13:57 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	49	41758
Copper	0.026	mg/L		0.001	0.0002	E200.8	06/08/18 20:16 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	116	41758
Lead	0.0022	mg/L		0.0003	0.00004	E200.8	06/08/18 20:16 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	116	41758
Magnesium	4	mg/L		1	0.2	E200.7	06/07/18 13:57 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	49	41758
Potassium	1	mg/L		1	0.06	E200.7	06/07/18 13:57 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	49	41758
Sodium	2	mg/L		1	0.03	E200.7	06/07/18 13:57 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	49	41758
Zinc	0.016	mg/L		0.008	0.001	E200.8	06/11/18 17:55 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	135	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-013
Collection Date: 06/05/18 11:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	6	mg/L	D	4	0.3	A2540 D	06/06/18 13:57 / SR			124 (14410200)_180606A	17	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	71	mg/L		4	2	A2320 B	06/06/18 11:36 / SR			PHSC_101-H_180606A	61	R135314
Bicarbonate as HCO3	87	mg/L		4	2	A2320 B	06/06/18 11:36 / SR			PHSC_101-H_180606A	61	R135314
Chloride	5	mg/L		1	0.009	E300.0	06/06/18 15:38 / SR			IC METROHM_180606A	25	R135350
Sulfate	29	mg/L		1	0.01	E300.0	06/06/18 15:38 / SR			IC METROHM_180606A	25	R135350
Hardness as CaCO3	84	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	8	R135464
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	06/08/18 10:02 / km			FIA203-HE_180608A	11	R135402
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	06/06/18 15:39 / km			FIA203-HE_180606C	33	R135346
Nitrogen, Total	0.34	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:44 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	41	41759
Phosphorus, Total as P	0.080	mg/L		0.003	0.0006	E365.1	06/07/18 15:23 / cm	06/07/18 11:59	E365.1	FIA202-HE_180607A	59	41774
METALS, DISSOLVED												
Arsenic	0.023	mg/L		0.001	0.00004	E200.8	06/08/18 16:28 / dck			ICPMS205-H_180608A	71	R135436
Cadmium	0.00005	mg/L		0.00003	0.00003	E200.8	06/08/18 16:28 / dck			ICPMS205-H_180608A	71	R135436
Copper	0.008	mg/L		0.001	0.0001	E200.8	06/08/18 16:28 / dck			ICPMS205-H_180608A	71	R135436
Lead	0.00016	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:28 / dck			ICPMS205-H_180608A	71	R135436
Zinc	0.010	mg/L		0.008	0.0003	E200.8	06/08/18 16:28 / dck			ICPMS205-H_180608A	71	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.023	mg/L		0.001	0.00004	E200.8	06/08/18 20:17 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	117	41758
Cadmium	0.00010	mg/L		0.00003	0.00003	E200.8	06/08/18 20:17 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	117	41758
Calcium	26	mg/L		1	0.09	E200.7	06/07/18 14:01 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	50	41758
Copper	0.011	mg/L		0.001	0.0002	E200.8	06/08/18 20:17 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	117	41758
Lead	0.0014	mg/L		0.0003	0.00004	E200.8	06/08/18 20:17 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	117	41758
Magnesium	5	mg/L		1	0.2	E200.7	06/07/18 14:01 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	50	41758
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 14:01 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	50	41758
Sodium	9	mg/L		1	0.03	E200.7	06/07/18 14:01 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	50	41758
Zinc	0.018	mg/L		0.008	0.001	E200.8	06/11/18 17:57 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	136	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 Duplicate
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-014
Collection Date: 06/05/18 11:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	6	mg/L	D	4	0.3	A2540 D	06/06/18 13:57 / SR			124 (14410200)_180606A	18	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	71	mg/L		4	2	A2320 B	06/06/18 11:41 / SR			PHSC_101-H_180606A	63	R135314
Bicarbonate as HCO3	86	mg/L		4	2	A2320 B	06/06/18 11:41 / SR			PHSC_101-H_180606A	63	R135314
Chloride	5	mg/L		1	0.009	E300.0	06/06/18 15:53 / SR			IC METROHM_180606A	26	R135350
Sulfate	29	mg/L		1	0.01	E300.0	06/06/18 15:53 / SR			IC METROHM_180606A	26	R135350
Hardness as CaCO3	85	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	9	R135464
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	06/08/18 10:06 / km			FIA203-HE_180608A	14	R135402
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	06/06/18 15:40 / km			FIA203-HE_180606C	34	R135346
Nitrogen, Total	0.34	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:45 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	42	41759
Phosphorus, Total as P	0.072	mg/L		0.003	0.0006	E365.1	06/07/18 15:24 / cm	06/07/18 11:59	E365.1	FIA202-HE_180607A	60	41774
METALS, DISSOLVED												
Arsenic	0.023	mg/L		0.001	0.00004	E200.8	06/08/18 16:30 / dck			ICPMS205-H_180608A	72	R135436
Cadmium	0.00006	mg/L		0.00003	0.00003	E200.8	06/08/18 16:30 / dck			ICPMS205-H_180608A	72	R135436
Copper	0.008	mg/L		0.001	0.0001	E200.8	06/08/18 16:30 / dck			ICPMS205-H_180608A	72	R135436
Lead	0.00017	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:30 / dck			ICPMS205-H_180608A	72	R135436
Zinc	0.010	mg/L		0.008	0.0003	E200.8	06/08/18 16:30 / dck			ICPMS205-H_180608A	72	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.023	mg/L		0.001	0.00004	E200.8	06/08/18 20:19 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	118	41758
Cadmium	0.00010	mg/L		0.00003	0.00003	E200.8	06/08/18 20:19 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	118	41758
Calcium	26	mg/L		1	0.09	E200.7	06/07/18 14:05 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	51	41758
Copper	0.012	mg/L		0.001	0.0002	E200.8	06/08/18 20:19 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	118	41758
Lead	0.0011	mg/L		0.0003	0.00004	E200.8	06/08/18 20:19 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	118	41758
Magnesium	5	mg/L		1	0.2	E200.7	06/07/18 14:05 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	51	41758
Potassium	2	mg/L		1	0.06	E200.7	06/07/18 14:05 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	51	41758
Sodium	10	mg/L		1	0.03	E200.7	06/07/18 14:05 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	51	41758
Zinc	0.015	mg/L		0.008	0.001	E200.8	06/11/18 17:59 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	137	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-015
Collection Date: 06/05/18 12:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	9	mg/L	D	4	0.3	A2540 D	06/06/18 13:57 / SR			124 (14410200)_180606A	19	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	53	mg/L		4	2	A2320 B	06/06/18 12:10 / SR			PHSC_101-H_180606A	69	R135314
Bicarbonate as HCO3	64	mg/L		4	2	A2320 B	06/06/18 12:10 / SR			PHSC_101-H_180606A	69	R135314
Chloride	0.99	mg/L	J	1	0.009	E300.0	06/06/18 16:08 / SR			IC METROHM_180606A	27	R135350
Sulfate	18	mg/L		1	0.01	E300.0	06/06/18 16:08 / SR			IC METROHM_180606A	27	R135350
Hardness as CaCO3	63	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	10	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.014	mg/L	J	0.02	0.009	E353.2	06/06/18 15:41 / km			FIA203-HE_180606C	35	R135346
Nitrogen, Total	0.21	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:47 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	43	41759
Phosphorus, Total as P	0.036	mg/L		0.003	0.0006	E365.1	06/07/18 15:28 / cm	06/07/18 11:59	E365.1	FIA202-HE_180607A	63	41774
METALS, DISSOLVED												
Arsenic	0.028	mg/L		0.001	0.00004	E200.8	06/08/18 16:32 / dck			ICPMS205-H_180608A	73	R135436
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	06/08/18 16:32 / dck			ICPMS205-H_180608A	73	R135436
Copper	0.004	mg/L		0.001	0.0001	E200.8	06/08/18 16:32 / dck			ICPMS205-H_180608A	73	R135436
Lead	0.00013	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:32 / dck			ICPMS205-H_180608A	73	R135436
Zinc	0.0070	mg/L	J	0.008	0.0003	E200.8	06/08/18 16:32 / dck			ICPMS205-H_180608A	73	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.030	mg/L		0.001	0.00004	E200.8	06/08/18 20:21 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	119	41758
Cadmium	0.00011	mg/L		0.00003	0.00003	E200.8	06/08/18 20:21 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	119	41758
Calcium	19	mg/L		1	0.09	E200.7	06/07/18 14:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	52	41758
Copper	0.008	mg/L		0.001	0.0002	E200.8	06/08/18 20:21 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	119	41758
Lead	0.0014	mg/L		0.0003	0.00004	E200.8	06/08/18 20:21 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	119	41758
Magnesium	4	mg/L		1	0.2	E200.7	06/07/18 14:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	52	41758
Potassium	1	mg/L		1	0.06	E200.7	06/07/18 14:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	52	41758
Sodium	5	mg/L		1	0.03	E200.7	06/07/18 14:08 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	52	41758
Zinc	0.011	mg/L		0.008	0.001	E200.8	06/11/18 18:09 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	142	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-016
Collection Date: 06/05/18 13:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	11	mg/L	D	4	0.3	A2540 D	06/06/18 13:57 / SR			124 (14410200)_180606A	20	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	46	mg/L		4	2	A2320 B	06/06/18 12:20 / SR			PHSC_101-H_180606A	73	R135314
Bicarbonate as HCO3	56	mg/L		4	2	A2320 B	06/06/18 12:20 / SR			PHSC_101-H_180606A	73	R135314
Chloride	0.55	mg/L	J	1	0.009	E300.0	06/06/18 16:22 / SR			IC METROHM_180606A	28	R135350
Sulfate	6	mg/L		1	0.01	E300.0	06/06/18 16:22 / SR			IC METROHM_180606A	28	R135350
Hardness as CaCO3	45	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	11	R135464
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.017	mg/L	J	0.02	0.009	E353.2	06/06/18 15:42 / km			FIA203-HE_180606C	36	R135346
Nitrogen, Total	0.22	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:48 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	44	41759
Phosphorus, Total as P	0.036	mg/L		0.003	0.0006	E365.1	06/07/18 15:29 / cm	06/07/18 11:59	E365.1	FIA202-HE_180607A	64	41774
METALS, DISSOLVED												
Arsenic	0.027	mg/L		0.001	0.00004	E200.8	06/08/18 16:34 / dck			ICPMS205-H_180608A	74	R135436
Cadmium	0.00004	mg/L		0.00003	0.00003	E200.8	06/11/18 14:37 / sld			ICPMS205-H_180611A	37	R135450
Copper	0.004	mg/L		0.001	0.0001	E200.8	06/08/18 16:34 / dck			ICPMS205-H_180608A	74	R135436
Lead	0.00012	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:34 / dck			ICPMS205-H_180608A	74	R135436
Zinc	0.0075	mg/L	J	0.008	0.0003	E200.8	06/08/18 16:34 / dck			ICPMS205-H_180608A	74	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.028	mg/L		0.001	0.00004	E200.8	06/08/18 20:23 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	120	41758
Cadmium	0.00014	mg/L		0.00003	0.00003	E200.8	06/08/18 20:23 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	120	41758
Calcium	14	mg/L		1	0.09	E200.7	06/07/18 14:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	53	41758
Copper	0.009	mg/L		0.001	0.0002	E200.8	06/08/18 20:23 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	120	41758
Lead	0.0016	mg/L		0.0003	0.00004	E200.8	06/08/18 20:23 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	120	41758
Magnesium	3	mg/L		1	0.2	E200.7	06/07/18 14:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	53	41758
Potassium	0.91	mg/L	J	1	0.06	E200.7	06/07/18 14:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	53	41758
Sodium	4	mg/L		1	0.03	E200.7	06/07/18 14:12 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	53	41758
Zinc	0.012	mg/L		0.008	0.001	E200.8	06/11/18 18:11 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	143	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-017
Collection Date: 06/05/18 12:15
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L	D	2	0.3	A2540 D	06/06/18 13:58 / SR			124 (14410200)_180606A	21	TSS180606A
INORGANICS												
Alkalinity, Total as CaCO3	87	mg/L		4	2	A2320 B	06/06/18 12:25 / SR			PHSC_101-H_180606A	75	R135314
Bicarbonate as HCO3	98	mg/L		4	2	A2320 B	06/06/18 12:25 / SR			PHSC_101-H_180606A	75	R135314
Chloride	10	mg/L		1	0.009	E300.0	06/06/18 16:37 / SR			IC METROHM_180606A	29	R135350
Sulfate	38	mg/L		1	0.01	E300.0	06/06/18 16:37 / SR			IC METROHM_180606A	29	R135350
Hardness as CaCO3	115	mg/L		1	1	A2340 B	06/12/18 08:38 / sld			WATERCALC_180612A	12	R135464
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	06/08/18 10:07 / km			FIA203-HE_180608A	15	R135402
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	06/06/18 15:44 / km			FIA203-HE_180606C	37	R135346
Nitrogen, Total	0.45	mg/L		0.05	0.01	A4500 N-C	06/06/18 16:49 / km	06/06/18 23:30	A4500 N-	FIA203-HE_180606D	45	41759
Phosphorus, Total as P	0.115	mg/L		0.003	0.0006	E365.1	06/07/18 15:30 / cm	06/07/18 11:59	E365.1	FIA202-HE_180607A	65	41774
METALS, DISSOLVED												
Arsenic	0.019	mg/L		0.001	0.00004	E200.8	06/08/18 16:36 / dck			ICPMS205-H_180608A	75	R135436
Cadmium	0.00008	mg/L		0.00003	0.00003	E200.8	06/08/18 16:36 / dck			ICPMS205-H_180608A	75	R135436
Copper	0.012	mg/L		0.001	0.0001	E200.8	06/08/18 16:36 / dck			ICPMS205-H_180608A	75	R135436
Lead	0.00020	mg/L	J	0.0003	0.00003	E200.8	06/08/18 16:36 / dck			ICPMS205-H_180608A	75	R135436
Zinc	0.012	mg/L		0.008	0.0003	E200.8	06/08/18 16:36 / dck			ICPMS205-H_180608A	75	R135436
METALS, TOTAL RECOVERABLE												
Arsenic	0.019	mg/L		0.001	0.00004	E200.8	06/08/18 20:25 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	121	41758
Cadmium	0.00014	mg/L		0.00003	0.00003	E200.8	06/08/18 20:25 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	121	41758
Calcium	35	mg/L		1	0.09	E200.7	06/07/18 14:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	54	41758
Copper	0.016	mg/L		0.001	0.0002	E200.8	06/08/18 20:25 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	121	41758
Lead	0.0008	mg/L		0.0003	0.00004	E200.8	06/08/18 20:25 / dck	06/06/18 14:36	E200.2	ICPMS205-H_180608A	121	41758
Magnesium	7	mg/L		1	0.2	E200.7	06/07/18 14:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	54	41758
Potassium	3	mg/L		1	0.06	E200.7	06/07/18 14:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	54	41758
Sodium	13	mg/L		1	0.03	E200.7	06/07/18 14:16 / sld	06/06/18 14:36	E200.2	ICP2-HE_180607B	54	41758
Zinc	0.023	mg/L		0.008	0.001	E200.8	06/11/18 18:13 / sld	06/06/18 14:36	E200.2	ICPMS205-H_180611A	144	41758

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18060101-018
Collection Date: 06/04/18 11:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE												
Mercury	0.0000519	mg/L		5E-06	1E-06	E245.1	06/13/18 16:17 / dck	06/12/18 09:05	E245.1	HGCV202-H_180613A	64	41826

Report Definitions: RL - Analyte 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: Methyl Hg Trip Blank
Project: CFROU Monitoring
Matrix: Trip Blank

Lab ID: H18060101-019
Collection Date: 06/04/18 11:30
DateReceived: 06/05/18
Report Date: 07/05/18

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 180613wa-hg202

Date: *05-Jul-18*

Run ID :Run Order: **HGCV202-H_180613A: 16** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **06/13/18 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
Mercury	9.93E-05	0.00010	0.0001	0	99	90	110				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 17** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV1** Method: **E245.1**

Analysis Date: **06/13/18 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
Mercury	9.92E-05	0.00010	0.0001	0	99	95	105				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 33** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E245.1**

Analysis Date: **06/13/18 16:02** 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
Mercury	0.000100	0.00010	0.0001	0	100	90	110				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 180613wa-hg202

Date: *05-Jul-18*

Run ID :Run Order: **HGCV202-H_180613A: 16** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **06/13/18 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
Mercury	9.93E-05	0.00010	0.0001	0	99	90	110				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 17** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV1** Method: **E245.1**

Analysis Date: **06/13/18 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
Mercury	9.92E-05	0.00010	0.0001	0	99	95	105				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 33** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E245.1**

Analysis Date: **06/13/18 16:02** 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
Mercury	0.000100	0.00010	0.0001	0	100	90	110				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41758

Date: *05-Jul-18*

Run ID :Run Order: **ICP2-HE_180607B: 24** SampType: **Method Blank** Lab ID: **MB-41758** Method: **E200.7**
Analysis Date: **06/07/18 12:23** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	1.0									
Magnesium	ND	1.0									
Potassium	ND	1.0									
Sodium	ND	1.0									

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 25** SampType: **Laboratory Control Sample** Lab ID: **LCS-41758** Method: **E200.7**
Analysis Date: **06/07/18 12:27** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.2	1.0	25	0	97	85	115				
Magnesium	23.7	1.0	25	0	95	85	115				
Potassium	23.9	1.0	25	0	96	85	115				
Sodium	23.8	1.0	25	0	95	85	115				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 27** SampType: **Serial Dilution** Lab ID: **H18060101-001CDIL** Method: **E200.7**
Analysis Date: **06/07/18 12:34** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.9	1.0		0		0	0	27.85	3.4	10	
Magnesium	6.65	1.0		0		0	0	6.728		10	N
Potassium	1.86	1.0		0		0	0	2.197		10	N
Sodium	5.14	1.0		0		0	0	5.502	6.8	10	

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 29** SampType: **Sample Matrix Spike** Lab ID: **H18060101-001CMS3** Method: **E200.7**
Analysis Date: **06/07/18 12:42** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	53.6	1.0	25	27.85	103	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41758

Date: *05-Jul-18*

Run ID :Run Order: **ICP2-HE_180607B: 29** SampType: **Sample Matrix Spike** Lab ID: **H18060101-001CMS3** Method: **E200.7**
Analysis Date: **06/07/18 12:42** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	32.0	1.0	25	6.728	101	70	130				
Potassium	28.3	1.0	25	2.197	104	70	130				
Sodium	31.5	1.0	25	5.502	104	70	130				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-001CMSD3** Method: **E200.7**
Analysis Date: **06/07/18 12:45** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	52.5	1.0	25	27.85	99	70	130	53.65	2.1	20	
Magnesium	31.6	1.0	25	6.728	99	70	130	31.99	1.3	20	
Potassium	27.1	1.0	25	2.197	100	70	130	28.29	4.3	20	
Sodium	30.0	1.0	25	5.502	98	70	130	31.47	4.7	20	

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 43** SampType: **Serial Dilution** Lab ID: **H18060101-011CDIL** Method: **E200.7**
Analysis Date: **06/07/18 13:35** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.9	1.0		0		0	0	29.04	11	10	R
Magnesium	4.70	1.0		0		0	0	5.474	15	10	R
Potassium	1.34	1.0		0		0	0	1.658		10	N
Sodium	5.39	1.0		0		0	0	6.065	12	10	R

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 47** SampType: **Sample Matrix Spike** Lab ID: **H18060101-011CMS3** Method: **E200.7**
Analysis Date: **06/07/18 13:50** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	52.7	1.0	25	29.04	95	70	130				
Magnesium	29.4	1.0	25	5.474	96	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41758

Date: *05-Jul-18*

Run ID :Run Order: **ICP2-HE_180607B: 47** SampType: **Sample Matrix Spike** Lab ID: **H18060101-011CMS3** Method: **E200.7**

Analysis Date: **06/07/18 13:50** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	28.6	1.0	25	1.658	**108**	70	130				
Sodium	34.0	1.0	25	6.065	**112**	70	130				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 48** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-011CMSD3** Method: **E200.7**

Analysis Date: **06/07/18 13:53** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	52.0	1.0	25	29.04	**92**	70	130	52.73	**1.3**	20	
Magnesium	29.1	1.0	25	5.474	**95**	70	130	29.44	**1.0**	20	
Potassium	29.3	1.0	25	1.658	**111**	70	130	28.63	**2.3**	20	
Sodium	35.0	1.0	25	6.065	**116**	70	130	33.98	**2.9**	20	

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41758

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180608A: 97** SampType: **Method Blank** Lab ID: **MB-41758** Method: **E200.8**

Analysis Date: **06/08/18 19:39** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010									
Cadmium	ND	3.0E-05									
Copper	ND	0.0010									
Lead	ND	0.00030									
Zinc	ND	0.0080									

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180608A: 106** SampType: **Laboratory Control Sample** Lab ID: **LCS-41758** Method: **E200.8**

Analysis Date: **06/08/18 19:56** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.496	0.0010	0.5	0	99	85	115				
Cadmium	0.244	0.0010	0.25	0	97	85	115				
Copper	0.486	0.0050	0.5	0.0002869	97	85	115				
Lead	0.480	0.0010	0.5	0	96	85	115				
Zinc	0.485	0.010	0.5	0.004574	96	85	115				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180608A: 107** SampType: **Sample Matrix Spike** Lab ID: **H18060101-001CMS3** Method: **E200.8**

Analysis Date: **06/08/18 19:58** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.516	0.0010	0.5	0.01681	100	70	130				
Cadmium	0.249	0.0010	0.25	0.0002524	99	70	130				
Copper	0.544	0.0050	0.5	0.04599	100	70	130				
Lead	0.492	0.0010	0.5	0.005812	97	70	130				
Zinc	0.546	0.010	0.5	0.0654	96	70	130				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41758

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180608A: 108** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-001CMSD3** Method: **E200.8**

Analysis Date: **06/08/18 20:00** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.512	0.0010	0.5	0.01681	99	70	130	0.5156	0.6	20	
Cadmium	0.244	0.0010	0.25	0.0002524	98	70	130	0.2488	1.7	20	
Copper	0.537	0.0050	0.5	0.04599	98	70	130	0.5436	1.3	20	
Lead	0.481	0.0010	0.5	0.005812	95	70	130	0.4916	2.2	20	
Zinc	0.544	0.010	0.5	0.0654	96	70	130	0.5457	0.4	20	

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180608A: 122** SampType: **Sample Matrix Spike** Lab ID: **H18060101-011CMS3** Method: **E200.8**

Analysis Date: **06/08/18 20:27** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.508	0.0010	0.5	0.01798	98	70	130				
Cadmium	0.243	0.0010	0.25	0.0001005	97	70	130				
Copper	0.500	0.0050	0.5	0.01638	97	70	130				
Lead	0.490	0.0010	0.5	0.001344	98	70	130				
Zinc	0.496	0.010	0.5	0.01638	96	70	130				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180608A: 123** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-011CMSD3** Method: **E200.8**

Analysis Date: **06/08/18 20:29** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.516	0.0010	0.5	0.01798	100	70	130	0.5085	1.4	20	
Cadmium	0.246	0.0010	0.25	0.0001005	98	70	130	0.2428	1.4	20	
Copper	0.511	0.0050	0.5	0.01638	99	70	130	0.4999	2.2	20	
Lead	0.505	0.0010	0.5	0.001344	101	70	130	0.4904	3.0	20	
Zinc	0.500	0.010	0.5	0.01638	97	70	130	0.4962	0.8	20	

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41758

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180611A: 128** SampType: **Method Blank** Lab ID: **MB-41758** Method: **E200.8**

Analysis Date: **06/11/18 17:41** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010									
Cadmium	ND	3.0E-05									
Copper	ND	0.0010									
Lead	ND	0.00030									
Zinc	ND	0.0080									

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41759

Date: *05-Jul-18*

Run ID :Run Order: **FIA203-HE_180606D: 10** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **A4500 N-C**
Analysis Date: **06/06/18 16:07** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** 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	0	103	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-41759** Method: **A4500 N-C**
Analysis Date: **06/06/18 16:10** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** 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	14.6	0.30	14	0.0517	104	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 21** SampType: **Sample Matrix Spike** Lab ID: **H18060101-001AMS** Method: **A4500 N-C**
Analysis Date: **06/06/18 16:20** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** 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	0.338	95	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 22** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-001AMSD** Method: **A4500 N-C**
Analysis Date: **06/06/18 16:22** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** 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	0.338	93	90	110	1.291	1.8	20	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 38** SampType: **Sample Matrix Spike** Lab ID: **H18060101-011AMS** Method: **A4500 N-C**
Analysis Date: **06/06/18 16:41** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** 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	0.3069	96	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41759

Date: *05-Jul-18*

Run ID :Run Order: **FIA203-HE_180606D: 38** SampType: **Sample Matrix Spike** Lab ID: **H18060101-011AMS** Method: **A4500 N-C**

Analysis Date: **06/06/18 16:41** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** Prep Method: **A4500 N-C**

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

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 39** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-011AMSD** Method: **A4500 N-C**

Analysis Date: **06/06/18 16:42** Units: **mg/L** **Prep Info:** Prep Date: **6/6/2018** 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	1.26	0.10	1	0.3069	**96**	90	110	1.268	**0.3**	20	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41772

Date: *05-Jul-18*

Run ID :Run Order: **FIA202-HE_180607A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-41772** Method: **E365.1**
Analysis Date: **06/07/18 14:30** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.420	0.010	0.4	0	105	90	110				

Associated samples: **H18060101-001D, H18060101-002D**

Run ID :Run Order: **FIA202-HE_180607A: 13** SampType: **Method Blank** Lab ID: **MB-41772** Method: **E365.1**
Analysis Date: **06/07/18 14:31** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.0030									

Associated samples: **H18060101-001D, H18060101-002D**

Run ID :Run Order: **FIA202-HE_180607A: 17** SampType: **Sample Matrix Spike** Lab ID: **H18060101-001DMS** Method: **E365.1**
Analysis Date: **06/07/18 14:36** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.312	0.010	0.2	0.08994	111	90	110				S

Associated samples: **H18060101-001D, H18060101-002D**

Run ID :Run Order: **FIA202-HE_180607A: 18** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-001DMSD** Method: **E365.1**
Analysis Date: **06/07/18 14:37** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.312	0.010	0.2	0.08994	111	90	110	0.3122	0.0	20	S

Associated samples: **H18060101-001D, H18060101-002D**

Run ID :Run Order: **FIA202-HE_180607A: 30** SampType: **Sample Matrix Spike** Lab ID: **H18060101-002DMS** Method: **E365.1**
Analysis Date: **06/07/18 14:51** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.200	0.010	0.2	0	100	90	110				

Associated samples: **H18060101-001D, H18060101-002D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41772

Date: *05-Jul-18*

Run ID :Run Order: **FIA202-HE_180607A: 31** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-002DMSD** Method: **E365.1**

Analysis Date: **06/07/18 14:52** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.201	0.010	0.2	0	**100**	90	110	0.1999	**0.4**	20	

Associated samples: **H18060101-001D, H18060101-002D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41774

Date: *05-Jul-18*

Run ID :Run Order: **FIA202-HE_180607A: 43** SampType: **Laboratory Control Sample** Lab ID: **LCS-41774** Method: **E365.1**
Analysis Date: **06/07/18 15:05** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.421	0.010	0.4	0	105	90	110				

Associated samples: **H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA202-HE_180607A: 44** SampType: **Method Blank** Lab ID: **MB-41774** Method: **E365.1**
Analysis Date: **06/07/18 15:06** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.0030									

Associated samples: **H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA202-HE_180607A: 61** SampType: **Sample Matrix Spike** Lab ID: **H18060101-014DMS** Method: **E365.1**
Analysis Date: **06/07/18 15:25** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.297	0.010	0.2	0.0725	112	90	110				S

Associated samples: **H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA202-HE_180607A: 62** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-014DMSD** Method: **E365.1**
Analysis Date: **06/07/18 15:27** Units: **mg/L** **Prep Info:** Prep Date: **6/7/2018** 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	0.298	0.010	0.2	0.0725	113	90	110	0.2966	0.5	20	S

Associated samples: **H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41803

Date: *05-Jul-18*

Run ID :Run Order: **FIA202-HE_180611A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-41803** Method: **E365.1**
Analysis Date: **06/11/18 14:36** Units: **mg/L** **Prep Info:** Prep Date: **6/11/2018** 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	0.421	0.010	0.4	0	105	90	110				

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

Run ID :Run Order: **FIA202-HE_180611A: 13** SampType: **Method Blank** Lab ID: **MB-41803** Method: **E365.1**
Analysis Date: **06/11/18 14:37** Units: **mg/L** **Prep Info:** Prep Date: **6/11/2018** 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	0.0030									

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

Run ID :Run Order: **FIA202-HE_180611A: 24** SampType: **Sample Matrix Spike** Lab ID: **H18060101-012DMS** Method: **E365.1**
Analysis Date: **06/11/18 14:49** Units: **mg/L** **Prep Info:** Prep Date: **6/11/2018** 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	0.258	0.010	0.2	0.02592	116	90	110				S

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

Run ID :Run Order: **FIA202-HE_180611A: 25** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-012DMSD** Method: **E365.1**
Analysis Date: **06/11/18 14:50** Units: **mg/L** **Prep Info:** Prep Date: **6/11/2018** 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	0.255	0.010	0.2	0.02592	115	90	110	0.2584	1.1	20	S

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41826

Date: *05-Jul-18*

Run ID :Run Order: **HGCV202-H_180613A: 20** SampType: **Method Blank** Lab ID: **MB-41826** Method: **E245.1**
Analysis Date: **06/13/18 15:22** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1.0E-05									

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 21** SampType: **Laboratory Control Sample** Lab ID: **LCS-41826** Method: **E245.1**
Analysis Date: **06/13/18 15:25** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.49E-05	0.00010	0.000075	0.00000143	**98**	90	110				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 31** SampType: **Sample Matrix Spike** Lab ID: **H18060193-001BMS** Method: **E245.1**
Analysis Date: **06/13/18 15:55** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	8.09E-05	0.00010	0.000075	0.0000021	**105**	70	130				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 32** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060193-001BMSD** Method: **E245.1**
Analysis Date: **06/13/18 15:59** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.69E-05	0.00010	0.000075	0.0000021	**100**	70	130	0.00008086	**5.0**	20	

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 41826

Date: *05-Jul-18*

Run ID :Run Order: **HGCV202-H_180613A: 20** SampType: **Method Blank** Lab ID: **MB-41826** Method: **E245.1**
Analysis Date: **06/13/18 15:22** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1.0E-05									

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 21** SampType: **Laboratory Control Sample** Lab ID: **LCS-41826** Method: **E245.1**
Analysis Date: **06/13/18 15:25** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.49E-05	0.00010	0.000075	0.00000143	**98**	90	110				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 31** SampType: **Sample Matrix Spike** Lab ID: **H18060193-001BMS** Method: **E245.1**
Analysis Date: **06/13/18 15:55** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	8.09E-05	0.00010	0.000075	0.0000021	**105**	70	130				

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

Run ID :Run Order: **HGCV202-H_180613A: 32** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060193-001BMSD** Method: **E245.1**
Analysis Date: **06/13/18 15:59** Units: **mg/L** **Prep Info:** Prep Date: **6/12/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.69E-05	0.00010	0.000075	0.0000021	**100**	70	130	0.00008086	**5.0**	20	

Associated samples: **H18060101-002C, H18060101-003C, H18060101-004C, H18060101-018A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135314

Date: *05-Jul-18*

Run ID :Run Order: **PHSC_101-H_180606A: 21** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**
Analysis Date: **06/06/18 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
Alkalinity, Total as CaCO3	ND	4.0									

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **PHSC_101-H_180606A: 22** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**
Analysis Date: **06/06/18 09:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	570	4.0	600	2	95	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **PHSC_101-H_180606A: 25** SampType: **Sample Duplicate** Lab ID: **H18060081-001ADUP** Method: **A2320 B**
Analysis Date: **06/06/18 09:38** 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
Alkalinity, Total as CaCO3	220	4.0		0				218.3	1.2	10	
Bicarbonate as HCO3	260	4.0		0				260	1.0	10	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **PHSC_101-H_180606A: 65** SampType: **Sample Duplicate** Lab ID: **H18060101-014ADUP** Method: **A2320 B**
Analysis Date: **06/06/18 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	71	4.0		0				70.85	0.8	10	
Bicarbonate as HCO3	87	4.0		0				85.83	0.8	10	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **PHSC_101-H_180606A: 67** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**
Analysis Date: **06/06/18 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
Alkalinity, Total as CaCO3	ND	4.0									

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135314

Date: *05-Jul-18*

Run ID :Run Order: **PHSC_101-H_180606A: 67** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **06/06/18 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

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **PHSC_101-H_180606A: 68** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **06/06/18 11:57** 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	580	4.0	600	0	97	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **PHSC_101-H_180606A: 71** SampType: **Sample Duplicate** Lab ID: **H18060101-015ADUP** Method: **A2320 B**

Analysis Date: **06/06/18 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	51	4.0		0				52.55	2.3	10	
Bicarbonate as HCO3	62	4.0		0				63.5	2.3	10	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135346

Date: *05-Jul-18*

Run ID :Run Order: **FIA203-HE_180606C: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E353.2**
Analysis Date: **06/06/18 15:10** 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	0.992	0.010	1	0	99	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180606C: 10** SampType: **Method Blank** Lab ID: **MBLK** Method: **E353.2**
Analysis Date: **06/06/18 15:11** 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	ND	0.020									

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180606C: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E353.2**
Analysis Date: **06/06/18 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
Nitrogen, Nitrate+Nitrite as N	0.939	0.011	1	0	94	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180606C: 13** SampType: **Sample Matrix Spike** Lab ID: **H18060100-001BMS** Method: **E353.2**
Analysis Date: **06/06/18 15:15** 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
Nitrogen, Nitrate+Nitrite as N	6.51	0.055	5	1.886	93	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180606C: 14** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060100-001BMSD** Method: **E353.2**
Analysis Date: **06/06/18 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, Nitrate+Nitrite as N	6.45	0.055	5	1.886	91	90	110	6.512	1.0	10	

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

Client: MT DEQ-Federal Superfund
Work Order: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135346

Date: *05-Jul-18*

Run ID :Run Order: **FIA203-HE_180606C: 14** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060100-001BMSD** Method: **E353.2**

Analysis Date: **06/06/18 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

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180606C: 25** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**

Analysis Date: **06/06/18 15:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.452	0.010	0.5	0	90	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180606C: 29** SampType: **Sample Matrix Spike** Lab ID: **H18060101-010DMS** Method: **E353.2**

Analysis Date: **06/06/18 15:34** 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, Nitrate+Nitrite as N	0.897	0.011	1	0	90	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180606C: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-010DMSD** Method: **E353.2**

Analysis Date: **06/06/18 15:35** 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	0.891	0.011	1	0	89	90	110	0.8968	0.7	10	S

Associated samples: **H18060101-001D, H18060101-002D, H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135347

Date: *05-Jul-18*

Run ID :Run Order: **FIA203-HE_180606D: 8** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**

Analysis Date: **06/06/18 16:05** 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
Nitrogen, Total	0.00933	0.10		0		0	0				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**

Analysis Date: **06/06/18 16:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.496	0.10	0.5	0	99	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 30** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**

Analysis Date: **06/06/18 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
Nitrogen, Total	0.509	0.10	0.5	0	102	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **FIA203-HE_180606D: 36** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**

Analysis Date: **06/06/18 16:38** 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	0.506	0.10	0.5	0	101	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135350

Date: *05-Jul-18*

Run ID :Run Order: **IC METROHM_180606A: 2** SampType: **Method Blank** Lab ID: **ICB** Method: **E300.0**

Analysis Date: **06/06/18 09:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.0									
Sulfate	ND	1.0									

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **IC METROHM_180606A: 3** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E300.0**

Analysis Date: **06/06/18 09:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	101	1.0	100	0	**101**	90	110				
Sulfate	401	1.0	400	0	**100**	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **IC METROHM_180606A: 4** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E300.0**

Analysis Date: **06/06/18 09:49** 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	25.0	1.0	25	0	**100**	90	110				
Sulfate	98.9	1.0	100	0	**99**	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **IC METROHM_180606A: 6** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **06/06/18 10:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50.5	1.0	50	0	**101**	90	110				
Sulfate	201	1.0	200	0	**101**	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135350

Date: *05-Jul-18*

Run ID :Run Order: **IC METROHM_180606A: 9** SampType: **Sample Matrix Spike** Lab ID: **H18060092-001AMS** Method: **E300.0**

Analysis Date: **06/06/18 11:31** 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	433	1.0	125	299.2	107	90	110				
Sulfate	834	1.0	500	322.8	102	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **IC METROHM_180606A: 10** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060092-001AMSD** Method: **E300.0**

Analysis Date: **06/06/18 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
Chloride	425	1.0	125	299.2	100	90	110	433	1.9	20	
Sulfate	814	1.0	500	322.8	98	90	110	834	2.4	20	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **IC METROHM_180606A: 20** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **06/06/18 14:11** 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	50.3	1.0	50	0	101	90	110				
Sulfate	200	1.0	200	0	100	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **IC METROHM_180606A: 30** SampType: **Sample Matrix Spike** Lab ID: **H18060101-017AMS** Method: **E300.0**

Analysis Date: **06/06/18 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	35.5	1.0	25	9.659	103	90	110				
Sulfate	138	1.0	100	37.68	101	90	110				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135350

Date: *05-Jul-18*

Run ID :Run Order: **IC METROHM_180606A: 31** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-017AMSD** Method: **E300.0**

Analysis Date: **06/06/18 17:06** 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	35.2	1.0	25	9.659	**102**	90	110	35.5	**0.9**	20	
Sulfate	137	1.0	100	37.68	**99**	90	110	138.3	**1.1**	20	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135384

Date: *05-Jul-18*

Run ID :Run Order: **FIA202-HE_180607A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**
Analysis Date: **06/07/18 14:27** 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
Phosphorus, Total as P	0.255	0.010	0.25	0	102	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA202-HE_180607A: 10** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **06/07/18 14:28** 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
Phosphorus, Total as P	0.0938	0.010	0.1	0	94	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA202-HE_180607A: 11** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**
Analysis Date: **06/07/18 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	0.000870	0.010		0		0	0				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA202-HE_180607A: 28** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **06/07/18 14:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0937	0.010	0.1	0	94	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

Run ID :Run Order: **FIA202-HE_180607A: 42** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **06/07/18 15:04** 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
Phosphorus, Total as P	0.0908	0.010	0.1	0	91	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135384

Date: *05-Jul-18*

Run ID :Run Order: **FIA202-HE_180607A: 58** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **06/07/18 15:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0931	0.010	0.1	0	93	90	110				

Associated samples: **H18060101-001D, H18060101-002D, H18060101-013D, H18060101-014D, H18060101-015D, H18060101-016D, H18060101-017D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135387

Date: *05-Jul-18*

Run ID :Run Order: **ICP2-HE_180607B: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **06/07/18 10:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	40.0	1.0	40	0	100	95	105				
Magnesium	39.6	1.0	40	0	99	95	105				
Potassium	41.0	1.0	40	0	103	95	105				
Sodium	40.9	1.0	40	0	102	95	105				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 7** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV-1** Method: **E200.7**

Analysis Date: **06/07/18 10:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.0	1.0	25	0	100	95	105				
Magnesium	24.5	1.0	25	0	98	95	105				
Potassium	25.2	1.0	25	0	101	95	105				
Sodium	25.2	1.0	25	0	101	95	105				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 10** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **06/07/18 10:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	471	1.0	500	0	94	80	120				
Magnesium	522	1.0	500	0	104	80	120				
Potassium	-0.0165	1.0		0		0	0				
Sodium	0.0305	1.0		0		0	0				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **06/07/18 10:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	470	1.0	500	0	94	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135387

Date: *05-Jul-18*

Run ID :Run Order: **ICP2-HE_180607B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **06/07/18 10:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	521	1.0	500	0	104	80	120				
Potassium	19.8	1.0	20	0	99	80	120				
Sodium	19.9	1.0	20	0	99	80	120				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 20** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **06/07/18 12:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.7	1.0	25	0	103	90	110				
Magnesium	25.2	1.0	25	0	101	90	110				
Potassium	24.3	1.0	25	0	97	90	110				
Sodium	24.1	1.0	25	0	96	90	110				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 32** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **06/07/18 12:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.6	1.0	25	0	102	90	110				
Magnesium	25.0	1.0	25	0	100	90	110				
Potassium	24.7	1.0	25	0	99	90	110				
Sodium	24.5	1.0	25	0	98	90	110				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICP2-HE_180607B: 44** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **06/07/18 13:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.3	1.0	25	0	105	90	110				
Magnesium	25.7	1.0	25	0	103	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135387

Date: *05-Jul-18*

Run ID :Run Order: **ICP2-HE_180607B: 44** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **06/07/18 13:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	23.8	1.0	25	0	**95**	90	110				
Sodium	23.5	1.0	25	0	**94**	90	110				

Associated samples: **H18060101-001C, H18060101-002C, H18060101-003C, H18060101-004C, H18060101-005C, H18060101-006C, H18060101-007C, H18060101-008C, H18060101-009C, H18060101-010C, H18060101-011C, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016C, H18060101-017C**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135402

Date: *05-Jul-18*

Run ID :Run Order: **FIA203-HE_180608A: 7** SampType: **Method Blank** Lab ID: **MBLK** Method: **E350.1**
Analysis Date: **06/08/18 09:57** 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, Ammonia as N	ND	0.050									

Associated samples: **H18060101-013D, H18060101-014D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180608A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E350.1**
Analysis Date: **06/08/18 09:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	10.3	0.50	10.3	0	**100**	90	110				

Associated samples: **H18060101-013D, H18060101-014D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180608A: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E350.1**
Analysis Date: **06/08/18 10:00** 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	0.521	0.050	0.5	0	**104**	90	110				

Associated samples: **H18060101-013D, H18060101-014D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180608A: 10** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E350.1**
Analysis Date: **06/08/18 10:01** 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	1.05	0.055	1	0	**105**	90	110				

Associated samples: **H18060101-013D, H18060101-014D, H18060101-017D**

Run ID :Run Order: **FIA203-HE_180608A: 12** SampType: **Sample Matrix Spike** Lab ID: **H18060101-013DMS** Method: **E350.1**
Analysis Date: **06/08/18 10:03** 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
Nitrogen, Ammonia as N	0.902	0.055	1	0	**90**	80	120				

Associated samples: **H18060101-013D, H18060101-014D, H18060101-017D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135402

Date: *05-Jul-18*

Run ID :Run Order: **FIA203-HE_180608A: 13** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-013DMSD** Method: **E350.1**

Analysis Date: **06/08/18 10:05** 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
Nitrogen, Ammonia as N	0.933	0.055	1	0	**93**	80	120	0.9024	**3.3**	10	

Associated samples: **H18060101-013D, H18060101-014D, H18060101-017D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135436

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180608A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **06/08/18 13:43** 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	0.0050	0.06	0	98	90	110				
Cadmium	0.0294	0.0010	0.03	0	98	90	110				
Copper	0.0596	0.010	0.06	0	99	90	110				
Lead	0.0579	0.010	0.06	0	97	90	110				
Zinc	0.0599	0.010	0.06	0	100	90	110				

Associated samples: **H18060101-001B, H18060101-001C, H18060101-002B, H18060101-002C, H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005B, H18060101-005C, H18060101-006B, H18060101-006C, H18060101-007B, H18060101-007C, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-010B, H18060101-010C, H18060101-011B, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013B, H18060101-013C, H18060101-014B, H18060101-014C, H18060101-015B, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017B, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180608A: 10** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **06/08/18 13:44** 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	6.62E-05	0.0050		0							
Cadmium	0.000131	0.0010		0							
Copper	0.000370	0.010		0							
Lead	4.05E-05	0.010		0							
Zinc	0.000659	0.010		0							

Associated samples: **H18060101-001B, H18060101-001C, H18060101-002B, H18060101-002C, H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005B, H18060101-005C, H18060101-006B, H18060101-006C, H18060101-007B, H18060101-007C, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-010B, H18060101-010C, H18060101-011B, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013B, H18060101-013C, H18060101-014B, H18060101-014C, H18060101-015B, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017B, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180608A: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/08/18 13:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0102	0.0050	0.01	0	102	70	130				
Cadmium	0.0102	0.0010	0.01	0	102	70	130				
Copper	0.0197	0.010	0.02	0	98	70	130				
Lead	1.83E-05	0.010		0		0	0				
Zinc	0.00992	0.010	0.01	0	99	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135436

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180608A: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/08/18 13:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18060101-001B, H18060101-001C, H18060101-002B, H18060101-002C, H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005B, H18060101-005C, H18060101-006B, H18060101-006C, H18060101-007B, H18060101-007C, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-010B, H18060101-010C, H18060101-011B, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013B, H18060101-013C, H18060101-014B, H18060101-014C, H18060101-015B, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017B, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180608A: 19** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **06/08/18 14:47** 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	0.0010									
Cadmium	ND	3.0E-05									
Copper	ND	0.0010									
Lead	ND	0.00030									
Zinc	ND	0.0080									

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

Run ID :Run Order: **ICPMS205-H_180608A: 20** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **06/08/18 14:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0504	0.0050	0.05	0	101	85	115				
Cadmium	0.0511	0.0010	0.05	0	102	85	115				
Copper	0.0510	0.010	0.05	0	102	85	115				
Lead	0.0498	0.010	0.05	0	100	85	115				
Zinc	0.0517	0.010	0.05	0	103	85	115				

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

Run ID :Run Order: **ICPMS205-H_180608A: 49** SampType: **Sample Matrix Spike** Lab ID: **H18060054-001BMS** Method: **E200.8**

Analysis Date: **06/08/18 15:45** 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	0.0502	0.0010	0.05	0.0007754	99	70	130				
Cadmium	0.0491	0.0010	0.05	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

Client: MT DEQ-Federal Superfund
Work Order: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135436

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180608A: 49** SampType: **Sample Matrix Spike** Lab ID: **H18060054-001BMS** Method: **E200.8**

Analysis Date: **06/08/18 15:45** 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
Copper	0.0538	0.0050	0.05	0.005297	97	70	130				
Lead	0.0480	0.0010	0.05	0.00007827	96	70	130				
Zinc	0.0743	0.010	0.05	0.02561	97	70	130				

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

Run ID :Run Order: **ICPMS205-H_180608A: 50** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060054-001BMSD** Method: **E200.8**

Analysis Date: **06/08/18 15:47** 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	0.0502	0.0010	0.05	0.0007754	99	70	130	0.05023	0.0	20	
Cadmium	0.0494	0.0010	0.05	0	99	70	130	0.04911	0.5	20	
Copper	0.0537	0.0050	0.05	0.005297	97	70	130	0.05382	0.2	20	
Lead	0.0493	0.0010	0.05	0.00007827	99	70	130	0.048	2.8	20	
Zinc	0.0749	0.010	0.05	0.02561	99	70	130	0.07432	0.7	20	

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

Run ID :Run Order: **ICPMS205-H_180608A: 63** SampType: **Sample Matrix Spike** Lab ID: **H18060101-009BMS** Method: **E200.8**

Analysis Date: **06/08/18 16:12** 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	0.0747	0.0010	0.05	0.02456	100	70	130				
Cadmium	0.0499	0.0010	0.05	0.00006156	100	70	130				
Copper	0.0604	0.0050	0.05	0.01128	98	70	130				
Lead	0.0480	0.0010	0.05	0.0001335	96	70	130				
Zinc	0.0602	0.010	0.05	0.01115	98	70	130				

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135436

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180608A: 64** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-009BMSD** Method: **E200.8**

Analysis Date: **06/08/18 16:14** 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	0.0746	0.0010	0.05	0.02456	100	70	130	0.07469	0.1	20	
Cadmium	0.0503	0.0010	0.05	0.00006156	101	70	130	0.04988	0.9	20	
Copper	0.0606	0.0050	0.05	0.01128	99	70	130	0.06045	0.2	20	
Lead	0.0507	0.0010	0.05	0.0001335	101	70	130	0.048	5.5	20	
Zinc	0.0604	0.010	0.05	0.01115	99	70	130	0.06021	0.3	20	

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

Run ID :Run Order: **ICPMS205-H_180608A: 76** SampType: **Sample Matrix Spike** Lab ID: **H18060101-017BMS** Method: **E200.8**

Analysis Date: **06/08/18 16:37** 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	0.0695	0.0010	0.05	0.01902	101	70	130				
Cadmium	0.0510	0.0010	0.05	0.00008001	102	70	130				
Copper	0.0620	0.0050	0.05	0.0125	99	70	130				
Lead	0.0509	0.0010	0.05	0.0001988	101	70	130				
Zinc	0.0630	0.010	0.05	0.012	102	70	130				

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

Run ID :Run Order: **ICPMS205-H_180608A: 77** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060101-017BMSD** Method: **E200.8**

Analysis Date: **06/08/18 16:39** 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	0.0689	0.0010	0.05	0.01902	100	70	130	0.06951	0.9	20	
Cadmium	0.0502	0.0010	0.05	0.00008001	100	70	130	0.05101	1.7	20	
Copper	0.0617	0.0050	0.05	0.0125	98	70	130	0.06197	0.4	20	
Lead	0.0489	0.0010	0.05	0.0001988	97	70	130	0.05087	4.0	20	
Zinc	0.0630	0.010	0.05	0.012	102	70	130	0.06302	0.0	20	

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135436

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180608A: 137** SampType: **Sample Matrix Spike** Lab ID: **H18060145-002BMS** Method: **E200.8**

Analysis Date: **06/08/18 20:56** 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	0.0489	0.0010	0.05	0.001622	95	70	130				
Cadmium	0.0489	0.0010	0.05	0.0001018	98	70	130				
Copper	0.0479	0.0050	0.05	0.0003227	95	70	130				
Lead	0.0468	0.0010	0.05	0	94	70	130				
Zinc	0.0545	0.010	0.05	0.004097	101	70	130				

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

Run ID :Run Order: **ICPMS205-H_180608A: 138** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18060145-002BMSD** Method: **E200.8**

Analysis Date: **06/08/18 20:58** 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	0.0502	0.0010	0.05	0.001622	97	70	130	0.04891	2.7	20	
Cadmium	0.0485	0.0010	0.05	0.0001018	97	70	130	0.0489	0.8	20	
Copper	0.0490	0.0050	0.05	0.0003227	97	70	130	0.04792	2.1	20	
Lead	0.0468	0.0010	0.05	0	94	70	130	0.04676	0.2	20	
Zinc	0.0537	0.010	0.05	0.004097	99	70	130	0.05446	1.4	20	

Associated samples: **H18060101-001B, H18060101-002B, H18060101-003B, H18060101-004B, H18060101-005B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-010B, H18060101-011B, H18060101-012B, H18060101-013B, H18060101-014B, H18060101-015B, H18060101-016B, H18060101-017B**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135450

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180611A: 13** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **06/11/18 13:47** 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
Cadmium	0.0302	0.0010	0.03	0	101	90	110				
Lead	0.0600	0.010	0.06	0	100	90	110				
Zinc	0.0604	0.010	0.06	0	101	90	110				

Associated samples: **H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005C, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180611A: 14** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **06/11/18 13:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000114	0.0010		0							
Lead	0.000199	0.010		0							
Zinc	0.000700	0.010		0							

Associated samples: **H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005C, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180611A: 15** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/11/18 13:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0107	0.0010	0.01	0	107	70	130				
Lead	0.000172	0.010		0		0	0				
Zinc	0.0106	0.010	0.01	0	106	70	130				

Associated samples: **H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005C, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180611A: 20** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **06/11/18 14:04** 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
Cadmium	ND	3.0E-05									
Lead	ND	0.00030									

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135450

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180611A: 20** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**
Analysis Date: **06/11/18 14:04** 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: **H18060101-003B, H18060101-004B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-012B, H18060101-016B**

Run ID :Run Order: **ICPMS205-H_180611A: 21** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**
Analysis Date: **06/11/18 14:05** 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
Cadmium	0.0502	0.0010	0.05	0	100	85	115				
Lead	0.0498	0.010	0.05	0	100	85	115				

Associated samples: **H18060101-003B, H18060101-004B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-012B, H18060101-016B**

Run ID :Run Order: **ICPMS205-H_180611A: 31** SampType: **Sample Matrix Spike** Lab ID: **H18050738-004CMS** Method: **E200.8**
Analysis Date: **06/11/18 14:25** 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
Cadmium	0.0524	0.0010	0.05	0	105	70	130				
Lead	0.0527	0.0010	0.05	0	105	70	130				

Associated samples: **H18060101-003B, H18060101-004B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-012B, H18060101-016B**

Run ID :Run Order: **ICPMS205-H_180611A: 32** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18050738-004CMSD** Method: **E200.8**
Analysis Date: **06/11/18 14:27** 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
Cadmium	0.0526	0.0010	0.05	0	105	70	130	0.05245	0.2	20	
Lead	0.0530	0.0010	0.05	0	106	70	130	0.05272	0.5	20	

Associated samples: **H18060101-003B, H18060101-004B, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-009B, H18060101-012B, H18060101-016B**

Run ID :Run Order: **ICPMS205-H_180611A: 66** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **06/11/18 15:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0300	0.0010	0.03	0	100	90	110				
Lead	0.0601	0.010	0.06	0	100	90	110				
Zinc	0.0601	0.010	0.06	0	100	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135450

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180611A: 66** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **06/11/18 15:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

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

Associated samples: **H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005C, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180611A: 78** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **06/11/18 16:00** 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
Cadmium	0.0299	0.0010	0.03	0	100	90	110				
Lead	0.0614	0.010	0.06	0	102	90	110				
Zinc	0.0607	0.010	0.06	0	101	90	110				

Associated samples: **H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005C, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180611A: 79** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **06/11/18 16:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000123	0.0010		0							
Lead	0.000120	0.010		0							
Zinc	0.000698	0.010		0							

Associated samples: **H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005C, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017C**

Run ID :Run Order: **ICPMS205-H_180611A: 80** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/11/18 16:06** 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
Cadmium	0.0105	0.0010	0.01	0	105	70	130				
Lead	0.000114	0.010		0		0	0				
Zinc	0.0107	0.010	0.01	0	107	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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135450

Date: *05-Jul-18*

Run ID :Run Order: **ICPMS205-H_180611A: 80** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **06/11/18 16:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

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

Associated samples: **H18060101-003B, H18060101-003C, H18060101-004B, H18060101-004C, H18060101-005C, H18060101-006B, H18060101-007B, H18060101-008B, H18060101-008C, H18060101-009B, H18060101-009C, H18060101-011C, H18060101-012B, H18060101-012C, H18060101-013C, H18060101-014C, H18060101-015C, H18060101-016B, H18060101-016C, H18060101-017C**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R135453

Date: *05-Jul-18*

Run ID :Run Order: **FIA202-HE_180611A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **06/11/18 14:32** 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
Phosphorus, Total as P	0.262	0.010	0.25	0	105	90	110				

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

Run ID :Run Order: **FIA202-HE_180611A: 10** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **06/11/18 14:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0952	0.010	0.1	0	95	90	110				

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

Run ID :Run Order: **FIA202-HE_180611A: 11** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**

Analysis Date: **06/11/18 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
Phosphorus, Total as P	0.000380	0.010		0		0	0				

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

Run ID :Run Order: **FIA202-HE_180611A: 69** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**

Analysis Date: **06/11/18 15:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.00108	0.010		0		0	0				

Associated samples: **H18060101-003D, H18060101-004D, H18060101-005D, H18060101-006D, H18060101-007D, H18060101-008D, H18060101-009D, H18060101-010D, H18060101-011D, H18060101-012D**

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: H18060101
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS180606A

Date: *05-Jul-18*

Run ID :Run Order: **ACCU-124 (14410200)_180606A: 1** SampType: **Method Blank** Lab ID: **MB-1_180606A** Method: **A2540 D**

Analysis Date: **06/06/18 13:53** 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
Solids, Total Suspended TSS @ 105 C	ND	1.0									

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180606A: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-2_180606A** Method: **A2540 D**

Analysis Date: **06/06/18 13:53** 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
Solids, Total Suspended TSS @ 105 C	97.0	10	100	0	**97**	80	120				

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180606A: 4** SampType: **Sample Duplicate** Lab ID: **H18060101-001ADUP** Method: **A2540 D**

Analysis Date: **06/06/18 13:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	66.8	10		0				64	**4.3**	5	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180606A: 1** SampType: **Sample Duplicate** Lab ID: **H18060101-011ADUP** Method: **A2540 D**

Analysis Date: **06/06/18 13:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	9.60	10		0				10.8		5	

Associated samples: **H18060101-001A, H18060101-002A, H18060101-003A, H18060101-004A, H18060101-005A, H18060101-006A, H18060101-007A, H18060101-008A, H18060101-009A, H18060101-010A, H18060101-011A, H18060101-012A, H18060101-013A, H18060101-014A, H18060101-015A, H18060101-016A, H18060101-017A**

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

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

BROOKS APPLIED LABS
18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

July 4, 2018

Energy Laboratories, Inc.
ATTN: Jonathan Dee Hager
PO Box 5688
Helena, MT 59604
jhager@energylab.com

RE: Project ENL-HL1201

Dear Mr. Jonathan Hager,

On June 7, 2018, Brooks Applied Labs (BAL) received five (5) water samples. The samples were logged-in for the analyses of methyl mercury (MeHg) according to the chain-of-custody form. All samples were received and stored according to BAL SOPs and EPA methodology. Samples were filtered by the lab upon receipt.

Water samples were pre-preserved with 6N hydrochloric acid and were distilled via EPA Method 1630.

The results were method blank corrected as described in the calculations section of the relevant BAL SOP(s) and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification (aside from concentration qualifiers) and all associated quality control sample results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Lydia Greaves
Client Services Manager
lydia@brooksapplied.com

Shahriyar Ahmed
Project Coordinator
shahriyar@brooksapplied.com

Report Information

Laboratory Accreditation

BAL 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. BAL 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.brooksapplied.com/resources/certificates-permits/>. 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

AR	as received	**MS**	matrix spike
BAL	Brooks Applied Labs	**MSD**	matrix spike duplicate
BLK	method blank	**ND**	non-detect
BS	blank spike	**NR**	non-reportable
CAL	calibration standard	**N/C**	not calculated
CCB	continuing calibration blank	**PS**	post preparation spike
CCV	continuing calibration verification	**REC**	percent recovery
COC	chain of custody record	**RPD**	relative percent difference
D	dissolved fraction	**SCV**	secondary calibration verification
DUP	duplicate	**SOP**	standard operating procedure
IBL	instrument blank	**SRM**	standard reference material
ICV	initial calibration verification	**T**	total fraction
MDL	method detection limit	**TR**	total recoverable fraction
MRL	method reporting limit		

Definition of Data Qualifiers

(Effective 9/23/09)

E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Please see narrative for explanation.
J Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
J-1 Estimated value. A full explanation is presented in the narrative.
M Duplicate precision (RPD) was not within acceptance criteria. Please see narrative for explanation.
N Spike recovery was not within acceptance criteria. Please see narrative for explanation.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X 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 Applied 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 BAL.

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H18060101-002E	1823019-01	Water	Sample	06/04/2018	06/07/2018
H18060101-003E	1823019-02	Water	Sample	06/04/2018	06/07/2018
H18060101-004E	1823019-03	Water	Sample	06/04/2018	06/07/2018
H18060101-018B	1823019-04	Water	Sample	06/04/2018	06/07/2018
H18060101-019A	1823019-05	Water	Trip Blank	06/04/2018	06/07/2018

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	06/27/2018	06/28/2018	B181516	1800866

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
H18060101-002E										
1823019-01	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B181516	1800866
H18060101-003E										
1823019-02	MeHg	Water	TR	1.24		0.023	0.049	ng/L	B181516	1800866
H18060101-004E										
1823019-03	MeHg	Water	TR	1.42		0.023	0.050	ng/L	B181516	1800866
H18060101-018B										
1823019-04	MeHg	Water	TR	0.513		0.023	0.049	ng/L	B181516	1800866
H18060101-019A										
1823019-05	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B181516	1800866

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Accuracy & Precision Summary

Batch: B181516
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B181516-BS1	**Blank Spike, (1825002)**								
	MeHg		1.000	1.177	ng/L	118%	67-133		
B181516-BS2	**Blank Spike, (1825002)**								
	MeHg		1.000	0.696	ng/L	70%	67-133		
B181516-MS4	**Matrix Spike (1822026-07)**								
	MeHg	0.419	5.000	6.023	ng/L	112%	65-135		
B181516-MSD4	**Matrix Spike Duplicate (1822026-07)**								
	MeHg	0.419	5.000	6.083	ng/L	113%	65-135	1%	35

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Method Blanks & Reporting Limits

Batch: B181516
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B181516-BLK1	0.011	ng/L
B181516-BLK2	0.017	ng/L
B181516-BLK3	0.007	ng/L
B181516-BLK4	0.013	ng/L

Average: 0.012 **Standard Deviation:** 0.004 **MDL:** 0.023
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.050

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Containers

Lab ID: 1823019-01 **Report Matrix:** Water **Collected:** 06/04/2018
Sample: H18060101-002E **Sample Type:** Sample **Received:** 06/07/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	0.4% HCl (PP)	1816006	<2	Cooler - 1823019

Lab ID: 1823019-02 **Report Matrix:** Water **Collected:** 06/04/2018
Sample: H18060101-003E **Sample Type:** Sample **Received:** 06/07/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	0.4% HCl (PP)	1816006	<2	Cooler - 1823019

Lab ID: 1823019-03 **Report Matrix:** Water **Collected:** 06/04/2018
Sample: H18060101-004E **Sample Type:** Sample **Received:** 06/07/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	0.4% HCl (PP)	1816006	<2	Cooler - 1823019

Lab ID: 1823019-04 **Report Matrix:** Water **Collected:** 06/04/2018
Sample: H18060101-018B **Sample Type:** Sample **Received:** 06/07/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	0.4% HCl (PP)	1816006	<2	Cooler - 1823019

Lab ID: 1823019-05 **Report Matrix:** Water **Collected:** 06/04/2018
Sample: H18060101-019A **Sample Type:** Trip Blank **Received:** 06/07/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	0.4% HCl (PP)	1816006	<2	Cooler - 1823019

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Shipping Containers

Cooler - 1823019

Received: June 7, 2018 10:00
Tracking No: 1Z37EW970154344168 via UPS
Coolant Type: Ice
Temperature: 2.0 °C

Description: Cooler
Damaged in transit? No
Returned to client? No
Comments: IR# 8

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

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Energy Laboratories Inc
3161 East Lyndale Avenue
Helena, MT 59601
(406) 442-0711

H18060101

CHAIN-OF-CUSTODY RECORD

Custody Seal: Y N
Intact: Y N
Signature Match: Y N

Shipped By: _____
Receipt Temp: _____

Subcontractor:
Brooks Applied Labs
18804 North Creek Parkway
Bothell, WA 98011

TEL: (206) 632-6206 FAX: (206) 632-6017
Acct #:

Subcontractor's Client:

Rush	Sample ID	Matrix	Collection Date	Bottle Type	Requested Tests: SUB-BROOKSRAND
☐	H18060101-002E	Surface Water	06/04/18 12:15 P	1-	1
☐	H18060101-003E	Surface Water	06/04/18 12:30 P	1-	1
☐	H18060101-004E	Surface Water	06/04/18 12:30 P	1-	1
☐	H18060101-018B	Surface Water	06/04/18 11:30 A	1-	1
☐	H18060101-019A	Trip Blank	06/04/18 11:30 A	1-TRIP BLANK	1

Earliest Due Date: 6/15/2018

Comments: Methyl Mercury

QC Level:
STD

	Date/Time		
Relinquished by: [signature]	6-6-18 9:55	**Received by:** [signature]	6/7/18 10:00
Relinquished by:		**Received by:**	

Work Order Receipt Checklist

MT DEQ-Federal Superfund H18060101

Login completed by: Jessica C. Smith
Date Received: 6/5/2018
Reviewed by: BL2000\rtooke
Received by: TLL
Reviewed Date: 6/13/2018
Carrier name: Hand Del

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

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:

Cooler 1 was received at 5.2 °C, Cooler 2 at 4.0 °C, Cooler 3 at 2.0 °C, and Cooler 4 at 3.5 °C. On Ice. The Methyl Mercury trip blank was received in a cooler by itself with no ice at 20.7 °C. JCS 06/06/2018

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Chain of Custody & Analytical Request Record

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Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All dissolved samples field filtered

C1= 5.2
C2= 4.0
C3= 2.0
C4= 3.5

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk., Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C3	1 CFR-116A	6-4-2018	09:30	5	W	✓	✓	✓	✓		✓	✓	✓				H18060101
C3	2 Field Blank #1 FC-CFR	6-4-2018	12:15	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	3 FC-CFR	6-4-2018	12:30	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	4 FC-CFR Duplicate	6-4-2018	12:30	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	5 LBR-CFR-02	6-4-2018	14:30	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	6 CFR-34	6-4-2018	15:30	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	7 CFR-27H	6-4-2018	16:30	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	8 CFR-11F	6-4-2018	17:45	5	W	✓	✓	✓	✓		✓	✓	✓				
C1	9 CFR-07D	6-5-2018	0800	5	W	✓	✓	✓	✓		✓	✓	✓				
C1	10 Field Blank #2 CFR-03A	6-5-2018	0900	5	W	✓	✓	✓	✓		✓	✓	✓				

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	6-5-18 1620	[signature]	[signature]		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time 6/5/18 16:20	Signature [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	4	Y (N) C B	Y N	See comments °C	(Y) N	(Y) N	CC Cash Check_____	$	

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 subcontracted data will be clearly notated on your analytical report.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Comments

All dissolved samples field filtered

C1 = 5.2
C2 = 4.0
C3 = 2.0
C4 = 3.5

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

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Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk., Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1	1 CFR-03A	6-5-2018	0915	5	W	✓	✓	✓	✓		✓	✓	✓				H18060101
C1	2 WSC-SBC	6-5-2018	1015	5	W	✓	✓	✓	✓		✓	✓	✓				
C2	3 SS-25	6-5-2018	1130	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C2	4 SS-25 Duplicate	6-5-2018	1130	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C1	5 MWB-SBC	6-5-2018	1230	5	W	✓	✓	✓	✓		✓	✓	✓				
C2	6 MCWC-MWB	6-5-2018	1330	5	W	✓	✓	✓	✓		✓	✓	✓				
C2	7 SBC-P2	6-5-2018	1215	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
	8																
	9																
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	6-5-18 16:20				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					6/5/18 16:20	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp °C	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand		Y (N) C B	Y N	See comment	(Y) N	(Y) N	CC Cash Check_____	$	

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 subcontracted data will be clearly notated on your analytical report.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information *(Billing information)*

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 = 5.2
C2 = 4.0
C3 = 2.0
C4 = 3.5

Project Information

Project Name, PWSID, Permit, etc. CFROU Monitoring	
Sampler Name E.Weber, J. Naughton	Sampler Phone 439-0563
Sample Origin State Montana	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Total Mercury, low level	Methyl Mercury (contract)	See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
C3	1 CFR-84F	6-4-2018	11:30	1	W	✓	✓			H18060101
C3	2 Field Blank #1 FC-CFR	6-4-2018	12:15	1	W	✓	✓			
C3	3 FC-CFR	6-4-2018	12:30	1	W	✓	✓			
C3	4 FC-CFR Duplicate	6-4-2018	12:30	1	W	✓	✓			
	5									
	6									
	7									
	8									
	9									
	10									

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	6-5-18 16:20	[signature]	[signature]		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Tracy	6/5/18 14:20	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	Dg Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
Hand	1	Y (N) C B	Y N	See comments °C	(Y) N	(Y) N	CC Cash Check_____	$	

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 subcontracted data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

August 06, 2018

MT DEQ-Federal Superfund
PO Box 200901
Helena, MT 59620-0901

Work Order: H18070111 Quote ID: H1525 - CFR Monitoring-474374

Project Name: CFROU Monitoring

Energy Laboratories Inc Helena MT received the following 20 samples for MT DEQ-Federal Superfund on 7/6/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18070111-001	CFR-116A	07/05/18 8:45	07/06/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18070111-002	Field Blank #1 FC-CFR	07/05/18 11:45	07/06/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H18070111-003	FC-CFR	07/05/18 12:00	07/06/18	Surface Water	Same As Above
H18070111-004	FC-CFR Duplicate	07/05/18 12:00	07/06/18	Surface Water	Same As Above
H18070111-005	LBR-CFR-02	07/05/18 13:30	07/06/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18070111-006	CFR-34	07/05/18 14:45	07/06/18	Surface Water	Same As Above

ANALYTICAL SUMMARY REPORT

H18070111-007	CFR-27H	07/05/18 16:00	07/06/18	Surface Water	Same As Above
H18070111-008	CFR-11F	07/05/18 17:15	07/06/18	Surface Water	Same As Above
H18070111-009	CFR-07D	07/06/18 8:00	07/06/18	Surface Water	Same As Above
H18070111-010	CFR-07D Duplicate	07/06/18 8:00	07/06/18	Surface Water	Same As Above
H18070111-011	Field Blank #2 CFR-03A	07/06/18 9:00	07/06/18	Surface Water	Same As Above
H18070111-012	CFR-03A	07/06/18 9:30	07/06/18	Surface Water	Same As Above
H18070111-013	WSC-SBC	07/06/18 10:30	07/06/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18070111-014	SS-25	07/06/18 11:15	07/06/18	Surface Water	Same As Above
H18070111-015	MWB-SBC	07/06/18 12:00	07/06/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18070111-016	MCWC-MWB	07/06/18 13:30	07/06/18	Surface Water	Same As Above
H18070111-017	SBC-P2	07/06/18 12:30	07/06/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18070111-018	SS-19	07/06/18 14:15	07/06/18	Surface Water	Same As Above
H18070111-019	CFR-84F	07/05/18 10:15	07/06/18	Surface Water	Mercury, Total Recoverable Mercury Digestion by E245.1 Subcontracted, Analytics
H18070111-020	TB 5/8/18 17-0218	07/05/18 8:45	07/06/18	Surface Water	Subcontracted, Analytics

ANALYTICAL SUMMARY REPORT

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: CFROU Monitoring
Work Order: H18070111

Report Date: 08/06/18

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the calculated method detection limit (MDL). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-116A
Lab ID: H18070111-001
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 08:45
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	27	mg/L	D	4		A2540 D	07/09/18 12:55 / cm		-124 (14410200)_180709A	3	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		4		A2320 B	07/09/18 11:38 / SR		PHSC_101-H_180709A	8	R136253
Bicarbonate as HCO3	120	mg/L		4		A2320 B	07/09/18 11:38 / SR		PHSC_101-H_180709A	8	R136253
Chloride	3	mg/L		1		E300.0	07/09/18 13:34 / SR		IC METROHM_180709A	7	R136289
Sulfate	22	mg/L		1		E300.0	07/09/18 13:34 / SR		IC METROHM_180709A	7	R136289
Hardness as CaCO3	115	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	1	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	07/09/18 16:18 / kmd		FIA203-HE_180709C	97	R136274
Nitrogen, Total	0.30	mg/L		0.05		A4500 N-C	07/09/18 13:28 / kmd	07/09/18 10:43	FIA203-HE_180709A	44	42166
Phosphorus, Total as P	0.056	mg/L		0.003		E365.1	07/11/18 09:23 / kmd	07/10/18 08:11	FIA202-HE_180711A	30	42175
METALS, DISSOLVED											
Arsenic	0.009	mg/L		0.001		E200.8	07/12/18 11:56 / sld		ICPMS205-H_180712B	22	R136402
Cadmium	0.00006	mg/L		0.00003		E200.8	07/12/18 11:56 / sld		ICPMS205-H_180712B	22	R136402
Copper	0.007	mg/L		0.001		E200.8	07/12/18 11:56 / sld		ICPMS205-H_180712B	22	R136402
Lead	0.00014	mg/L	J	0.0003		E200.8	07/12/18 11:56 / sld		ICPMS205-H_180712B	22	R136402
Zinc	0.0078	mg/L	J	0.008		E200.8	07/12/18 11:56 / sld		ICPMS205-H_180712B	22	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.012	mg/L		0.001		E200.8	07/12/18 13:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	60	42179
Cadmium	0.00016	mg/L		0.00003		E200.8	07/12/18 13:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	60	42179
Calcium	33	mg/L		1		E200.7	07/11/18 18:53 / sld	07/10/18 08:20	ICP2-HE_180711B	52	42179
Copper	0.026	mg/L		0.001		E200.8	07/12/18 13:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	60	42179
Lead	0.0033	mg/L		0.0003		E200.8	07/12/18 13:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	60	42179
Magnesium	8	mg/L		1		E200.7	07/11/18 18:53 / sld	07/10/18 08:20	ICP2-HE_180711B	52	42179
Potassium	2	mg/L		1		E200.7	07/11/18 18:53 / sld	07/10/18 08:20	ICP2-HE_180711B	52	42179
Sodium	6	mg/L		1		E200.7	07/11/18 18:53 / sld	07/10/18 08:20	ICP2-HE_180711B	52	42179
Zinc	0.036	mg/L		0.008		E200.8	07/12/18 13:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	60	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 FC-CFR
Lab ID: H18070111-002
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 11:45
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	07/09/18 12:55 / cm		-124 (14410200)_180709A	5	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L	J	4		A2320 B	07/09/18 11:43 / SR		PHSC_101-H_180709A	10	R136253
Bicarbonate as HCO3	2	mg/L	J	4		A2320 B	07/09/18 11:43 / SR		PHSC_101-H_180709A	10	R136253
Chloride	ND	mg/L		1		E300.0	07/09/18 13:49 / SR		IC METROHM_180709A	8	R136289
Sulfate	ND	mg/L		1		E300.0	07/09/18 13:49 / SR		IC METROHM_180709A	8	R136289
Hardness as CaCO3	ND	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	2	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02		E353.2	07/09/18 16:20 / kmd		FIA203-HE_180709C	98	R136274
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	07/09/18 13:32 / kmd	07/09/18 10:43	FIA203-HE_180709A	47	42166
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	07/11/18 09:41 / kmd	07/10/18 08:31	FIA202-HE_180711A	45	42182
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.001		E200.8	07/12/18 11:58 / sld		ICPMS205-H_180712B	23	R136402
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 11:58 / sld		ICPMS205-H_180712B	23	R136402
Copper	ND	mg/L		0.001		E200.8	07/12/18 11:58 / sld		ICPMS205-H_180712B	23	R136402
Lead	ND	mg/L		0.0003		E200.8	07/12/18 11:58 / sld		ICPMS205-H_180712B	23	R136402
Zinc	0.0080	mg/L	J	0.008		E200.8	07/13/18 10:25 / sld		ICPMS205-H_180713A	22	R136431
METALS, TOTAL RECOVERABLE											
Arsenic	0.00006	mg/L	J	0.001		E200.8	07/12/18 13:12 / sld	07/10/18 08:20	ICPMS205-H_180712B	61	42179
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 13:12 / sld	07/10/18 08:20	ICPMS205-H_180712B	61	42179
Calcium	ND	mg/L		1		E200.7	07/11/18 19:20 / sld	07/10/18 08:20	ICP2-HE_180711B	59	42179
Copper	0.0003	mg/L	J	0.001		E200.8	07/12/18 13:12 / sld	07/10/18 08:20	ICPMS205-H_180712B	61	42179
Lead	ND	mg/L		0.0003		E200.8	07/12/18 13:12 / sld	07/10/18 08:20	ICPMS205-H_180712B	61	42179
Magnesium	ND	mg/L		1		E200.7	07/11/18 19:20 / sld	07/10/18 08:20	ICP2-HE_180711B	59	42179
Mercury	ND	mg/L		5E-06		E245.1	07/12/18 15:41 / eli-b	07/12/18 10:45	SUB-B303713	19	B_123318
Potassium	ND	mg/L		1		E200.7	07/11/18 19:20 / sld	07/10/18 08:20	ICP2-HE_180711B	59	42179
Sodium	ND	mg/L		1		E200.7	07/11/18 19:20 / sld	07/10/18 08:20	ICP2-HE_180711B	59	42179

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Field Blank #1 FC-CFR
Lab ID: H18070111-002
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 11:45
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	ND	mg/L		0.008		E200.8	07/12/18 13:12 / sld	07/10/18 08:20	ICPMS205-H_180712B	61	42179

Report Definitions: RL - Analyte 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: H18070111-003
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 12:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	25	mg/L	D	4		A2540 D	07/09/18 12:56 / cm		-124 (14410200)_180709A	6	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	07/09/18 11:49 / SR		PHSC_101-H_180709A	12	R136253
Bicarbonate as HCO3	140	mg/L		4		A2320 B	07/09/18 11:49 / SR		PHSC_101-H_180709A	12	R136253
Chloride	2	mg/L		1		E300.0	07/09/18 14:03 / SR		IC METROHM_180709A	9	R136289
Sulfate	8	mg/L		1		E300.0	07/09/18 14:03 / SR		IC METROHM_180709A	9	R136289
Hardness as CaCO3	118	mg/L		1		A2340 B	07/11/18 19:24 / SR		CALC_180713A	25	R136427
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	07/09/18 16:21 / kmd		FIA203-HE_180709C	99	R136274
Nitrogen, Total	0.32	mg/L		0.05		A4500 N-C	07/09/18 13:33 / kmd	07/09/18 10:43	FIA203-HE_180709A	48	42166
Phosphorus, Total as P	0.069	mg/L		0.003		E365.1	07/11/18 09:44 / kmd	07/10/18 08:31	FIA202-HE_180711A	48	42182
METALS, DISSOLVED											
Arsenic	0.009	mg/L		0.001		E200.8	07/12/18 12:15 / sld		ICPMS205-H_180712B	32	R136402
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 12:15 / sld		ICPMS205-H_180712B	32	R136402
Copper	0.001	mg/L		0.001		E200.8	07/12/18 12:15 / sld		ICPMS205-H_180712B	32	R136402
Lead	0.00019	mg/L	J	0.0003		E200.8	07/12/18 12:15 / sld		ICPMS205-H_180712B	32	R136402
Zinc	0.0046	mg/L	J	0.008		E200.8	07/12/18 12:15 / sld		ICPMS205-H_180712B	32	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.013	mg/L		0.001		E200.8	07/12/18 13:13 / sld	07/10/18 08:20	ICPMS205-H_180712B	62	42179
Cadmium	0.00008	mg/L		0.00003		E200.8	07/12/18 13:13 / sld	07/10/18 08:20	ICPMS205-H_180712B	62	42179
Calcium	33	mg/L		1		E200.7	07/11/18 19:24 / sld	07/10/18 08:20	ICP2-HE_180711B	60	42179
Copper	0.004	mg/L		0.001		E200.8	07/12/18 13:13 / sld	07/10/18 08:20	ICPMS205-H_180712B	62	42179
Lead	0.0057	mg/L		0.0003		E200.8	07/12/18 13:13 / sld	07/10/18 08:20	ICPMS205-H_180712B	62	42179
Magnesium	9	mg/L		1		E200.7	07/11/18 19:24 / sld	07/10/18 08:20	ICP2-HE_180711B	60	42179
Mercury	0.000144	mg/L		5E-06		E245.1	07/18/18 11:13 / eli-b	07/16/18 13:00	SUB-B303995	4	B_123416
Potassium	2	mg/L		1		E200.7	07/11/18 19:24 / sld	07/10/18 08:20	ICP2-HE_180711B	60	42179
Sodium	5	mg/L		1		E200.7	07/11/18 19:24 / sld	07/10/18 08:20	ICP2-HE_180711B	60	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-003
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 12:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.024	mg/L		0.008		E200.8	07/12/18 13:13 / sld	07/10/18 08:20	ICPMS205-H_180712B	62	42179

Report Definitions: RL - Analyte 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: H18070111-004
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 12:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	22	mg/L	D	4		A2540 D	07/09/18 12:56 / cm		-124 (14410200)_180709A	7	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	07/09/18 12:00 / SR		PHSC_101-H_180709A	16	R136253
Bicarbonate as HCO3	140	mg/L		4		A2320 B	07/09/18 12:00 / SR		PHSC_101-H_180709A	16	R136253
Chloride	2	mg/L		1		E300.0	07/09/18 14:18 / SR		IC METROHM_180709A	10	R136289
Sulfate	8	mg/L		1		E300.0	07/09/18 14:18 / SR		IC METROHM_180709A	10	R136289
Hardness as CaCO3	112	mg/L		1		A2340 B	07/12/18 12:17 / SR		CALC_180713A	234	R136427
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	07/09/18 16:22 / kmd		FIA203-HE_180709C	100	R136274
Nitrogen, Total	0.26	mg/L		0.05		A4500 N-C	07/09/18 13:34 / kmd	07/09/18 10:43	FIA203-HE_180709A	49	42166
Phosphorus, Total as P	0.077	mg/L		0.003		E365.1	07/11/18 09:45 / kmd	07/10/18 08:31	FIA202-HE_180711A	49	42182
METALS, DISSOLVED											
Arsenic	0.009	mg/L		0.001		E200.8	07/12/18 12:17 / sld		ICPMS205-H_180712B	33	R136402
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 12:17 / sld		ICPMS205-H_180712B	33	R136402
Copper	0.001	mg/L		0.001		E200.8	07/12/18 12:17 / sld		ICPMS205-H_180712B	33	R136402
Lead	0.00020	mg/L	J	0.0003		E200.8	07/12/18 12:17 / sld		ICPMS205-H_180712B	33	R136402
Zinc	0.0044	mg/L	J	0.008		E200.8	07/12/18 12:17 / sld		ICPMS205-H_180712B	33	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.014	mg/L		0.001		E200.8	07/12/18 13:15 / sld	07/10/18 08:20	ICPMS205-H_180712B	63	42179
Cadmium	0.00009	mg/L		0.00003		E200.8	07/12/18 13:15 / sld	07/10/18 08:20	ICPMS205-H_180712B	63	42179
Calcium	35	mg/L		1		E200.7	07/11/18 19:28 / sld	07/10/18 08:20	ICP2-HE_180711B	61	42179
Copper	0.004	mg/L		0.001		E200.8	07/12/18 13:15 / sld	07/10/18 08:20	ICPMS205-H_180712B	63	42179
Lead	0.0060	mg/L		0.0003		E200.8	07/12/18 13:15 / sld	07/10/18 08:20	ICPMS205-H_180712B	63	42179
Magnesium	9	mg/L		1		E200.7	07/11/18 19:28 / sld	07/10/18 08:20	ICP2-HE_180711B	61	42179
Mercury	0.000204	mg/L		5E-06		E245.1	07/18/18 11:16 / eli-b	07/16/18 13:00	SUB-B303995	5	B_123416
Potassium	2	mg/L		1		E200.7	07/11/18 19:28 / sld	07/10/18 08:20	ICP2-HE_180711B	61	42179
Sodium	5	mg/L		1		E200.7	07/11/18 19:28 / sld	07/10/18 08:20	ICP2-HE_180711B	61	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-004
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 12:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.024	mg/L		0.008		E200.8	07/12/18 13:15 / sld	07/10/18 08:20	ICPMS205-H_180712B	63	42179

Report Definitions: RL - Analyte 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: H18070111-005
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 13:30
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	4	mg/L	D	2		A2540 D	07/09/18 12:56 / cm		-124 (14410200)_180709A	8	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	07/09/18 12:05 / SR		PHSC_101-H_180709A	18	R136253
Bicarbonate as HCO3	120	mg/L		4		A2320 B	07/09/18 12:05 / SR		PHSC_101-H_180709A	18	R136253
Chloride	2	mg/L		1		E300.0	07/09/18 14:32 / SR		IC METROHM_180709A	11	R136289
Sulfate	8	mg/L		1		E300.0	07/09/18 14:32 / SR		IC METROHM_180709A	11	R136289
Hardness as CaCO3	102	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	3	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.011	mg/L	J	0.02		E353.2	07/09/18 16:23 / kmd		FIA203-HE_180709C	101	R136274
Nitrogen, Total	0.21	mg/L		0.05		A4500 N-C	07/09/18 13:36 / kmd	07/09/18 10:43	FIA203-HE_180709A	50	42166
Phosphorus, Total as P	0.033	mg/L		0.003		E365.1	07/11/18 09:46 / kmd	07/10/18 08:31	FIA202-HE_180711A	50	42182
METALS, DISSOLVED											
Arsenic	0.006	mg/L		0.001		E200.8	07/12/18 12:19 / sld		ICPMS205-H_180712B	34	R136402
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 12:19 / sld		ICPMS205-H_180712B	34	R136402
Copper	0.001	mg/L		0.001		E200.8	07/12/18 12:19 / sld		ICPMS205-H_180712B	34	R136402
Lead	0.00004	mg/L	J	0.0003		E200.8	07/12/18 12:19 / sld		ICPMS205-H_180712B	34	R136402
Zinc	0.0048	mg/L	J	0.008		E200.8	07/12/18 12:19 / sld		ICPMS205-H_180712B	34	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.006	mg/L		0.001		E200.8	07/12/18 13:17 / sld	07/10/18 08:20	ICPMS205-H_180712B	64	42179
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 13:17 / sld	07/10/18 08:20	ICPMS205-H_180712B	64	42179
Calcium	30	mg/L		1		E200.7	07/11/18 19:32 / sld	07/10/18 08:20	ICP2-HE_180711B	62	42179
Copper	0.001	mg/L		0.001		E200.8	07/12/18 13:17 / sld	07/10/18 08:20	ICPMS205-H_180712B	64	42179
Lead	0.00028	mg/L	J	0.0003		E200.8	07/12/18 13:17 / sld	07/10/18 08:20	ICPMS205-H_180712B	64	42179
Magnesium	7	mg/L		1		E200.7	07/11/18 19:32 / sld	07/10/18 08:20	ICP2-HE_180711B	62	42179
Potassium	2	mg/L		1		E200.7	07/11/18 19:32 / sld	07/10/18 08:20	ICP2-HE_180711B	62	42179
Sodium	5	mg/L		1		E200.7	07/11/18 19:32 / sld	07/10/18 08:20	ICP2-HE_180711B	62	42179
Zinc	0.004	mg/L	J	0.008		E200.8	07/12/18 13:17 / sld	07/10/18 08:20	ICPMS205-H_180712B	64	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-34
Lab ID: H18070111-006
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 14:45
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	29	mg/L	D	4		A2540 D	07/09/18 12:56 / cm		-124 (14410200)_180709A	9	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	07/09/18 12:10 / SR		PHSC_101-H_180709A	20	R136253
Bicarbonate as HCO3	130	mg/L		4		A2320 B	07/09/18 12:10 / SR		PHSC_101-H_180709A	20	R136253
Chloride	4	mg/L		1		E300.0	07/09/18 14:47 / SR		IC METROHM_180709A	12	R136289
Sulfate	36	mg/L		1		E300.0	07/09/18 14:47 / SR		IC METROHM_180709A	12	R136289
Hardness as CaCO3	135	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	4	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.07	mg/L		0.02		E353.2	07/09/18 16:24 / kmd		FIA203-HE_180709C	102	R136274
Nitrogen, Total	0.37	mg/L		0.05		A4500 N-C	07/09/18 13:37 / kmd	07/09/18 10:43	FIA203-HE_180709A	51	42166
Phosphorus, Total as P	0.077	mg/L		0.003		E365.1	07/11/18 09:48 / kmd	07/10/18 08:31	FIA202-HE_180711A	51	42182
METALS, DISSOLVED											
Arsenic	0.018	mg/L		0.001		E200.8	07/12/18 12:21 / sld		ICPMS205-H_180712B	35	R136402
Cadmium	0.00008	mg/L		0.00003		E200.8	07/12/18 12:21 / sld		ICPMS205-H_180712B	35	R136402
Copper	0.016	mg/L		0.001		E200.8	07/12/18 12:21 / sld		ICPMS205-H_180712B	35	R136402
Lead	0.00021	mg/L	J	0.0003		E200.8	07/12/18 12:21 / sld		ICPMS205-H_180712B	35	R136402
Zinc	0.011	mg/L		0.008		E200.8	07/12/18 12:21 / sld		ICPMS205-H_180712B	35	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.025	mg/L		0.001		E200.8	07/12/18 13:19 / sld	07/10/18 08:20	ICPMS205-H_180712B	65	42179
Cadmium	0.00027	mg/L		0.00003		E200.8	07/12/18 13:19 / sld	07/10/18 08:20	ICPMS205-H_180712B	65	42179
Calcium	40	mg/L		1		E200.7	07/11/18 19:36 / sld	07/10/18 08:20	ICP2-HE_180711B	63	42179
Copper	0.067	mg/L		0.001		E200.8	07/12/18 13:19 / sld	07/10/18 08:20	ICPMS205-H_180712B	65	42179
Lead	0.0070	mg/L		0.0003		E200.8	07/12/18 13:19 / sld	07/10/18 08:20	ICPMS205-H_180712B	65	42179
Magnesium	9	mg/L		1		E200.7	07/11/18 19:36 / sld	07/10/18 08:20	ICP2-HE_180711B	63	42179
Potassium	2	mg/L		1		E200.7	07/11/18 19:36 / sld	07/10/18 08:20	ICP2-HE_180711B	63	42179
Sodium	10	mg/L		1		E200.7	07/11/18 19:36 / sld	07/10/18 08:20	ICP2-HE_180711B	63	42179
Zinc	0.050	mg/L		0.008		E200.8	07/12/18 13:19 / sld	07/10/18 08:20	ICPMS205-H_180712B	65	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-007
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 16:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	24	mg/L	D	4		A2540 D	07/09/18 12:56 / cm		I24 (14410200)_180709A	10	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	07/09/18 12:16 / SR		PHSC_101-H_180709A	22	R136253
Bicarbonate as HCO3	120	mg/L		4		A2320 B	07/09/18 12:16 / SR		PHSC_101-H_180709A	22	R136253
Chloride	4	mg/L		1		E300.0	07/09/18 15:02 / SR		IC METROHM_180709A	13	R136289
Sulfate	38	mg/L		1		E300.0	07/09/18 15:02 / SR		IC METROHM_180709A	13	R136289
Hardness as CaCO3	131	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	5	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.02		E353.2	07/09/18 16:26 / kmd		FIA203-HE_180709C	103	R136274
Nitrogen, Total	0.34	mg/L		0.05		A4500 N-C	07/09/18 13:38 / kmd	07/09/18 10:43	FIA203-HE_180709A	52	42166
Phosphorus, Total as P	0.067	mg/L		0.003		E365.1	07/11/18 09:49 / kmd	07/10/18 08:31	FIA202-HE_180711A	52	42182
METALS, DISSOLVED											
Arsenic	0.018	mg/L		0.001		E200.8	07/12/18 12:23 / sld		ICPMS205-H_180712B	36	R136402
Cadmium	0.00007	mg/L		0.00003		E200.8	07/12/18 12:23 / sld		ICPMS205-H_180712B	36	R136402
Copper	0.013	mg/L		0.001		E200.8	07/12/18 12:23 / sld		ICPMS205-H_180712B	36	R136402
Lead	0.00019	mg/L	J	0.0003		E200.8	07/12/18 12:23 / sld		ICPMS205-H_180712B	36	R136402
Zinc	0.010	mg/L		0.008		E200.8	07/12/18 12:23 / sld		ICPMS205-H_180712B	36	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.025	mg/L		0.001		E200.8	07/12/18 13:35 / sld	07/10/18 08:20	ICPMS205-H_180712B	73	42179
Cadmium	0.00022	mg/L		0.00003		E200.8	07/12/18 13:35 / sld	07/10/18 08:20	ICPMS205-H_180712B	73	42179
Calcium	39	mg/L		1		E200.7	07/11/18 19:40 / sld	07/10/18 08:20	ICP2-HE_180711B	64	42179
Copper	0.055	mg/L		0.001		E200.8	07/12/18 13:35 / sld	07/10/18 08:20	ICPMS205-H_180712B	73	42179
Lead	0.0062	mg/L		0.0003		E200.8	07/12/18 13:35 / sld	07/10/18 08:20	ICPMS205-H_180712B	73	42179
Magnesium	8	mg/L		1		E200.7	07/11/18 19:40 / sld	07/10/18 08:20	ICP2-HE_180711B	64	42179
Potassium	2	mg/L		1		E200.7	07/11/18 19:40 / sld	07/10/18 08:20	ICP2-HE_180711B	64	42179
Sodium	9	mg/L		1		E200.7	07/11/18 19:40 / sld	07/10/18 08:20	ICP2-HE_180711B	64	42179
Zinc	0.054	mg/L		0.008		E200.8	07/12/18 13:35 / sld	07/10/18 08:20	ICPMS205-H_180712B	73	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-008
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 17:15
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	12	mg/L	D	4		A2540 D	07/09/18 12:57 / cm		I24 (14410200)_180709A	11	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	99	mg/L		4		A2320 B	07/09/18 12:21 / SR		PHSC_101-H_180709A	24	R136253
Bicarbonate as HCO3	120	mg/L		4		A2320 B	07/09/18 12:21 / SR		PHSC_101-H_180709A	24	R136253
Chloride	4	mg/L		1		E300.0	07/09/18 15:16 / SR		IC METROHM_180709A	14	R136289
Sulfate	44	mg/L		1		E300.0	07/09/18 15:16 / SR		IC METROHM_180709A	14	R136289
Hardness as CaCO3	135	mg/L		1		A2340 B	07/11/18 19:44 / SR		CALC_180713A	69	R136427
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.02		E353.2	07/09/18 16:29 / kmd		FIA203-HE_180709C	106	R136274
Nitrogen, Total	0.29	mg/L		0.05		A4500 N-C	07/09/18 13:39 / kmd	07/09/18 10:43	FIA203-HE_180709A	53	42166
Phosphorus, Total as P	0.055	mg/L		0.003		E365.1	07/12/18 09:48 / cm	07/12/18 08:47	FIA202-HE_180712A	14	42223
METALS, DISSOLVED											
Arsenic	0.020	mg/L		0.001		E200.8	07/12/18 12:25 / sld		ICPMS205-H_180712B	37	R136402
Cadmium	0.00005	mg/L		0.00003		E200.8	07/12/18 12:25 / sld		ICPMS205-H_180712B	37	R136402
Copper	0.009	mg/L		0.001		E200.8	07/12/18 12:25 / sld		ICPMS205-H_180712B	37	R136402
Lead	0.00014	mg/L	J	0.0003		E200.8	07/12/18 12:25 / sld		ICPMS205-H_180712B	37	R136402
Zinc	0.0058	mg/L	J	0.008		E200.8	07/12/18 12:25 / sld		ICPMS205-H_180712B	37	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.023	mg/L		0.001		E200.8	07/12/18 13:37 / sld	07/10/18 08:20	ICPMS205-H_180712B	74	42179
Cadmium	0.00015	mg/L		0.00003		E200.8	07/12/18 13:37 / sld	07/10/18 08:20	ICPMS205-H_180712B	74	42179
Calcium	40	mg/L		1		E200.7	07/11/18 19:44 / sld	07/10/18 08:20	ICP2-HE_180711B	65	42179
Copper	0.028	mg/L		0.001		E200.8	07/12/18 13:37 / sld	07/10/18 08:20	ICPMS205-H_180712B	74	42179
Lead	0.0027	mg/L		0.0003		E200.8	07/12/18 13:37 / sld	07/10/18 08:20	ICPMS205-H_180712B	74	42179
Magnesium	8	mg/L		1		E200.7	07/11/18 19:44 / sld	07/10/18 08:20	ICP2-HE_180711B	65	42179
Potassium	2	mg/L		1		E200.7	07/11/18 19:44 / sld	07/10/18 08:20	ICP2-HE_180711B	65	42179
Sodium	8	mg/L		1		E200.7	07/11/18 19:44 / sld	07/10/18 08:20	ICP2-HE_180711B	65	42179
Zinc	0.022	mg/L		0.008		E200.8	07/12/18 13:37 / sld	07/10/18 08:20	ICPMS205-H_180712B	74	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-009
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 08:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	12	mg/L	D	4		A2540 D	07/09/18 12:57 / cm		I24 (14410200)_180709A	12	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	96	mg/L		4		A2320 B	07/09/18 12:27 / SR		PHSC_101-H_180709A	26	R136253
Bicarbonate as HCO3	120	mg/L		4		A2320 B	07/09/18 12:27 / SR		PHSC_101-H_180709A	26	R136253
Chloride	4	mg/L		1		E300.0	07/09/18 15:31 / SR		IC METROHM_180709A	15	R136289
Sulfate	43	mg/L		1		E300.0	07/09/18 15:31 / SR		IC METROHM_180709A	15	R136289
Hardness as CaCO3	132	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	6	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	07/09/18 16:30 / kmd		FIA203-HE_180709C	107	R136274
Nitrogen, Total	0.30	mg/L		0.05		A4500 N-C	07/09/18 13:40 / kmd	07/09/18 10:43	FIA203-HE_180709A	54	42166
Phosphorus, Total as P	0.052	mg/L		0.003		E365.1	07/12/18 09:49 / cm	07/12/18 08:47	FIA202-HE_180712A	15	42223
METALS, DISSOLVED											
Arsenic	0.020	mg/L		0.001		E200.8	07/12/18 12:27 / sld		ICPMS205-H_180712B	38	R136402
Cadmium	0.00005	mg/L		0.00003		E200.8	07/12/18 12:27 / sld		ICPMS205-H_180712B	38	R136402
Copper	0.009	mg/L		0.001		E200.8	07/12/18 12:27 / sld		ICPMS205-H_180712B	38	R136402
Lead	0.00017	mg/L	J	0.0003		E200.8	07/12/18 12:27 / sld		ICPMS205-H_180712B	38	R136402
Zinc	0.009	mg/L		0.008		E200.8	07/12/18 12:27 / sld		ICPMS205-H_180712B	38	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.024	mg/L		0.001		E200.8	07/12/18 13:39 / sld	07/10/18 08:20	ICPMS205-H_180712B	75	42179
Cadmium	0.00015	mg/L		0.00003		E200.8	07/12/18 13:39 / sld	07/10/18 08:20	ICPMS205-H_180712B	75	42179
Calcium	39	mg/L		1		E200.7	07/11/18 19:48 / sld	07/10/18 08:20	ICP2-HE_180711B	66	42179
Copper	0.036	mg/L		0.001		E200.8	07/12/18 13:39 / sld	07/10/18 08:20	ICPMS205-H_180712B	75	42179
Lead	0.0032	mg/L		0.0003		E200.8	07/12/18 13:39 / sld	07/10/18 08:20	ICPMS205-H_180712B	75	42179
Magnesium	8	mg/L		1		E200.7	07/11/18 19:48 / sld	07/10/18 08:20	ICP2-HE_180711B	66	42179
Potassium	2	mg/L		1		E200.7	07/11/18 19:48 / sld	07/10/18 08:20	ICP2-HE_180711B	66	42179
Sodium	7	mg/L		1		E200.7	07/11/18 19:48 / sld	07/10/18 08:20	ICP2-HE_180711B	66	42179
Zinc	0.023	mg/L		0.008		E200.8	07/12/18 13:39 / sld	07/10/18 08:20	ICPMS205-H_180712B	75	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 Duplicate
Lab ID: H18070111-010
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 08:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	13	mg/L	D	4		A2540 D	07/09/18 12:57 / cm		I24 (14410200)_180709A	13	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	96	mg/L		4		A2320 B	07/09/18 12:32 / SR		PHSC_101-H_180709A	28	R136253
Bicarbonate as HCO3	120	mg/L		4		A2320 B	07/09/18 12:32 / SR		PHSC_101-H_180709A	28	R136253
Chloride	4	mg/L		1		E300.0	07/09/18 15:45 / SR		IC METROHM_180709A	16	R136289
Sulfate	43	mg/L		1		E300.0	07/09/18 15:45 / SR		IC METROHM_180709A	16	R136289
Hardness as CaCO3	134	mg/L		1		A2340 B	07/11/18 20:00 / SR		CALC_180713A	91	R136427
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	07/09/18 16:34 / kmd		FIA203-HE_180709C	110	R136274
Nitrogen, Total	0.30	mg/L		0.05		A4500 N-C	07/09/18 13:41 / kmd	07/09/18 10:43	FIA203-HE_180709A	55	42166
Phosphorus, Total as P	0.054	mg/L		0.003		E365.1	07/12/18 09:50 / cm	07/12/18 08:47	FIA202-HE_180712A	16	42223
METALS, DISSOLVED											
Arsenic	0.020	mg/L		0.001		E200.8	07/12/18 12:29 / sld		ICPMS205-H_180712B	39	R136402
Cadmium	0.00004	mg/L		0.00003		E200.8	07/12/18 12:29 / sld		ICPMS205-H_180712B	39	R136402
Copper	0.009	mg/L		0.001		E200.8	07/12/18 12:29 / sld		ICPMS205-H_180712B	39	R136402
Lead	0.00017	mg/L	J	0.0003		E200.8	07/12/18 12:29 / sld		ICPMS205-H_180712B	39	R136402
Zinc	0.008	mg/L		0.008		E200.8	07/12/18 12:29 / sld		ICPMS205-H_180712B	39	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.025	mg/L		0.001		E200.8	07/12/18 13:41 / sld	07/10/18 08:20	ICPMS205-H_180712B	76	42179
Cadmium	0.00015	mg/L		0.00003		E200.8	07/12/18 13:41 / sld	07/10/18 08:20	ICPMS205-H_180712B	76	42179
Calcium	40	mg/L		1		E200.7	07/11/18 20:00 / sld	07/10/18 08:20	ICP2-HE_180711B	69	42179
Copper	0.036	mg/L		0.001		E200.8	07/12/18 13:41 / sld	07/10/18 08:20	ICPMS205-H_180712B	76	42179
Lead	0.0035	mg/L		0.0003		E200.8	07/12/18 13:41 / sld	07/10/18 08:20	ICPMS205-H_180712B	76	42179
Magnesium	8	mg/L		1		E200.7	07/11/18 20:00 / sld	07/10/18 08:20	ICP2-HE_180711B	69	42179
Potassium	2	mg/L		1		E200.7	07/11/18 20:00 / sld	07/10/18 08:20	ICP2-HE_180711B	69	42179
Sodium	7	mg/L		1		E200.7	07/11/18 20:00 / sld	07/10/18 08:20	ICP2-HE_180711B	69	42179
Zinc	0.024	mg/L		0.008		E200.8	07/12/18 13:41 / sld	07/10/18 08:20	ICPMS205-H_180712B	76	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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 CFR-03A
Lab ID: H18070111-011
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 09:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	07/09/18 12:57 / cm		I24 (14410200)_180709A	14	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	07/09/18 12:37 / SR		PHSC_101-H_180709A	30	R136253
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	07/09/18 12:37 / SR		PHSC_101-H_180709A	30	R136253
Chloride	ND	mg/L		1		E300.0	07/09/18 17:13 / SR		IC METROHM_180709A	21	R136289
Sulfate	ND	mg/L		1		E300.0	07/09/18 17:13 / SR		IC METROHM_180709A	21	R136289
Hardness as CaCO3	ND	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	7	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02		E353.2	07/09/18 16:35 / kmd		FIA203-HE_180709C	111	R136274
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	07/09/18 13:45 / kmd	07/09/18 10:43	FIA203-HE_180709A	58	42166
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	07/12/18 09:51 / cm	07/12/18 08:47	FIA202-HE_180712A	17	42223
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.001		E200.8	07/12/18 12:40 / sld		ICPMS205-H_180712B	45	R136402
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 12:40 / sld		ICPMS205-H_180712B	45	R136402
Copper	ND	mg/L		0.001		E200.8	07/12/18 12:40 / sld		ICPMS205-H_180712B	45	R136402
Lead	ND	mg/L		0.0003		E200.8	07/12/18 12:40 / sld		ICPMS205-H_180712B	45	R136402
Zinc	0.019	mg/L		0.008		E200.8	07/13/18 10:27 / sld		ICPMS205-H_180713A	23	R136431
METALS, TOTAL RECOVERABLE											
Arsenic	0.00005	mg/L	J	0.001		E200.8	07/12/18 13:43 / sld	07/10/18 08:20	ICPMS205-H_180712B	77	42179
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 13:43 / sld	07/10/18 08:20	ICPMS205-H_180712B	77	42179
Calcium	ND	mg/L		1		E200.7	07/11/18 20:04 / sld	07/10/18 08:20	ICP2-HE_180711B	70	42179
Copper	0.0002	mg/L	J	0.001		E200.8	07/12/18 13:43 / sld	07/10/18 08:20	ICPMS205-H_180712B	77	42179
Lead	ND	mg/L		0.0003		E200.8	07/12/18 13:43 / sld	07/10/18 08:20	ICPMS205-H_180712B	77	42179
Magnesium	ND	mg/L		1		E200.7	07/11/18 20:04 / sld	07/10/18 08:20	ICP2-HE_180711B	70	42179
Potassium	ND	mg/L		1		E200.7	07/11/18 20:04 / sld	07/10/18 08:20	ICP2-HE_180711B	70	42179
Sodium	ND	mg/L		1		E200.7	07/11/18 20:04 / sld	07/10/18 08:20	ICP2-HE_180711B	70	42179
Zinc	0.001	mg/L	J	0.008		E200.8	07/12/18 13:43 / sld	07/10/18 08:20	ICPMS205-H_180712B	77	42179

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-03A
Lab ID: H18070111-012
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 09:30
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	10	mg/L	D	2		A2540 D	07/09/18 12:58 / cm		I24 (14410200)_180709A	15	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	86	mg/L		4		A2320 B	07/09/18 12:43 / SR		PHSC_101-H_180709A	32	R136253
Bicarbonate as HCO3	100	mg/L		4		A2320 B	07/09/18 12:43 / SR		PHSC_101-H_180709A	32	R136253
Chloride	4	mg/L		1		E300.0	07/09/18 17:27 / SR		IC METROHM_180709A	22	R136289
Sulfate	29	mg/L		1		E300.0	07/09/18 17:27 / SR		IC METROHM_180709A	22	R136289
Hardness as CaCO3	110	mg/L		1		A2340 B	07/11/18 20:23 / SR		CALC_180713A	113	R136427
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.019	mg/L	J	0.02		E353.2	07/09/18 16:36 / kmd		FIA203-HE_180709C	112	R136274
Nitrogen, Total	0.25	mg/L		0.05		A4500 N-C	07/09/18 13:49 / kmd	07/09/18 10:43	FIA203-HE_180709A	61	42166
Phosphorus, Total as P	0.051	mg/L		0.003		E365.1	07/12/18 09:54 / cm	07/12/18 08:47	FIA202-HE_180712A	20	42223
METALS, DISSOLVED											
Arsenic	0.016	mg/L		0.001		E200.8	07/12/18 12:42 / sld		ICPMS205-H_180712B	46	R136402
Cadmium	0.00004	mg/L		0.00003		E200.8	07/12/18 12:42 / sld		ICPMS205-H_180712B	46	R136402
Copper	0.006	mg/L		0.001		E200.8	07/12/18 12:42 / sld		ICPMS205-H_180712B	46	R136402
Lead	0.00011	mg/L	J	0.0003		E200.8	07/12/18 12:42 / sld		ICPMS205-H_180712B	46	R136402
Zinc	0.0062	mg/L	J	0.008		E200.8	07/12/18 12:42 / sld		ICPMS205-H_180712B	46	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.017	mg/L		0.001		E200.8	07/12/18 13:45 / sld	07/10/18 08:20	ICPMS205-H_180712B	78	42179
Cadmium	0.00010	mg/L		0.00003		E200.8	07/12/18 13:45 / sld	07/10/18 08:20	ICPMS205-H_180712B	78	42179
Calcium	33	mg/L		1		E200.7	07/11/18 20:23 / sld	07/10/18 08:20	ICP2-HE_180711B	75	42179
Copper	0.016	mg/L		0.001		E200.8	07/12/18 13:45 / sld	07/10/18 08:20	ICPMS205-H_180712B	78	42179
Lead	0.0014	mg/L		0.0003		E200.8	07/12/18 13:45 / sld	07/10/18 08:20	ICPMS205-H_180712B	78	42179
Magnesium	6	mg/L		1		E200.7	07/11/18 20:23 / sld	07/10/18 08:20	ICP2-HE_180711B	75	42179
Potassium	2	mg/L		1		E200.7	07/11/18 20:23 / sld	07/10/18 08:20	ICP2-HE_180711B	75	42179
Sodium	7	mg/L		1		E200.7	07/11/18 20:23 / sld	07/10/18 08:20	ICP2-HE_180711B	75	42179
Zinc	0.013	mg/L		0.008		E200.8	07/12/18 13:45 / sld	07/10/18 08:20	ICPMS205-H_180712B	78	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-013
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 10:30
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	12	mg/L	D	2		A2540 D	07/09/18 12:58 / cm		I24 (14410200)_180709A	16	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	89	mg/L		4		A2320 B	07/09/18 12:48 / SR		PHSC_101-H_180709A	34	R136253
Bicarbonate as HCO3	110	mg/L		4		A2320 B	07/09/18 12:48 / SR		PHSC_101-H_180709A	34	R136253
Chloride	1	mg/L		1		E300.0	07/09/18 17:42 / SR		IC METROHM_180709A	23	R136289
Sulfate	17	mg/L		1		E300.0	07/09/18 17:42 / SR		IC METROHM_180709A	23	R136289
Hardness as CaCO3	103	mg/L		1		A2340 B	07/11/18 20:27 / SR		CALC_180713A	124	R136427
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/10/18 11:29 / kmd		FIA203-HE_180710B	27	R136306
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.02		E353.2	07/09/18 16:38 / kmd		FIA203-HE_180709C	113	R136274
Nitrogen, Total	0.15	mg/L		0.05		A4500 N-C	07/09/18 13:50 / kmd	07/09/18 10:43	FIA203-HE_180709A	62	42166
Phosphorus, Total as P	0.018	mg/L		0.003		E365.1	07/12/18 11:51 / cm	07/12/18 08:47	FIA202-HE_180712A	59	42223
METALS, DISSOLVED											
Arsenic	0.006	mg/L		0.001		E200.8	07/12/18 12:44 / sld		ICPMS205-H_180712B	47	R136402
Cadmium	ND	mg/L		0.00003		E200.8	07/12/18 12:44 / sld		ICPMS205-H_180712B	47	R136402
Copper	0.003	mg/L		0.001		E200.8	07/12/18 12:44 / sld		ICPMS205-H_180712B	47	R136402
Lead	0.00004	mg/L	J	0.0003		E200.8	07/12/18 12:44 / sld		ICPMS205-H_180712B	47	R136402
Zinc	0.0050	mg/L	J	0.008		E200.8	07/12/18 12:44 / sld		ICPMS205-H_180712B	47	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.008	mg/L		0.001		E200.8	07/12/18 13:46 / sld	07/10/18 08:20	ICPMS205-H_180712B	79	42179
Cadmium	0.00009	mg/L		0.00003		E200.8	07/12/18 13:46 / sld	07/10/18 08:20	ICPMS205-H_180712B	79	42179
Calcium	32	mg/L		1		E200.7	07/11/18 20:27 / sld	07/10/18 08:20	ICP2-HE_180711B	76	42179
Copper	0.019	mg/L		0.001		E200.8	07/12/18 13:46 / sld	07/10/18 08:20	ICPMS205-H_180712B	79	42179
Lead	0.0016	mg/L		0.0003		E200.8	07/12/18 13:46 / sld	07/10/18 08:20	ICPMS205-H_180712B	79	42179
Magnesium	6	mg/L		1		E200.7	07/11/18 20:27 / sld	07/10/18 08:20	ICP2-HE_180711B	76	42179
Potassium	1	mg/L		1		E200.7	07/11/18 20:27 / sld	07/10/18 08:20	ICP2-HE_180711B	76	42179
Sodium	2	mg/L		1		E200.7	07/11/18 20:27 / sld	07/10/18 08:20	ICP2-HE_180711B	76	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-013
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 10:30
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.010	mg/L		0.008		E200.8	07/12/18 13:46 / sld	07/10/18 08:20	ICPMS205-H_180712B	: 79	42179

Report Definitions: RL - Analyte 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: H18070111-014
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 11:15
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	5	mg/L	D	2		A2540 D	07/09/18 12:58 / cm		I24 (14410200)_180709A	17	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	82	mg/L		4		A2320 B	07/09/18 12:53 / SR		PHSC_101-H_180709A	36	R136253
Bicarbonate as HCO3	95	mg/L		4		A2320 B	07/09/18 12:53 / SR		PHSC_101-H_180709A	36	R136253
Chloride	6	mg/L		1		E300.0	07/09/18 17:56 / SR		IC METROHM_180709A	24	R136289
Sulfate	38	mg/L		1		E300.0	07/09/18 17:56 / SR		IC METROHM_180709A	24	R136289
Hardness as CaCO3	108	mg/L		1		A2340 B	07/11/18 20:31 / SR		CALC_180713A	135	R136427
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/10/18 11:33 / kmd		FIA203-HE_180710B	30	R136306
Nitrogen, Nitrate+Nitrite as N	0.011	mg/L	J	0.02		E353.2	07/09/18 16:39 / kmd		FIA203-HE_180709C	114	R136274
Nitrogen, Total	0.36	mg/L		0.05		A4500 N-C	07/09/18 13:51 / kmd	07/09/18 10:43	FIA203-HE_180709A	63	42166
Phosphorus, Total as P	0.077	mg/L		0.003		E365.1	07/12/18 09:57 / cm	07/12/18 08:47	FIA202-HE_180712A	22	42223
METALS, DISSOLVED											
Arsenic	0.024	mg/L		0.001		E200.8	07/12/18 12:46 / sld		ICPMS205-H_180712B	48	R136402
Cadmium	0.00005	mg/L		0.00003		E200.8	07/12/18 12:46 / sld		ICPMS205-H_180712B	48	R136402
Copper	0.007	mg/L		0.001		E200.8	07/12/18 12:46 / sld		ICPMS205-H_180712B	48	R136402
Lead	0.00013	mg/L	J	0.0003		E200.8	07/12/18 12:46 / sld		ICPMS205-H_180712B	48	R136402
Zinc	0.0048	mg/L	J	0.008		E200.8	07/12/18 12:46 / sld		ICPMS205-H_180712B	48	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.025	mg/L		0.001		E200.8	07/12/18 13:48 / sld	07/10/18 08:20	ICPMS205-H_180712B	80	42179
Cadmium	0.00011	mg/L		0.00003		E200.8	07/12/18 13:48 / sld	07/10/18 08:20	ICPMS205-H_180712B	80	42179
Calcium	32	mg/L		1		E200.7	07/11/18 20:31 / sld	07/10/18 08:20	ICP2-HE_180711B	77	42179
Copper	0.010	mg/L		0.001		E200.8	07/12/18 13:48 / sld	07/10/18 08:20	ICPMS205-H_180712B	80	42179
Lead	0.0008	mg/L		0.0003		E200.8	07/12/18 13:48 / sld	07/10/18 08:20	ICPMS205-H_180712B	80	42179
Magnesium	7	mg/L		1		E200.7	07/11/18 20:31 / sld	07/10/18 08:20	ICP2-HE_180711B	77	42179
Potassium	2	mg/L		1		E200.7	07/11/18 20:31 / sld	07/10/18 08:20	ICP2-HE_180711B	77	42179
Sodium	11	mg/L		1		E200.7	07/11/18 20:31 / sld	07/10/18 08:20	ICP2-HE_180711B	77	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Project: CFROU Monitoring
Client Sample ID: SS-25
Collection Date: 07/06/18 11:15
DateReceived: 07/06/18
Lab ID: H18070111-014
Report Date: 08/06/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.011	mg/L		0.008		E200.8	07/12/18 13:48 / sld	07/10/18 08:20	ICPMS205-H_180712B	80	42179

Report Definitions: RL - Analyte 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: H18070111-015
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 12:00
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	5	mg/L	D	2		A2540 D	07/09/18 12:58 / cm		I24 (14410200)_180709A	18	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	07/09/18 12:59 / SR		PHSC_101-H_180709A	38	R136253
Bicarbonate as HCO3	84	mg/L		4		A2320 B	07/09/18 12:59 / SR		PHSC_101-H_180709A	38	R136253
Chloride	2	mg/L		1		E300.0	07/09/18 18:11 / SR		IC METROHM_180709A	25	R136289
Sulfate	34	mg/L		1		E300.0	07/09/18 18:11 / SR		IC METROHM_180709A	25	R136289
Hardness as CaCO3	94	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	8	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	07/09/18 16:40 / kmd		FIA203-HE_180709C	115	R136274
Nitrogen, Total	0.24	mg/L		0.05		A4500 N-C	07/09/18 13:52 / kmd	07/09/18 10:43	FIA203-HE_180709A	64	42166
Phosphorus, Total as P	0.034	mg/L		0.003		E365.1	07/12/18 11:53 / cm	07/12/18 08:47	FIA202-HE_180712A	60	42223
METALS, DISSOLVED											
Arsenic	0.031	mg/L		0.001		E200.8	07/12/18 12:48 / sld		ICPMS205-H_180712B	49	R136402
Cadmium	0.00003	mg/L	J	0.00003		E200.8	07/12/18 12:48 / sld		ICPMS205-H_180712B	49	R136402
Copper	0.003	mg/L		0.001		E200.8	07/12/18 12:48 / sld		ICPMS205-H_180712B	49	R136402
Lead	0.00014	mg/L	J	0.0003		E200.8	07/12/18 12:48 / sld		ICPMS205-H_180712B	49	R136402
Zinc	0.0054	mg/L	J	0.008		E200.8	07/12/18 12:48 / sld		ICPMS205-H_180712B	49	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.033	mg/L		0.001		E200.8	07/12/18 14:04 / sld	07/10/18 08:20	ICPMS205-H_180712B	88	42179
Cadmium	0.00008	mg/L		0.00003		E200.8	07/12/18 14:04 / sld	07/10/18 08:20	ICPMS205-H_180712B	88	42179
Calcium	28	mg/L		1		E200.7	07/11/18 20:35 / sld	07/10/18 08:20	ICP2-HE_180711B	78	42179
Copper	0.006	mg/L		0.001		E200.8	07/12/18 14:04 / sld	07/10/18 08:20	ICPMS205-H_180712B	88	42179
Lead	0.0010	mg/L		0.0003		E200.8	07/12/18 14:04 / sld	07/10/18 08:20	ICPMS205-H_180712B	88	42179
Magnesium	6	mg/L		1		E200.7	07/11/18 20:35 / sld	07/10/18 08:20	ICP2-HE_180711B	78	42179
Potassium	1	mg/L		1		E200.7	07/11/18 20:35 / sld	07/10/18 08:20	ICP2-HE_180711B	78	42179
Sodium	7	mg/L		1		E200.7	07/11/18 20:35 / sld	07/10/18 08:20	ICP2-HE_180711B	78	42179
Zinc	0.007	mg/L	J	0.008		E200.8	07/12/18 14:04 / sld	07/10/18 08:20	ICPMS205-H_180712B	88	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-016
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 13:30
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	6	mg/L	D	2		A2540 D	07/09/18 12:58 / cm		I24 (14410200)_180709A	19	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	63	mg/L		4		A2320 B	07/09/18 13:04 / SR		PHSC_101-H_180709A	40	R136253
Bicarbonate as HCO3	76	mg/L		4		A2320 B	07/09/18 13:04 / SR		PHSC_101-H_180709A	40	R136253
Chloride	0.71	mg/L	J	1		E300.0	07/09/18 18:26 / SR		IC METROHM_180709A	26	R136289
Sulfate	11	mg/L		1		E300.0	07/09/18 18:26 / SR		IC METROHM_180709A	26	R136289
Hardness as CaCO3	64	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	9	R136403
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.019	mg/L	J	0.02		E353.2	07/09/18 16:41 / kmd		FIA203-HE_180709C	116	R136274
Nitrogen, Total	0.18	mg/L		0.05		A4500 N-C	07/09/18 13:53 / kmd	07/09/18 10:43	FIA203-HE_180709A	65	42166
Phosphorus, Total as P	0.038	mg/L		0.003		E365.1	07/12/18 11:54 / cm	07/12/18 08:47	FIA202-HE_180712A	61	42223
METALS, DISSOLVED											
Arsenic	0.032	mg/L		0.001		E200.8	07/12/18 12:50 / sld		ICPMS205-H_180712B	50	R136402
Cadmium	0.00003	mg/L		0.00003		E200.8	07/12/18 12:50 / sld		ICPMS205-H_180712B	50	R136402
Copper	0.003	mg/L		0.001		E200.8	07/12/18 12:50 / sld		ICPMS205-H_180712B	50	R136402
Lead	0.00016	mg/L	J	0.0003		E200.8	07/12/18 12:50 / sld		ICPMS205-H_180712B	50	R136402
Zinc	0.0059	mg/L	J	0.008		E200.8	07/12/18 12:50 / sld		ICPMS205-H_180712B	50	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.033	mg/L		0.001		E200.8	07/12/18 14:06 / sld	07/10/18 08:20	ICPMS205-H_180712B	89	42179
Cadmium	0.00008	mg/L		0.00003		E200.8	07/12/18 14:06 / sld	07/10/18 08:20	ICPMS205-H_180712B	89	42179
Calcium	19	mg/L		1		E200.7	07/11/18 20:47 / sld	07/10/18 08:20	ICP2-HE_180711B	81	42179
Copper	0.006	mg/L		0.001		E200.8	07/12/18 14:06 / sld	07/10/18 08:20	ICPMS205-H_180712B	89	42179
Lead	0.0010	mg/L		0.0003		E200.8	07/12/18 14:06 / sld	07/10/18 08:20	ICPMS205-H_180712B	89	42179
Magnesium	4	mg/L		1		E200.7	07/11/18 20:47 / sld	07/10/18 08:20	ICP2-HE_180711B	81	42179
Potassium	0.84	mg/L	J	1		E200.7	07/11/18 20:47 / sld	07/10/18 08:20	ICP2-HE_180711B	81	42179
Sodium	6	mg/L		1		E200.7	07/11/18 20:47 / sld	07/10/18 08:20	ICP2-HE_180711B	81	42179
Zinc	0.007	mg/L	J	0.008		E200.8	07/12/18 14:06 / sld	07/10/18 08:20	ICPMS205-H_180712B	89	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-017
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 12:30
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	4	mg/L	D	2		A2540 D	07/09/18 12:59 / cm		I24 (14410200)_180709A	20	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	91	mg/L		4		A2320 B	07/09/18 13:09 / SR		PHSC_101-H_180709A	42	R136253
Bicarbonate as HCO3	98	mg/L		4		A2320 B	07/09/18 13:09 / SR		PHSC_101-H_180709A	42	R136253
Chloride	10	mg/L		1		E300.0	07/09/18 18:40 / SR		IC METROHM_180709A	27	R136289
Sulfate	41	mg/L		1		E300.0	07/09/18 18:40 / SR		IC METROHM_180709A	27	R136289
Hardness as CaCO3	124	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	10	R136403
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/10/18 11:34 / kmd		FIA203-HE_180710B	31	R136306
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02		E353.2	07/09/18 16:42 / kmd		FIA203-HE_180709C	117	R136274
Nitrogen, Total	0.50	mg/L		0.05		A4500 N-C	07/09/18 13:55 / kmd	07/09/18 10:43	FIA203-HE_180709A	66	42166
Phosphorus, Total as P	0.108	mg/L		0.003		E365.1	07/12/18 10:00 / cm	07/12/18 08:47	FIA202-HE_180712A	25	42223
METALS, DISSOLVED											
Arsenic	0.018	mg/L		0.001		E200.8	07/12/18 12:52 / sld		ICPMS205-H_180712B	51	R136402
Cadmium	0.00008	mg/L		0.00003		E200.8	07/12/18 12:52 / sld		ICPMS205-H_180712B	51	R136402
Copper	0.012	mg/L		0.001		E200.8	07/12/18 12:52 / sld		ICPMS205-H_180712B	51	R136402
Lead	0.00013	mg/L	J	0.0003		E200.8	07/12/18 12:52 / sld		ICPMS205-H_180712B	51	R136402
Zinc	0.0061	mg/L	J	0.008		E200.8	07/12/18 12:52 / sld		ICPMS205-H_180712B	51	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.018	mg/L		0.001		E200.8	07/12/18 14:08 / sld	07/10/18 08:20	ICPMS205-H_180712B	90	42179
Cadmium	0.00013	mg/L		0.00003		E200.8	07/12/18 14:08 / sld	07/10/18 08:20	ICPMS205-H_180712B	90	42179
Calcium	37	mg/L		1		E200.7	07/11/18 20:51 / sld	07/10/18 08:20	ICP2-HE_180711B	82	42179
Copper	0.014	mg/L		0.001		E200.8	07/12/18 14:08 / sld	07/10/18 08:20	ICPMS205-H_180712B	90	42179
Lead	0.0005	mg/L		0.0003		E200.8	07/12/18 14:08 / sld	07/10/18 08:20	ICPMS205-H_180712B	90	42179
Magnesium	7	mg/L		1		E200.7	07/11/18 20:51 / sld	07/10/18 08:20	ICP2-HE_180711B	82	42179
Potassium	3	mg/L		1		E200.7	07/11/18 20:51 / sld	07/10/18 08:20	ICP2-HE_180711B	82	42179
Sodium	14	mg/L		1		E200.7	07/11/18 20:51 / sld	07/10/18 08:20	ICP2-HE_180711B	82	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
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: H18070111-017
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 12:30
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.013	mg/L		0.008		E200.8	07/12/18 14:08 / sld	07/10/18 08:20	ICPMS205-H_180712B	90	42179

Report Definitions: RL - Analyte 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-19
Lab ID: H18070111-018
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 14:15
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	13	mg/L	D	2		A2540 D	07/09/18 12:59 / cm		I24 (14410200)_180709A	21	TSS180709A
INORGANICS											
Alkalinity, Total as CaCO3	92	mg/L		4		A2320 B	07/09/18 13:15 / SR		PHSC_101-H_180709A	44	R136253
Bicarbonate as HCO3	110	mg/L		4		A2320 B	07/09/18 13:15 / SR		PHSC_101-H_180709A	44	R136253
Chloride	14	mg/L		1		E300.0	07/09/18 18:55 / SR		IC METROHM_180709A	28	R136289
Sulfate	41	mg/L		1		E300.0	07/09/18 18:55 / SR		IC METROHM_180709A	28	R136289
Hardness as CaCO3	125	mg/L		1		A2340 B	07/12/18 15:21 / sld		WATERCALC_180712A	11	R136403
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	07/10/18 11:35 / kmd		FIA203-HE_180710B	32	R136306
Nitrogen, Nitrate+Nitrite as N	0.16	mg/L		0.02		E353.2	07/09/18 16:46 / kmd		FIA203-HE_180709C	120	R136274
Nitrogen, Total	0.56	mg/L		0.05		A4500 N-C	07/09/18 13:56 / kmd	07/09/18 10:43	FIA203-HE_180709A	67	42166
Phosphorus, Total as P	0.115	mg/L		0.003		E365.1	07/12/18 10:03 / cm	07/12/18 08:47	FIA202-HE_180712A	28	42223
METALS, DISSOLVED											
Arsenic	0.009	mg/L		0.001		E200.8	07/12/18 12:54 / sld		ICPMS205-H_180712B	52	R136402
Cadmium	0.00010	mg/L		0.00003		E200.8	07/12/18 12:54 / sld		ICPMS205-H_180712B	52	R136402
Copper	0.014	mg/L		0.001		E200.8	07/12/18 12:54 / sld		ICPMS205-H_180712B	52	R136402
Lead	0.00023	mg/L	J	0.0003		E200.8	07/12/18 12:54 / sld		ICPMS205-H_180712B	52	R136402
Zinc	0.025	mg/L		0.008		E200.8	07/12/18 12:54 / sld		ICPMS205-H_180712B	52	R136402
METALS, TOTAL RECOVERABLE											
Arsenic	0.010	mg/L		0.001		E200.8	07/12/18 14:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	91	42179
Cadmium	0.00023	mg/L		0.00003		E200.8	07/12/18 14:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	91	42179
Calcium	37	mg/L		1		E200.7	07/11/18 20:55 / sld	07/10/18 08:20	ICP2-HE_180711B	83	42179
Copper	0.024	mg/L		0.001		E200.8	07/12/18 14:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	91	42179
Lead	0.0021	mg/L		0.0003		E200.8	07/12/18 14:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	91	42179
Magnesium	8	mg/L		1		E200.7	07/11/18 20:55 / sld	07/10/18 08:20	ICP2-HE_180711B	83	42179
Potassium	3	mg/L		1		E200.7	07/11/18 20:55 / sld	07/10/18 08:20	ICP2-HE_180711B	83	42179
Sodium	17	mg/L		1		E200.7	07/11/18 20:55 / sld	07/10/18 08:20	ICP2-HE_180711B	83	42179

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
J - Estimated value. The analyte was present but less than the reporting limit.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SS-19
Lab ID: H18070111-018
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/06/18 14:15
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.050	mg/L		0.008		E200.8	07/12/18 14:10 / sld	07/10/18 08:20	ICPMS205-H_180712B	91	42179

Report Definitions: RL - Analyte 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-84F
Lab ID: H18070111-019
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 07/05/18 10:15
DateReceived: 07/06/18
Report Date: 08/06/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Mercury	0.0000684	mg/L		5E-06		E245.1	07/18/18 11:19 / eli-b	07/16/18 13:00	SUB-B303995 : 6		B_123416

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

Client: MT DEQ-Federal Superfund
Work Order: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42126

Date: *06-Aug-18*

Run ID :Run Order: **FIA202-HE_180711A: 9** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**
Analysis Date: **07/11/18 08:55** 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
Phosphorus, Total as P	1.80E-05	0.010		0		0	0				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

Run ID :Run Order: **FIA202-HE_180711A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**
Analysis Date: **07/11/18 08:56** 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
Phosphorus, Total as P	0.261	0.010	0.25	0	104	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

Run ID :Run Order: **FIA202-HE_180711A: 26** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **07/11/18 09:15** 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
Phosphorus, Total as P	0.0995	0.010	0.1	0	100	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

Run ID :Run Order: **FIA202-HE_180711A: 42** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **07/11/18 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
Phosphorus, Total as P	0.0978	0.010	0.1	0	98	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42162

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180709A: 8** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**

Analysis Date: **07/09/18 12:36** 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, Total	-3.54E-05	0.10		0		0	0				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **FIA203-HE_180709A: 41** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**

Analysis Date: **07/09/18 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.523	0.10	0.5	0	105	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **FIA203-HE_180709A: 57** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**

Analysis Date: **07/09/18 13:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.531	0.10	0.5	0	106	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42166

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180709A: 42** SampType: **Method Blank** Lab ID: **MB-42166** Method: **A4500 N-C**
Analysis Date: **07/09/18 13:24** Units: **mg/L** **Prep Info:** Prep Date: **7/9/2018** 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	0.01									

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **FIA203-HE_180709A: 43** SampType: **Laboratory Control Sample** Lab ID: **LCS-42166** Method: **A4500 N-C**
Analysis Date: **07/09/18 13:26** Units: **mg/L** **Prep Info:** Prep Date: **7/9/2018** 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	8.21	0.30	7.44	0	110	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **FIA203-HE_180709A: 45** SampType: **Sample Matrix Spike** Lab ID: **H18070111-001AMS** Method: **A4500 N-C**
Analysis Date: **07/09/18 13:30** Units: **mg/L** **Prep Info:** Prep Date: **7/9/2018** 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	1.28	0.10	1	0.2959	99	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **FIA203-HE_180709A: 46** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-001AMSD** Method: **A4500 N-C**
Analysis Date: **07/09/18 13:31** Units: **mg/L** **Prep Info:** Prep Date: **7/9/2018** 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	1.26	0.10	1	0.2959	96	90	110	1.282	2.0	20	

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42166

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180709A: 59** SampType: **Sample Matrix Spike** Lab ID: **H18070111-011AMS** Method: **A4500 N-C**

Analysis Date: **07/09/18 13:46** Units: **mg/L** **Prep Info:** Prep Date: **7/9/2018** 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	1.04	0.10	1	0	**104**	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **FIA203-HE_180709A: 60** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-011AMSD** Method: **A4500 N-C**

Analysis Date: **07/09/18 13:47** Units: **mg/L** **Prep Info:** Prep Date: **7/9/2018** 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	1.06	0.10	1	0	**106**	90	110	1.04	**2.4**	20	

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42175

Date: *06-Aug-18*

Run ID :Run Order: **FIA202-HE_180711A: 12** SampType: **Method Blank** Lab ID: **MB-42175** Method: **E365.1**
Analysis Date: **07/11/18 08:59** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.0006									

Associated samples: **H18070111-001D**

Run ID :Run Order: **FIA202-HE_180711A: 13** SampType: **Laboratory Control Sample** Lab ID: **LCS-42175** Method: **E365.1**
Analysis Date: **07/11/18 09:00** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.409	0.010	0.4	0	**102**	90	110				

Associated samples: **H18070111-001D**

Run ID :Run Order: **FIA202-HE_180711A: 31** SampType: **Sample Matrix Spike** Lab ID: **H18070111-001DMS** Method: **E365.1**
Analysis Date: **07/11/18 09:24** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.267	0.010	0.2	0.0555	**106**	90	110				

Associated samples: **H18070111-001D**

Run ID :Run Order: **FIA202-HE_180711A: 32** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-001DMSD** Method: **E365.1**
Analysis Date: **07/11/18 09:25** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.243	0.010	0.2	0.0555	**94**	90	110	0.2672	**9.6**	20	

Associated samples: **H18070111-001D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42179

Date: *06-Aug-18*

Run ID :Run Order: **ICP2-HE_180711B: 50** SampType: **Method Blank** Lab ID: **MB-42179** Method: **E200.7**

Analysis Date: **07/11/18 18:45** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.09									
Magnesium	0.01	0.009									
Potassium	ND	0.06									
Sodium	ND	0.03									

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 51** SampType: **Laboratory Control Sample** Lab ID: **LCS-42179** Method: **E200.7**

Analysis Date: **07/11/18 18:49** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.9	1.0	25	0	99	85	115				
Magnesium	24.4	1.0	25	0.01049	98	85	115				
Potassium	24.4	1.0	25	0	98	85	115				
Sodium	24.3	1.0	25	0	97	85	115				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 53** SampType: **Serial Dilution** Lab ID: **H18070111-001CDIL** Method: **E200.7**

Analysis Date: **07/11/18 18:57** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	30.8	1.0		0		0	0	32.9	6.8	10	
Magnesium	7.70	1.0		0		0	0	8.003		10	N
Potassium	1.58	1.0		0		0	0	1.855		10	N
Sodium	5.52	1.0		0		0	0	6.099	10	10	R

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42179

Date: *06-Aug-18*

Run ID :Run Order: **ICP2-HE_180711B: 57** SampType: **Sample Matrix Spike** Lab ID: **H18070111-001CMS3** Method: **E200.7**

Analysis Date: **07/11/18 19:13** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	56.0	1.0	25	32.9	92	70	130				
Magnesium	31.5	1.0	25	8.003	94	70	130				
Potassium	26.9	1.0	25	1.855	100	70	130				
Sodium	31.4	1.0	25	6.099	101	70	130				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 58** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-001CMSD3** Method: **E200.7**

Analysis Date: **07/11/18 19:17** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	53.7	1.0	25	32.9	83	70	130	55.98	4.1	20	
Magnesium	30.1	1.0	25	8.003	88	70	130	31.46	4.4	20	
Potassium	26.0	1.0	25	1.855	97	70	130	26.91	3.4	20	
Sodium	30.5	1.0	25	6.099	98	70	130	31.37	2.8	20	

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 71** SampType: **Serial Dilution** Lab ID: **H18070111-011CDIL** Method: **E200.7**

Analysis Date: **07/11/18 20:08** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	1.0		0		0	0	0		10	
Magnesium	ND	1.0		0		0	0	0		10	
Potassium	ND	1.0		0		0	0	0		10	
Sodium	ND	1.0		0		0	0	0		10	

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42179

Date: *06-Aug-18*

Run ID :Run Order: **ICP2-HE_180711B: 73** SampType: **Sample Matrix Spike** Lab ID: **H18070111-011CMS3** Method: **E200.7**

Analysis Date: **07/11/18 20:16** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.1	1.0	25	0	96	70	130				
Magnesium	23.4	1.0	25	0	94	70	130				
Potassium	24.0	1.0	25	0	96	70	130				
Sodium	24.1	1.0	25	0	97	70	130				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 74** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-011CMSD3** Method: **E200.7**

Analysis Date: **07/11/18 20:19** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.6	1.0	25	0	95	70	130	24.06	1.7	20	
Magnesium	23.0	1.0	25	0	92	70	130	23.44	1.7	20	
Potassium	24.6	1.0	25	0	98	70	130	24.01	2.4	20	
Sodium	24.9	1.0	25	0	100	70	130	24.13	3.2	20	

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42179

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180712B: 59** SampType: **Method Blank** Lab ID: **MB-42179** Method: **E200.8**
Analysis Date: **07/12/18 13:08** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5E-05	4E-05									
Cadmium	ND	3E-05									
Copper	0.0004	0.0002									
Lead	ND	4E-05									
Zinc	0.003	0.001									

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICPMS205-H_180712B: 66** SampType: **Laboratory Control Sample** Lab ID: **LCS-42179** Method: **E200.8**
Analysis Date: **07/12/18 13:21** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.502	0.0010	0.5	0.00004788	100	85	115				
Cadmium	0.255	0.0010	0.25	0	102	85	115				
Copper	0.515	0.0050	0.5	0.0003982	103	85	115				
Lead	0.520	0.0010	0.5	0	104	85	115				
Zinc	0.498	0.010	0.5	0.003097	99	85	115				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICPMS205-H_180712B: 67** SampType: **Sample Matrix Spike** Lab ID: **H18070111-001CMS3** Method: **E200.8**
Analysis Date: **07/12/18 13:23** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.489	0.0010	0.5	0.01178	95	70	130				
Cadmium	0.241	0.0010	0.25	0.0001629	96	70	130				
Copper	0.506	0.0050	0.5	0.02554	96	70	130				
Lead	0.493	0.0010	0.5	0.003317	98	70	130				
Zinc	0.499	0.010	0.5	0.03583	93	70	130				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42179

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180712B: 68** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-001CMSD3** Method: **E200.8**

Analysis Date: **07/12/18 13:25** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.479	0.0010	0.5	0.01178	94	70	130	0.4886	1.9	20	
Cadmium	0.232	0.0010	0.25	0.0001629	93	70	130	0.2411	3.9	20	
Copper	0.492	0.0050	0.5	0.02554	93	70	130	0.5057	2.7	20	
Lead	0.469	0.0010	0.5	0.003317	93	70	130	0.4932	5.1	20	
Zinc	0.484	0.010	0.5	0.03583	90	70	130	0.4987	2.9	20	

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICPMS205-H_180712B: 81** SampType: **Sample Matrix Spike** Lab ID: **H18070111-011CMS3** Method: **E200.8**

Analysis Date: **07/12/18 13:50** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.478	0.0010	0.5	0.00005309	96	70	130				
Cadmium	0.242	0.0010	0.25	0	97	70	130				
Copper	0.499	0.0050	0.5	0.0002155	100	70	130				
Lead	0.496	0.0010	0.5	0	99	70	130				
Zinc	0.473	0.010	0.5	0.001279	94	70	130				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICPMS205-H_180712B: 82** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-011CMSD3** Method: **E200.8**

Analysis Date: **07/12/18 13:52** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.468	0.0010	0.5	0.00005309	94	70	130	0.4784	2.1	20	
Cadmium	0.236	0.0010	0.25	0	94	70	130	0.2422	2.7	20	
Copper	0.482	0.0050	0.5	0.0002155	96	70	130	0.4988	3.4	20	
Lead	0.474	0.0010	0.5	0	95	70	130	0.4962	4.6	20	
Zinc	0.464	0.010	0.5	0.001279	92	70	130	0.4731	2.0	20	

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42179

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180713A: 30** SampType: **Method Blank** Lab ID: **MB-42179** Method: **E200.8**

Analysis Date: **07/13/18 10:40** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	4E-05									
Cadmium	ND	3E-05									
Copper	0.0004	0.0002									
Lead	ND	4E-05									
Zinc	0.003	0.001									

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42182

Date: *06-Aug-18*

Run ID :Run Order: **FIA202-HE_180711A: 43** SampType: **Method Blank** Lab ID: **MB-42182** Method: **E365.1**
Analysis Date: **07/11/18 09:38** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.0006									

Associated samples: **H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

Run ID :Run Order: **FIA202-HE_180711A: 44** SampType: **Laboratory Control Sample** Lab ID: **LCS-42182** Method: **E365.1**
Analysis Date: **07/11/18 09:39** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.384	0.010	0.4	0	**96**	90	110				

Associated samples: **H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

Run ID :Run Order: **FIA202-HE_180711A: 46** SampType: **Sample Matrix Spike** Lab ID: **H18070111-002DMS** Method: **E365.1**
Analysis Date: **07/11/18 09:42** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.201	0.010	0.2	0	**101**	90	110				

Associated samples: **H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

Run ID :Run Order: **FIA202-HE_180711A: 47** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-002DMSD** Method: **E365.1**
Analysis Date: **07/11/18 09:43** Units: **mg/L** **Prep Info:** Prep Date: **7/10/2018** 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	0.199	0.010	0.2	0	**100**	90	110	0.2013	**1.0**	20	

Associated samples: **H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42223

Date: *06-Aug-18*

Run ID :Run Order: **FIA202-HE_180712A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-42223** Method: **E365.1**
Analysis Date: **07/12/18 09:45** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** 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	0.390	0.010	0.4	0.00472	96	90	110				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 13** SampType: **Method Blank** Lab ID: **MB-42223** Method: **E365.1**
Analysis Date: **07/12/18 09:46** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** 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	0.005	0.0006									

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 18** SampType: **Sample Matrix Spike** Lab ID: **H18070111-011DMS** Method: **E365.1**
Analysis Date: **07/12/18 09:52** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** 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	0.192	0.010	0.2	0	96	90	110				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 19** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-011DMSD** Method: **E365.1**
Analysis Date: **07/12/18 09:53** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** 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	0.192	0.010	0.2	0	96	90	110	0.1925	0.2	20	

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 29** SampType: **Sample Matrix Spike** Lab ID: **H18070111-018DMS** Method: **E365.1**
Analysis Date: **07/12/18 10:04** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** 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	0.313	0.010	0.2	0.1154	99	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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42223

Date: *06-Aug-18*

Run ID :Run Order: **FIA202-HE_180712A: 29** SampType: **Sample Matrix Spike** Lab ID: **H18070111-018DMS** Method: **E365.1**

Analysis Date: **07/12/18 10:04** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** Prep Method: **E365.1**

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

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-018DMSD** Method: **E365.1**

Analysis Date: **07/12/18 10:06** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** 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	0.315	0.010	0.2	0.1154	**100**	90	110	0.3128	**0.5**	20	

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: B_123318

Date: *06-Aug-18*

Run ID :Run Order: **SUB-B303713: 2** SampType: **Method Blank** Lab ID: **MB-123318** Method: **E245.1**
Analysis Date: **07/12/18 15:26** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2E-06	2E-06									

Associated samples: **H18070111-002C**

Run ID :Run Order: **SUB-B303713: 3** SampType: **Laboratory Control Sample** Lab ID: **LCS-123318** Method: **E245.1**
Analysis Date: **07/12/18 15:29** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000207	0.00010	0.0002	0.00000193	**103**	85	115	0			

Associated samples: **H18070111-002C**

Run ID :Run Order: **SUB-B303713: 5** SampType: **Sample Matrix Spike** Lab ID: **B18070668-001DMS** Method: **E245.1**
Analysis Date: **07/12/18 15:55** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000212	0.00010	0.0002	0.00000861	**102**	70	130	0			

Associated samples: **H18070111-002C**

Run ID :Run Order: **SUB-B303713: 6** SampType: **Sample Matrix Spike Duplicate** Lab ID: **B18070668-001DMSD** Method: **E245.1**
Analysis Date: **07/12/18 15:58** Units: **mg/L** **Prep Info:** Prep Date: **7/12/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000213	0.00010	0.0002	0.00000861	**102**	70	130	0.000212	**0.5**	30	

Associated samples: **H18070111-002C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: B_123416

Date: *06-Aug-18*

Run ID :Run Order: **SUB-B303995: 2** SampType: **Method Blank** Lab ID: **MB-123416** Method: **E245.1**
Analysis Date: **07/18/18 11:07** Units: **mg/L** **Prep Info:** Prep Date: **7/16/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	2E-06									

Associated samples: **H18070111-003C, H18070111-004C, H18070111-019A**

Run ID :Run Order: **SUB-B303995: 3** SampType: **Laboratory Control Sample** Lab ID: **LCS-123416** Method: **E245.1**
Analysis Date: **07/18/18 11:10** Units: **mg/L** **Prep Info:** Prep Date: **7/16/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000178	0.00010	0.0002	0	**89**	85	115	0			

Associated samples: **H18070111-003C, H18070111-004C, H18070111-019A**

Run ID :Run Order: **SUB-B303995: 7** SampType: **Sample Matrix Spike** Lab ID: **H18070236-006B** Method: **E245.1**
Analysis Date: **07/18/18 11:51** Units: **mg/L** **Prep Info:** Prep Date: **7/16/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000216	0.00010	0.0002	0	**108**	70	130	0			

Associated samples: **H18070111-003C, H18070111-004C, H18070111-019A**

Run ID :Run Order: **SUB-B303995: 8** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070236-006B** Method: **E245.1**
Analysis Date: **07/18/18 11:54** Units: **mg/L** **Prep Info:** Prep Date: **7/16/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000218	0.00010	0.0002	0	**109**	70	130	0.000216	**0.9**	30	

Associated samples: **H18070111-003C, H18070111-004C, H18070111-019A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: B_1807012Z

Date: *06-Aug-18*

Run ID :Run Order: **SUB-B303713: 1** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **07/12/18 14:21** Units: **mg/L** **Prep Info:** Prep Date: **4/18/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000208	0.00010	0.0002	0	104	90	110	0			

Associated samples: **H18070111-002C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: B_180718Z

Date: *06-Aug-18*

Run ID :Run Order: **SUB-B303995: 1** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **07/18/18 10:58** Units: **mg/L** **Prep Info:** Prep Date: **4/18/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000217	0.00010	0.0002	0	108	90	110	0			

Associated samples: **H18070111-003C, H18070111-004C, H18070111-019A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136253

Date: *06-Aug-18*

Run ID :Run Order: **PHSC_101-H_180709A: 6** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **07/09/18 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	ND	2									

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **PHSC_101-H_180709A: 7** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **07/09/18 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
Alkalinity, Total as CaCO3	580	4.0	600	0	96	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **PHSC_101-H_180709A: 14** SampType: **Sample Duplicate** Lab ID: **H18070111-003ADUP** Method: **A2320 B**

Analysis Date: **07/09/18 11:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	120	4.0		0				115.8	1.0	10	
Bicarbonate as HCO3	140	4.0		0				140.6	1.0	10	

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **PHSC_101-H_180709A: 46** SampType: **Sample Duplicate** Lab ID: **H18070111-018ADUP** Method: **A2320 B**

Analysis Date: **07/09/18 13:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	92	4.0		0				91.8	0.1	10	
Bicarbonate as HCO3	110	4.0		0				111.4	0.1	10	

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136274

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180709C: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E353.2**

Analysis Date: **07/09/18 14:32** 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	1.03	0.010	1	0	103	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 10** SampType: **Method Blank** Lab ID: **MBLK** Method: **E353.2**

Analysis Date: **07/09/18 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, Nitrate+Nitrite as N	ND	0.009									

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E353.2**

Analysis Date: **07/09/18 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, Nitrate+Nitrite as N	0.962	0.011	1	0	96	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 91** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**

Analysis Date: **07/09/18 16:11** 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	0.502	0.010	0.5	0	100	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136274

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180709C: 94** SampType: **Sample Matrix Spike** Lab ID: **H18070091-007CMS** Method: **E353.2**

Analysis Date: **07/09/18 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
Nitrogen, Nitrate+Nitrite as N	33.8	0.22	20	13.67	101	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 95** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070091-007CMSD** Method: **E353.2**

Analysis Date: **07/09/18 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, Nitrate+Nitrite as N	33.0	0.22	20	13.67	97	90	110	33.79	2.2	10	

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 105** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**

Analysis Date: **07/09/18 16:28** 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	0.496	0.010	0.5	0	99	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 108** SampType: **Sample Matrix Spike** Lab ID: **H18070111-009DMS** Method: **E353.2**

Analysis Date: **07/09/18 16:32** 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	1.01	0.011	1	0.02821	98	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136274

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180709C: 109** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-009DMSD** Method: **E353.2**

Analysis Date: **07/09/18 16:33** 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
Nitrogen, Nitrate+Nitrite as N	1.01	0.011	1	0.02821	98	90	110	1.009	0.2	10	

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 119** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**

Analysis Date: **07/09/18 16:45** 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
Nitrogen, Nitrate+Nitrite as N	0.491	0.010	0.5	0	98	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 121** SampType: **Sample Matrix Spike** Lab ID: **H18070111-018DMS** Method: **E353.2**

Analysis Date: **07/09/18 16:47** 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
Nitrogen, Nitrate+Nitrite as N	1.13	0.011	1	0.1594	97	90	110				

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180709C: 122** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-018DMSD** Method: **E353.2**

Analysis Date: **07/09/18 16:48** 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	1.12	0.011	1	0.1594	96	90	110	1.133	0.8	10	

Associated samples: **H18070111-001D, H18070111-002D, H18070111-003D, H18070111-004D, H18070111-005D, H18070111-006D, H18070111-007D, H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136289

Date: *06-Aug-18*

Run ID :Run Order: **IC METROHM_180709A: 2** SampType: **Method Blank** Lab ID: **ICB** Method: **E300.0**

Analysis Date: **07/09/18 12:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.009									
Sulfate	ND	0.01									

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **IC METROHM_180709A: 3** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E300.0**

Analysis Date: **07/09/18 12:22** 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	99.7	1.0	100	0	**100**	90	110				
Sulfate	394	1.0	400	0	**98**	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **IC METROHM_180709A: 4** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E300.0**

Analysis Date: **07/09/18 12:36** 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	24.0	1.0	25	0	**96**	90	110				
Sulfate	95.1	1.0	100	0	**95**	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **IC METROHM_180709A: 5** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **07/09/18 12:51** 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	49.7	1.0	50	0	**99**	90	110				
Sulfate	197	1.0	200	0	**98**	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136289

Date: *06-Aug-18*

Run ID :Run Order: **IC METROHM_180709A: 17** SampType: **Sample Matrix Spike** Lab ID: **H18070111-010AMS** Method: **E300.0**

Analysis Date: **07/09/18 16:00** 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	27.9	1.0	25	4.028	96	90	110				
Sulfate	137	1.0	100	42.83	94	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **IC METROHM_180709A: 18** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-010AMSD** Method: **E300.0**

Analysis Date: **07/09/18 16:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	28.0	1.0	25	4.028	96	90	110	27.91	0.3	20	
Sulfate	137	1.0	100	42.83	94	90	110	136.9	0.1	20	

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **IC METROHM_180709A: 19** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **07/09/18 16:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	49.9	1.0	50	0	100	90	110				
Sulfate	197	1.0	200	0	99	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **IC METROHM_180709A: 29** SampType: **Sample Matrix Spike** Lab ID: **H18070111-018AMS** Method: **E300.0**

Analysis Date: **07/09/18 19:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	37.5	1.0	25	13.75	95	90	110				
Sulfate	134	1.0	100	41.03	93	90	110				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136289

Date: *06-Aug-18*

Run ID :Run Order: **IC METROHM_180709A: 30** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-018AMSD** Method: **E300.0**

Analysis Date: **07/09/18 19:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	37.3	1.0	25	13.75	**94**	90	110	37.46	**0.4**	20	
Sulfate	133	1.0	100	41.03	**92**	90	110	134	**0.6**	20	

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136306

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180710B: 9** SampType: **Method Blank** Lab ID: **MBLK** Method: **E350.1**
Analysis Date: **07/10/18 11:07** 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, Ammonia as N	ND	0.02									

Associated samples: **H18070111-013D, H18070111-014D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180710B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E350.1**
Analysis Date: **07/10/18 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	10.4	0.50	10.3	0	101	90	110				

Associated samples: **H18070111-013D, H18070111-014D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180710B: 12** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E350.1**
Analysis Date: **07/10/18 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	1.02	0.055	1	0	102	90	110				

Associated samples: **H18070111-013D, H18070111-014D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180710B: 25** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E350.1**
Analysis Date: **07/10/18 11:26** 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, Ammonia as N	0.498	0.050	0.5	0	100	90	110				

Associated samples: **H18070111-013D, H18070111-014D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA203-HE_180710B: 28** SampType: **Sample Matrix Spike** Lab ID: **H18070111-013DMS** Method: **E350.1**
Analysis Date: **07/10/18 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, Ammonia as N	0.888	0.055	1	0	89	80	120				

Associated samples: **H18070111-013D, H18070111-014D, H18070111-017D, H18070111-018D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136306

Date: *06-Aug-18*

Run ID :Run Order: **FIA203-HE_180710B: 29** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-013DMSD** Method: **E350.1**

Analysis Date: **07/10/18 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	0.865	0.055	1	0	**86**	80	120	0.8885	**2.7**	10	

Associated samples: **H18070111-013D, H18070111-014D, H18070111-017D, H18070111-018D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136377

Date: *06-Aug-18*

Run ID :Run Order: **ICP2-HE_180711B: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **07/11/18 08:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.5	1.0	40	0	99	95	105				
Magnesium	38.8	1.0	40	0	97	95	105				
Potassium	39.4	1.0	40	0	98	95	105				
Sodium	39.0	1.0	40	0	97	95	105				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 13** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **07/11/18 08:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.2	1.0	40	0	98	95	105				
Magnesium	38.8	1.0	40	0	97	95	105				
Potassium	38.7	1.0	40	0	97	95	105				
Sodium	38.9	1.0	40	0	97	95	105				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 14** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV-1** Method: **E200.7**

Analysis Date: **07/11/18 08:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.9	1.0	25	0	100	95	105				
Magnesium	24.2	1.0	25	0	97	95	105				
Potassium	24.7	1.0	25	0	99	95	105				
Sodium	24.9	1.0	25	0	100	95	105				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136377

Date: *06-Aug-18*

Run ID :Run Order: **ICP2-HE_180711B: 17** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **07/11/18 08:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	475	1.0	500	0	95	80	120				
Magnesium	517	1.0	500	0	103	80	120				
Potassium	-0.0218	1.0		0		0	0				
Sodium	0.0350	1.0		0		0	0				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 18** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **07/11/18 08:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	464	1.0	500	0	93	80	120				
Magnesium	502	1.0	500	0	100	80	120				
Potassium	19.6	1.0	20	0	98	80	120				
Sodium	19.7	1.0	20	0	99	80	120				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 43** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **07/11/18 18:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.7	1.0	25	0	99	90	110				
Magnesium	24.2	1.0	25	0	97	90	110				
Potassium	24.9	1.0	25	0	100	90	110				
Sodium	25.0	1.0	25	0	100	90	110				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136377

Date: *06-Aug-18*

Run ID :Run Order: **ICP2-HE_180711B: 55** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **07/11/18 19:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.3	1.0	25	0	101	90	110				
Magnesium	24.7	1.0	25	0	99	90	110				
Potassium	23.8	1.0	25	0	95	90	110				
Sodium	23.7	1.0	25	0	95	90	110				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 67** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **07/11/18 19:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.9	1.0	25	0	100	90	110				
Magnesium	24.3	1.0	25	0	97	90	110				
Potassium	24.8	1.0	25	0	99	90	110				
Sodium	24.9	1.0	25	0	100	90	110				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

Run ID :Run Order: **ICP2-HE_180711B: 79** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **07/11/18 20:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.0	1.0	25	0	100	90	110				
Magnesium	24.3	1.0	25	0	97	90	110				
Potassium	25.1	1.0	25	0	100	90	110				
Sodium	25.1	1.0	25	0	101	90	110				

Associated samples: **H18070111-001C, H18070111-002C, H18070111-003C, H18070111-004C, H18070111-005C, H18070111-006C, H18070111-007C, H18070111-008C, H18070111-009C, H18070111-010C, H18070111-011C, H18070111-012C, H18070111-013C, H18070111-014C, H18070111-015C, H18070111-016C, H18070111-017C, H18070111-018C**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136386

Date: *06-Aug-18*

Run ID :Run Order: **FIA202-HE_180712A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**
Analysis Date: **07/12/18 09:42** 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
Phosphorus, Total as P	0.258	0.010	0.25	0	103	90	110				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 10** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **07/12/18 09:43** 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
Phosphorus, Total as P	0.0994	0.010	0.1	0	99	90	110				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 11** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**
Analysis Date: **07/12/18 09:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	-0.000180	0.010		0		0	0				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 27** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **07/12/18 10:02** 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	0.0974	0.010	0.1	0	97	90	110				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 54** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**
Analysis Date: **07/12/18 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.258	0.010	0.25	0	103	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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136386

Date: *06-Aug-18*

Run ID :Run Order: **FIA202-HE_180712A: 54** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **07/12/18 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

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

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 55** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **07/12/18 11:47** 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
Phosphorus, Total as P	0.0964	0.010	0.1	0	96	90	110				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

Run ID :Run Order: **FIA202-HE_180712A: 56** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**

Analysis Date: **07/12/18 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
Phosphorus, Total as P	0.00172	0.010		0		0	0				

Associated samples: **H18070111-008D, H18070111-009D, H18070111-010D, H18070111-011D, H18070111-012D, H18070111-013D, H18070111-014D, H18070111-015D, H18070111-016D, H18070111-017D, H18070111-018D**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136402

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180712B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **07/12/18 11:32** 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	0.0582	0.0050	0.06	0	97	90	110				
Cadmium	0.0294	0.0010	0.03	0	98	90	110				
Copper	0.0595	0.010	0.06	0	99	90	110				
Lead	0.0584	0.010	0.06	0	97	90	110				
Zinc	0.0586	0.010	0.06	0	98	90	110				

Associated samples: **H18070111-001B, H18070111-001C, H18070111-002B, H18070111-002C, H18070111-003B, H18070111-003C, H18070111-004B, H18070111-004C, H18070111-005B, H18070111-005C, H18070111-006B, H18070111-006C, H18070111-007B, H18070111-007C, H18070111-008B, H18070111-008C, H18070111-009B, H18070111-009C, H18070111-010B, H18070111-010C, H18070111-011B, H18070111-011C, H18070111-012B, H18070111-012C, H18070111-013B, H18070111-013C, H18070111-014B, H18070111-014C, H18070111-015B, H18070111-015C, H18070111-016B, H18070111-016C, H18070111-017B, H18070111-017C, H18070111-018B, H18070111-018C**

Run ID :Run Order: **ICPMS205-H_180712B: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **07/12/18 11:34** 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	6.78E-05	0.0050		0							
Cadmium	0.000148	0.0010		0							
Copper	0.000193	0.010		0							
Lead	4.79E-05	0.010		0							
Zinc	0.000544	0.010		0							

Associated samples: **H18070111-001B, H18070111-001C, H18070111-002B, H18070111-002C, H18070111-003B, H18070111-003C, H18070111-004B, H18070111-004C, H18070111-005B, H18070111-005C, H18070111-006B, H18070111-006C, H18070111-007B, H18070111-007C, H18070111-008B, H18070111-008C, H18070111-009B, H18070111-009C, H18070111-010B, H18070111-010C, H18070111-011B, H18070111-011C, H18070111-012B, H18070111-012C, H18070111-013B, H18070111-013C, H18070111-014B, H18070111-014C, H18070111-015B, H18070111-015C, H18070111-016B, H18070111-016C, H18070111-017B, H18070111-017C, H18070111-018B, H18070111-018C**

Run ID :Run Order: **ICPMS205-H_180712B: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **07/12/18 11:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0108	0.0050	0.01	0	108	70	130				
Cadmium	0.0105	0.0010	0.01	0	105	70	130				
Copper	0.0208	0.010	0.02	0	104	70	130				
Lead	3.55E-05	0.010		0		0	0				
Zinc	0.0103	0.010	0.01	0	103	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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136402

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180712B: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **07/12/18 11:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H18070111-001B, H18070111-001C, H18070111-002B, H18070111-002C, H18070111-003B, H18070111-003C, H18070111-004B, H18070111-004C, H18070111-005B, H18070111-005C, H18070111-006B, H18070111-006C, H18070111-007B, H18070111-007C, H18070111-008B, H18070111-008C, H18070111-009B, H18070111-009C, H18070111-010B, H18070111-010C, H18070111-011B, H18070111-011C, H18070111-012B, H18070111-012C, H18070111-013B, H18070111-013C, H18070111-014B, H18070111-014C, H18070111-015B, H18070111-015C, H18070111-016B, H18070111-016C, H18070111-017B, H18070111-017C, H18070111-018B, H18070111-018C**

Run ID :Run Order: **ICPMS205-H_180712B: 17** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **07/12/18 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0001									
Lead	ND	3E-05									
Zinc	ND	0.0003									

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

Run ID :Run Order: **ICPMS205-H_180712B: 18** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **07/12/18 11:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0494	0.0050	0.05	0	**99**	85	115				
Cadmium	0.0499	0.0010	0.05	0	**100**	85	115				
Copper	0.0507	0.010	0.05	0	**101**	85	115				
Lead	0.0479	0.010	0.05	0	**96**	85	115				
Zinc	0.0504	0.010	0.05	0	**101**	85	115				

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136402

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180712B: 24** SampType: **Sample Matrix Spike** Lab ID: **H18070111-001BMS** Method: **E200.8**

Analysis Date: **07/12/18 12:00** 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	0.0594	0.0010	0.05	0.009318	100	70	130				
Cadmium	0.0489	0.0010	0.05	0.00006119	98	70	130				
Copper	0.0559	0.0050	0.05	0.007191	97	70	130				
Lead	0.0488	0.0010	0.05	0.0001354	97	70	130				
Zinc	0.0572	0.010	0.05	0.007757	99	70	130				

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

Run ID :Run Order: **ICPMS205-H_180712B: 25** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-001BMSD** Method: **E200.8**

Analysis Date: **07/12/18 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	0.0594	0.0010	0.05	0.009318	100	70	130	0.05945	0.1	20	
Cadmium	0.0494	0.0010	0.05	0.00006119	99	70	130	0.04895	0.8	20	
Copper	0.0560	0.0050	0.05	0.007191	98	70	130	0.0559	0.3	20	
Lead	0.0480	0.0010	0.05	0.0001354	96	70	130	0.04881	1.7	20	
Zinc	0.0568	0.010	0.05	0.007757	98	70	130	0.05718	0.6	20	

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

Run ID :Run Order: **ICPMS205-H_180712B: 26** SampType: **Sample Matrix Spike** Lab ID: **H18070159-001BMS** Method: **E200.8**

Analysis Date: **07/12/18 12:03** 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	0.0553	0.0010	0.05	0.004013	103	70	130				
Cadmium	0.0494	0.0010	0.05	0	99	70	130				
Copper	0.0662	0.0050	0.05	0.01775	97	70	130				
Lead	0.0501	0.0010	0.05	0.0005224	99	70	130				
Zinc	0.0575	0.010	0.05	0.008537	98	70	130				

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136402

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180712B: 27** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070159-001BMSD** Method: **E200.8**

Analysis Date: **07/12/18 12:05** 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	0.004013	101	70	130	0.0553	1.4	20	
Cadmium	0.0490	0.0010	0.05	0	98	70	130	0.04945	1.0	20	
Copper	0.0655	0.0050	0.05	0.01775	96	70	130	0.06624	1.1	20	
Lead	0.0498	0.0010	0.05	0.0005224	98	70	130	0.0501	0.7	20	
Zinc	0.0570	0.010	0.05	0.008537	97	70	130	0.05751	0.9	20	

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

Run ID :Run Order: **ICPMS205-H_180712B: 53** SampType: **Sample Matrix Spike** Lab ID: **H18070111-011BMS** Method: **E200.8**

Analysis Date: **07/12/18 12:56** 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	0.0494	0.0010	0.05	0	99	70	130				
Cadmium	0.0502	0.0010	0.05	0	100	70	130				
Copper	0.0505	0.0050	0.05	0	101	70	130				
Lead	0.0480	0.0010	0.05	0	96	70	130				
Zinc	0.0687	0.010	0.05	0.01914	99	70	130				

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

Run ID :Run Order: **ICPMS205-H_180712B: 54** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-011BMSD** Method: **E200.8**

Analysis Date: **07/12/18 12:58** 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	0.0493	0.0010	0.05	0	99	70	130	0.04944	0.4	20	
Cadmium	0.0502	0.0010	0.05	0	100	70	130	0.05017	0.1	20	
Copper	0.0506	0.0050	0.05	0	101	70	130	0.05047	0.3	20	
Lead	0.0491	0.0010	0.05	0	98	70	130	0.04797	2.3	20	
Zinc	0.0691	0.010	0.05	0.01914	100	70	130	0.06869	0.6	20	

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136402

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180712B: 104** SampType: **Sample Matrix Spike** Lab ID: **H18070152-003DMS** Method: **E200.8**

Analysis Date: **07/12/18 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	0.0769	0.0010	0.05	0.01311	128	70	130				
Cadmium	0.0447	0.0010	0.05	0.00009874	89	70	130				
Copper	0.0711	0.0050	0.05	0.02561	91	70	130				
Lead	0.0489	0.0010	0.05	0	98	70	130				
Zinc	0.0504	0.010	0.05	0.006844	87	70	130				

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

Run ID :Run Order: **ICPMS205-H_180712B: 105** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070152-003DMSD** Method: **E200.8**

Analysis Date: **07/12/18 14:37** 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	0.0758	0.0010	0.05	0.01311	125	70	130	0.07692	1.4	20	
Cadmium	0.0436	0.0010	0.05	0.00009874	87	70	130	0.04471	2.5	20	
Copper	0.0695	0.0050	0.05	0.02561	88	70	130	0.07112	2.3	20	
Lead	0.0489	0.0010	0.05	0	98	70	130	0.04886	0.1	20	
Zinc	0.0496	0.010	0.05	0.006844	85	70	130	0.05042	1.7	20	

Associated samples: **H18070111-001B, H18070111-002B, H18070111-003B, H18070111-004B, H18070111-005B, H18070111-006B, H18070111-007B, H18070111-008B, H18070111-009B, H18070111-010B, H18070111-011B, H18070111-012B, H18070111-013B, H18070111-014B, H18070111-015B, H18070111-016B, H18070111-017B, H18070111-018B**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136431

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180713A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **07/13/18 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
Zinc	0.0600	0.010	0.06	0	100	90	110				

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **07/13/18 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
Zinc	0.000558	0.010		0							

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**
Analysis Date: **07/13/18 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
Zinc	0.0108	0.010	0.01	0	108	70	130				

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 18** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**
Analysis Date: **07/13/18 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
Zinc	0.0499	0.010	0.05	0	100	85	115				

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 20** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**
Analysis Date: **07/13/18 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	ND	0.0003									

Associated samples: **H18070111-002B, H18070111-011B**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R136431

Date: *06-Aug-18*

Run ID :Run Order: **ICPMS205-H_180713A: 24** SampType: **Sample Matrix Spike** Lab ID: **H18070111-002BMS** Method: **E200.8**
Analysis Date: **07/13/18 10:29** 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
Zinc	0.0571	0.010	0.05	0.007988	98	70	130				

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 25** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18070111-002BMSD** Method: **E200.8**
Analysis Date: **07/13/18 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
Zinc	0.0583	0.010	0.05	0.007988	101	70	130	0.0571	2.0	20	

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 94** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **07/13/18 20:35** 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
Zinc	0.0595	0.010	0.06	0	99	90	110				

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 95** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **07/13/18 20:37** 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
Zinc	0.000546	0.010		0							

Associated samples: **H18070111-002B, H18070111-011B**

Run ID :Run Order: **ICPMS205-H_180713A: 96** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**
Analysis Date: **07/13/18 20:39** 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
Zinc	0.0112	0.010	0.01	0	112	70	130				

Associated samples: **H18070111-002B, H18070111-011B**

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: H18070111
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS180709A

Date: *06-Aug-18*

Run ID :Run Order: **ACCU-124 (14410200)_180709A: 1** SampType: **Method Blank** Lab ID: **MB-1_180709A** Method: **A2540 D**

Analysis Date: **07/09/18 12:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	0.3									

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **ACCU-124 (14410200)_180709A: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-2_180709A** Method: **A2540 D**

Analysis Date: **07/09/18 12:55** 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
Solids, Total Suspended TSS @ 105 C	90.0	10	100	0	90	80	120				

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

Run ID :Run Order: **ACCU-124 (14410200)_180709A: 4** SampType: **Sample Duplicate** Lab ID: **H18070111-001ADUP** Method: **A2540 D**

Analysis Date: **07/09/18 12:55** 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
Solids, Total Suspended TSS @ 105 C	24.4	10		0				26.8	9.4	5	R

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

Run ID :Run Order: **ACCU-124 (14410200)_180709A: 2** SampType: **Sample Duplicate** Lab ID: **H18070111-018ADUP** Method: **A2540 D**

Analysis Date: **07/09/18 13:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	12.4	10		0				12.8	3.2	5	

Associated samples: **H18070111-001A, H18070111-002A, H18070111-003A, H18070111-004A, H18070111-005A, H18070111-006A, H18070111-007A, H18070111-008A, H18070111-009A, H18070111-010A, H18070111-011A, H18070111-012A, H18070111-013A, H18070111-014A, H18070111-015A, H18070111-016A, H18070111-017A, H18070111-018A**

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

BROOKS APPLIED LABS
18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

August 3, 2018

Energy Laboratories, Inc.
ATTN: Jonathan Dee Hager
PO Box 5688
Helena, MT 59604
jhager@energylab.com

RE: Project ENL-HL1201

Dear Mr. Jonathan Hager,

On July 10, 2018, Brooks Applied Labs (BAL) received five (5) water samples. The samples were logged-in for the analyses of methyl mercury (MeHg) according to the chain-of-custody form. All samples were received and stored according to BAL SOPs and EPA methodology. Samples were filtered by the lab upon receipt.

Water samples were pre-preserved with 6N hydrochloric acid and were distilled via EPA Method 1630.

The results were method blank corrected as described in the calculations section of the relevant BAL SOP(s) and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification (aside from concentration qualifiers) and all associated quality control sample results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Lydia Greaves
Client Services Manager
lydia@brooksapplied.com

Shahriyar Ahmed
Project Coordinator
shahriyar@brooksapplied.com

Report Information

Laboratory Accreditation

BAL 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. BAL 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.brooksapplied.com/resources/certificates-permits/>. 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

AR	as received	**MS**	matrix spike
BAL	Brooks Applied Labs	**MSD**	matrix spike duplicate
BLK	method blank	**ND**	non-detect
BS	blank spike	**NR**	non-reportable
CAL	calibration standard	**N/C**	not calculated
CCB	continuing calibration blank	**PS**	post preparation spike
CCV	continuing calibration verification	**REC**	percent recovery
COC	chain of custody record	**RPD**	relative percent difference
D	dissolved fraction	**SCV**	secondary calibration verification
DUP	duplicate	**SOP**	standard operating procedure
IBL	instrument blank	**SRM**	standard reference material
ICV	initial calibration verification	**T**	total fraction
MDL	method detection limit	**TR**	total recoverable fraction
MRL	method reporting limit		

Definition of Data Qualifiers

(Effective 9/23/09)

E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Please see narrative for explanation.
J Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
J-1 Estimated value. A full explanation is presented in the narrative.
M Duplicate precision (RPD) was not within acceptance criteria. Please see narrative for explanation.
N Spike recovery was not within acceptance criteria. Please see narrative for explanation.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X 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 Applied 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 BAL.

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Tracy Lorash

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H18070111-002E	1828012-01	Surface Water	Sample	07/05/2018	07/10/2018
H18070111-003E	1828012-02	Surface Water	Sample	07/05/2018	07/10/2018
H18070111-004E	1828012-03	Surface Water	Sample	07/05/2018	07/10/2018
H18070111-019B	1828012-04	Surface Water	Sample	07/05/2018	07/10/2018
H18070111-020A	1828012-05	Surface Water	Sample	07/05/2018	07/10/2018

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	07/30/2018	07/31/2018	B181747	1801020

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Tracy Lorash

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
H18070111-002E										
1828012-01	MeHg	Surface Water	TR	0.036	J	0.023	0.050	ng/L	B181747	1801020
H18070111-003E										
1828012-02	MeHg	Surface Water	TR	1.49		0.023	0.049	ng/L	B181747	1801020
H18070111-004E										
1828012-03	MeHg	Surface Water	TR	1.22		0.023	0.049	ng/L	B181747	1801020
H18070111-019B										
1828012-04	MeHg	Surface Water	TR	0.345		0.023	0.049	ng/L	B181747	1801020
H18070111-020A										
1828012-05	MeHg	Surface Water	TR	0.026	J	0.023	0.049	ng/L	B181747	1801020

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Tracy Lorash

Accuracy & Precision Summary

Batch: B181747
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B181747-BS1	**Blank Spike, (1829043)**								
	MeHg		1.000	1.128	ng/L	113%	67-133		
B181747-BS2	**Blank Spike, (1829043)**								
	MeHg		1.000	1.040	ng/L	104%	67-133		
B181747-MS2	**Matrix Spike (1828012-04)**								
	MeHg	0.345	1.000	1.521	ng/L	118%	65-135		
B181747-MSD2	**Matrix Spike Duplicate (1828012-04)**								
	MeHg	0.345	1.000	1.395	ng/L	105%	65-135	9%	35

Method Blanks & Reporting Limits

Batch: B181747
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B181747-BLK1	0.010	ng/L
B181747-BLK2	0.017	ng/L
B181747-BLK3	0.004	ng/L
B181747-BLK4	0.006	ng/L

Average: 0.009 **Standard Deviation:** 0.006 **MDL:** 0.023
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.050

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Tracy Lorash

Sample Containers

Lab ID: 1828012-01
Sample: H18070111-002E
Report Matrix: Surface Water
Sample Type: Sample
Collected: 07/05/2018
Received: 07/10/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2.0mL 6N HCl (PP)	1816006	<2	Cooler - 1828012

Lab ID: 1828012-02
Sample: H18070111-003E
Report Matrix: Surface Water
Sample Type: Sample
Collected: 07/05/2018
Received: 07/10/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2.0mL 6N HCl (PP)	1816006	<2	Cooler - 1828012

Lab ID: 1828012-03
Sample: H18070111-004E
Report Matrix: Surface Water
Sample Type: Sample
Collected: 07/05/2018
Received: 07/10/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2.0mL 6N HCl (PP)	1816006	<2	Cooler - 1828012

Lab ID: 1828012-04
Sample: H18070111-019B
Report Matrix: Surface Water
Sample Type: Sample
Collected: 07/05/2018
Received: 07/10/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2.0mL 6N HCl (PP)	1816006	<2	Cooler - 1828012

Lab ID: 1828012-05
Sample: H18070111-020A
Report Matrix: Surface Water
Sample Type: Sample
Collected: 07/05/2018
Received: 07/10/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	17-0218	2.0mL 6N HCl (PP)	1816006	<2	Cooler - 1828012

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Tracy Lorash

Shipping Containers

Cooler - 1828012

Received: July 10, 2018 10:05
Tracking No: 1Z37EW970155698687 via USPS
Coolant Type: Ice
Temperature: 4.6 °C

Description: Cooler
Damaged in transit? No
Returned to client? No
Comments: IR#15

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

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Energy Laboratories Inc
3161 East Lyndale Avenue
Helena, MT 59601
(406) 442-0711

H18070111

CHAIN-OF-CUSTODY RECORD

Custody Seal: Y N
Intact: Y N
Signature Match: Y N

Shipped By: _____
Receipt Temp: _____

Subcontractor:

Brooks Applied Labs
18804 North Creek Parkway
Bothell, WA 98011

TEL: (206) 632-6206 FAX: (206) 632-6017
Acct #:

Subcontractor's Client:

Rush	Sample ID	Matrix	Collection Date	Bottle Type	Requested Tests: SUB-BROOKSRAND
☐	H18070111-002E	Surface Water	07/05/18 11:45 A	1-CLIENT-SLD	1
☐	H18070111-003E	Surface Water	07/05/18 12:00 P	1-CLIENT-SLD	1
☐	H18070111-004E	Surface Water	07/05/18 12:00 P	1-CLIENT-SLD	1
☐	H18070111-019B	Surface Water	07/05/18 10:15 A	1-CLIENT-SLD	1
☐	H18070111-020A	Surface Water	07/05/18 08:45 A	1-CLIENT-SLD	1

Earliest Due Date: 7/17/2018

Comments: PO#: H13308
Analyze for Methyl Hg

QC Level:
STD

		Date/Time		
Relinquished by:	Lacy Wright		**Received by:**	
Relinquished by:	Lacy Wright	7/9/18 11:12	**Received by:**	7/10/18 1005

Work Order Receipt Checklist

MT DEQ-Federal Superfund H18070111

Login completed by: Tracy L. Lorash
Date Received: 7/6/2018
Reviewed by: BL2000\rtooke
Received by: TLL
Reviewed Date: 7/11/2018
Carrier name: Hand Del

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

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 Field Blank #1 FC-CFR is 1145 - bottles have time of 1130. Used time from COC.
Collection time on COC for FC-CFR is 1200 - bottles have time of 1145. Used time from COC.
Collection date on COC for FC-CFR is 7/5/18 - filtered metals bottle has date of 7/15/18. Used date from COC.
Collection time on COC for FC-CFR Duplicate is 1200 - bottles have time of 1145. Used time from COC.
Collection time on COC for CFR-11F is 1715 - bottles have time of 1700. Used time from COC. tl 7/9/18

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Chain of Custody & Analytical Request Record

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Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All dissolved samples field filtered

C1 = 4.0
C2 = 2.7
C3 = 6.6
C4 = 4.0
C5 = 23.4 methyl Hg + B

TB

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk. ,Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI# Laboratory Use Only
CU	1 CFR-116A	7-5-18	0845	5	W	✓	✓	✓	✓		✓	✓	✓				H18070111
CU	2 Field Blank #1 FC-CFR	7-5-18	1145	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	3 FC-CFR	7-5-18	1200	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	4 FC-CFR Duplicate	7-5-18	1200	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	5 LBR-CFR-02	7-5-18	1330	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	6 CFR-34	7-5-18	1445	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	7 CFR-27H	7-5-18	1600	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	8 CFR-11F	7-5-18	1715	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	9 CFR-07D	7-6-18	0800	5	W	✓	✓	✓	✓		✓	✓	✓				
CU	10 CFR-07D Duplicate	7-6-18	0800	5	W	✓	✓	✓	✓		✓	✓	✓				

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	7-6-18 1713		Tracy Crook		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					7/6/18 17:13	

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	1	Y N C B	Y N	See comments °C	Y N C1-4 C5	Y N C1-4 C5	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

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Chain of Custody & Analytical Request Record

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Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Comments

All dissolved samples field filtered

C1 = 4.0
C2 = 2.7
C3 = 6.6
C4 = 4.4
C5 = 23.4 methyl Hg TB

TB

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk. ,Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C1	1 Field Blank #2 CFR-03A	7-6-18	0900	5	W	✓	✓	✓	✓		✓	✓	✓				H18070111
C1	2 CFR-03A	7-6-18	0930	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	3 WSC-SBC	7-6-18	1030	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C3	4 SS-25	7-6-18	1115	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C3	5 MWB-SBC	7-6-18	1200	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	6 MCWC-MWB	7-6-18	1330	5	W	✓	✓	✓	✓		✓	✓	✓				
C1	7 SBC-P2	7-6-18	1230	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C3	8 SS-19	7-6-18	1415	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
	9																
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	7-6-18 1713	[signature]	[signature]		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				[signature]	7/6/18 17:13	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand		Y (N) C B	Y N	See comments C1-4	(Y) N C5	(Y) N C5 C1-4	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Erich Weber, Joe Naughton
Phone	439-0563
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	erich.weber@respec.com; joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 = 4.0
C2 = 2.7
C3 = 6.6
C4 = 4.0
} FB
C5 = 23.4 methyl Hg TB

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	E.Weber, J. Naughton
Sampler Phone	439-0563
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Total Mercury, low level	Methyl Mercury (contract)								See Attached	RUSH TAT	EL LAB ID (Laboratory Use Only)
C2	1 CFR-84F	7-5-18	1015	1	W	✓	✓										H18070111
C2	2 Field Blank #1 FC-CFR	7-5-18	1145	1	W	✓	✓										
C2	3 FC-CFR	7-5-18	1200	1	W	✓	✓										
C2	4 FC-CFR Duplicate	7-5-18	1200	1	W	✓	✓										
	5																
	6																
	7																
	8																
	9																
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	7-6-18 1713				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					7/6/18 17:13	

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand		Y N C B	Y N	See comments °C	Y N C4 C5	Y N C4 C5	CC Cash Check_____	$	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.

APPENDIX B3

ANALYTICAL LABORATORY RESULTS
3RD QUARTER MONITORING

ANALYTICAL SUMMARY REPORT

October 14, 2018

MT DEQ-Federal Superfund
PO Box 200901
Helena, MT 59620-0901

Work Order: H18090238 Quote ID: H1525 - CFR Monitoring-474374

Project Name: CFROU Monitoring

Energy Laboratories Inc Helena MT received the following 34 samples for MT DEQ-Federal Superfund on 9/12/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18090238-001	CFR-116A	09/10/18 8:45	09/12/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18090238-002	Field Blank #1 FC-CFR	09/10/18 11:15	09/12/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H18090238-003	FC-CFR	09/10/18 11:45	09/12/18	Surface Water	Same As Above
H18090238-004	FC-CFR Duplicate	09/10/18 11:45	09/12/18	Surface Water	Same As Above
H18090238-005	LBR-CFR-02	09/10/18 13:30	09/12/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18090238-006	CFR-34	09/10/18 15:00	09/12/18	Surface Water	Same As Above

ANALYTICAL SUMMARY REPORT

H18090238-007	CFR-27H	09/10/18 16:15	09/12/18	Surface Water	Same As Above
H18090238-008	CFR-11F	09/10/18 17:15	09/12/18	Surface Water	Same As Above
H18090238-009	CFR-07D	09/11/18 8:45	09/12/18	Surface Water	Same As Above
H18090238-010	CFR-07D Duplicate	09/11/18 8:45	09/12/18	Surface Water	Same As Above
H18090238-011	CFR-03A	09/11/18 10:15	09/12/18	Surface Water	Same As Above
H18090238-012	WSC-SBC	09/11/18 11:15	09/12/18	Surface Water	Same As Above
H18090238-013	SS-25	09/11/18 12:15	09/12/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18090238-014	Field Blank #2 MWB-SBC	09/11/18 13:15	09/12/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18090238-015	MWB-SBC	09/11/18 13:45	09/12/18	Surface Water	Same As Above
H18090238-016	MCWC-MWB	09/11/18 15:00	09/12/18	Surface Water	Same As Above
H18090238-017	SBC-P2	09/11/18 14:00	09/12/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18090238-018	CFR-84F	09/10/18 10:30	09/12/18	Surface Water	Mercury, Total Recoverable Mercury Digestion by E245.1 Subcontracted, Analytics
H18090238-019	Trip Blank 18-0155	09/10/18 8:45	09/12/18	Trip Blank	Subcontracted, Analytics

ANALYTICAL SUMMARY REPORT

H18090238-020	CFR-116A	09/10/18 8:45	09/12/18	Sediment	Metals by ICP/ICPMS, Total Percent Moisture Total Metals Digestion by SW3050B Sieve Analysis, Wet Soil Preparation USDA1
H18090238-021	LBR-CFR-02	09/10/18 13:30	09/12/18	Sediment	Metals by ICP/ICPMS, Total Percent Moisture Total Metals Digestion by SW3050B Sieve Analysis, Wet
H18090238-022	LBR-CFR-02 Duplicate	09/10/18 13:30	09/12/18	Sediment	Same As Above
H18090238-023	CFR-34	09/10/18 15:00	09/12/18	Sediment	Same As Above
H18090238-024	CFR-27H	09/10/18 16:15	09/12/18	Sediment	Same As Above
H18090238-025	CFR-11F	09/10/18 17:15	09/12/18	Sediment	Same As Above
H18090238-026	CFR-07D	09/11/18 8:45	09/12/18	Sediment	Same As Above
H18090238-027	CFR-03A	09/11/18 10:15	09/12/18	Sediment	Same As Above
H18090238-028	CFR-03A Duplicate	09/11/18 10:15	09/12/18	Sediment	Same As Above
H18090238-029	WSC-SBC	09/11/18 11:15	09/12/18	Sediment	Same As Above
H18090238-030	MWB-SBC	09/11/18 13:45	09/12/18	Sediment	Same As Above
H18090238-031	MCWC-MWB	09/11/18 15:00	09/12/18	Sediment	Same As Above
H18090238-032	LC-7.5	09/10/18 18:15	09/12/18	Sediment	Same As Above
H18090238-033	RTC-1.5	09/10/18 18:45	09/12/18	Sediment	Same As Above
H18090238-034	SS-25	09/11/18 12:15	09/12/18	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: CFROU Monitoring
Work Order: H18090238

Report Date: 10/14/18

CASE NARRATIVE

Samples for MethylMercury analysis was subcontracted to Brooks Applied Labs. The analytical report is attached. abc 10/14/18

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the calculated method detection limit (MDL). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-116A
Lab ID: H18090238-001
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 08:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	6	mg/L		1		A2540 D	09/12/18 14:44 / SR		I24 (14410200)_180912A	17	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	09/13/18 12:07 / SR		PHSC_101-H_180913A	137	R138137
Bicarbonate as HCO3	160	mg/L		4		A2320 B	09/13/18 12:07 / SR		PHSC_101-H_180913A	137	R138137
Chloride	4	mg/L		1		E300.0	09/13/18 12:46 / SR		IC METROHM_180913A	13	R138179
Sulfate	45	mg/L		1		E300.0	09/13/18 12:46 / SR		IC METROHM_180913A	13	R138179
Hardness as CaCO3	155	mg/L		1		A2340 B	09/19/18 07:59 / sld		WATERCALC_180919A	1	R138286
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.019	mg/L	J	0.02		E353.2	09/13/18 10:05 / cm		FIA203-HE_180913A	49	R138152
Nitrogen, Total	0.19	mg/L		0.05		A4500 N-C	09/14/18 15:03 / kmd	09/13/18 08:20	FIA203-HE_180914B	40	43087
Phosphorus, Total as P	0.014	mg/L		0.003		E365.1	09/14/18 11:28 / kmd	09/13/18 10:14	FIA202-HE_180914B	17	43079
METALS, DISSOLVED											
Arsenic	0.007	mg/L		0.001		E200.8	09/13/18 14:51 / sld		ICPMS205-H_180913B	75	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 14:51 / sld		ICPMS205-H_180913B	75	R138162
Copper	0.003	mg/L		0.001		E200.8	09/13/18 14:51 / sld		ICPMS205-H_180913B	75	R138162
Lead	0.00005	mg/L	J	0.0003		E200.8	09/13/18 14:51 / sld		ICPMS205-H_180913B	75	R138162
Zinc	0.0040	mg/L	J	0.008		E200.8	09/13/18 14:51 / sld		ICPMS205-H_180913B	75	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.007	mg/L		0.001		E200.8	09/17/18 14:27 / sld	09/13/18 08:22	ICPMS205-H_180917A	111	43072
Cadmium	0.00004	mg/L		0.00003		E200.8	09/17/18 14:27 / sld	09/13/18 08:22	ICPMS205-H_180917A	111	43072
Calcium	43	mg/L		1		E200.7	09/17/18 16:00 / sld	09/13/18 08:22	ICP2-HE_180917B	79	43072
Copper	0.006	mg/L		0.001		E200.8	09/17/18 14:27 / sld	09/13/18 08:22	ICPMS205-H_180917A	111	43072
Lead	0.0003	mg/L		0.0003		E200.8	09/18/18 11:47 / sld	09/13/18 08:22	ICPMS205-H_180918A	71	43072
Magnesium	11	mg/L		1		E200.7	09/17/18 16:00 / sld	09/13/18 08:22	ICP2-HE_180917B	79	43072
Potassium	3	mg/L		1		E200.7	09/17/18 16:00 / sld	09/13/18 08:22	ICP2-HE_180917B	79	43072
Sodium	9	mg/L		1		E200.7	09/17/18 16:00 / sld	09/13/18 08:22	ICP2-HE_180917B	79	43072
Zinc	0.008	mg/L		0.008		E200.8	09/18/18 11:47 / sld	09/13/18 08:22	ICPMS205-H_180918A	71	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Field Blank #1 FC-CFR
Lab ID: H18090238-002
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 11:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	09/12/18 14:44 / SR		I24 (14410200)_180912A	18	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L	J	4		A2320 B	09/13/18 12:19 / SR		PHSC_101-H_180913A	141	R138137
Bicarbonate as HCO3	2	mg/L	J	4		A2320 B	09/13/18 12:19 / SR		PHSC_101-H_180913A	141	R138137
Chloride	ND	mg/L		1		E300.0	09/13/18 13:00 / SR		IC METROHM_180913A	14	R138179
Sulfate	ND	mg/L		1		E300.0	09/13/18 13:00 / SR		IC METROHM_180913A	14	R138179
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	1	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.013	mg/L	J	0.02		E353.2	09/13/18 10:06 / cm		FIA203-HE_180913A	50	R138152
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/14/18 15:05 / kmd	09/13/18 08:20	FIA203-HE_180914B	41	43087
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	09/14/18 11:32 / kmd	09/13/18 10:14	FIA202-HE_180914B	20	43079
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.001		E200.8	09/13/18 14:53 / sld		ICPMS205-H_180913B	76	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 14:53 / sld		ICPMS205-H_180913B	76	R138162
Copper	ND	mg/L		0.001		E200.8	09/13/18 14:53 / sld		ICPMS205-H_180913B	76	R138162
Lead	ND	mg/L		0.0003		E200.8	09/13/18 14:53 / sld		ICPMS205-H_180913B	76	R138162
Zinc	0.0078	mg/L	J	0.008		E200.8	09/13/18 14:53 / sld		ICPMS205-H_180913B	76	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.00012	mg/L	J	0.001		E200.8	09/17/18 14:29 / sld	09/13/18 08:22	ICPMS205-H_180917A	112	43072
Cadmium	ND	mg/L		0.00003		E200.8	09/17/18 14:29 / sld	09/13/18 08:22	ICPMS205-H_180917A	112	43072
Calcium	ND	mg/L		1		E200.7	09/17/18 16:04 / sld	09/13/18 08:22	ICP2-HE_180917B	80	43072
Copper	ND	mg/L		0.001		E200.8	09/17/18 14:29 / sld	09/13/18 08:22	ICPMS205-H_180917A	112	43072
Lead	ND	mg/L		0.0003		E200.8	09/17/18 14:29 / sld	09/13/18 08:22	ICPMS205-H_180917A	112	43072
Magnesium	ND	mg/L		1		E200.7	09/17/18 16:04 / sld	09/13/18 08:22	ICP2-HE_180917B	80	43072
Mercury	ND	mg/L		5E-06		E245.1	09/14/18 12:33 / dck	09/13/18 15:43	HGCV202-H_180914A	16	43081
Potassium	ND	mg/L		1		E200.7	09/17/18 16:04 / sld	09/13/18 08:22	ICP2-HE_180917B	80	43072
Sodium	ND	mg/L		1		E200.7	09/17/18 16:04 / sld	09/13/18 08:22	ICP2-HE_180917B	80	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Field Blank #1 FC-CFR
Lab ID: H18090238-002
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 11:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.001	mg/L	J	0.008		E200.8	09/17/18 14:29 / sld	09/13/18 08:22	ICPMS205-H_180917A	: 112	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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: H18090238-003
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 11:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	9	mg/L		1		A2540 D	09/12/18 14:44 / SR		I24 (14410200)_180912A	19	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	09/13/18 12:25 / SR		PHSC_101-H_180913A	143	R138137
Bicarbonate as HCO3	230	mg/L		4		A2320 B	09/13/18 12:25 / SR		PHSC_101-H_180913A	143	R138137
Chloride	5	mg/L		1		E300.0	09/13/18 13:14 / SR		IC METROHM_180913A	15	R138179
Sulfate	20	mg/L		1		E300.0	09/13/18 13:14 / SR		IC METROHM_180913A	15	R138179
Hardness as CaCO3	190	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	2	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	09/13/18 10:08 / cm		FIA203-HE_180913A	51	R138152
Nitrogen, Total	0.29	mg/L		0.05		A4500 N-C	09/14/18 15:08 / kmd	09/13/18 08:20	FIA203-HE_180914B	44	43087
Phosphorus, Total as P	0.049	mg/L		0.003		E365.1	09/14/18 11:33 / kmd	09/13/18 10:14	FIA202-HE_180914B	21	43079
METALS, DISSOLVED											
Arsenic	0.009	mg/L		0.001		E200.8	09/13/18 14:55 / sld		ICPMS205-H_180913B	77	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 14:55 / sld		ICPMS205-H_180913B	77	R138162
Copper	0.0009	mg/L	J	0.001		E200.8	09/13/18 14:55 / sld		ICPMS205-H_180913B	77	R138162
Lead	0.00014	mg/L	J	0.0003		E200.8	09/13/18 14:55 / sld		ICPMS205-H_180913B	77	R138162
Zinc	0.0028	mg/L	J	0.008		E200.8	09/13/18 14:55 / sld		ICPMS205-H_180913B	77	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.009	mg/L		0.001		E200.8	09/17/18 14:31 / sld	09/13/18 08:22	ICPMS205-H_180917A	113	43072
Cadmium	0.00003	mg/L	J	0.00003		E200.8	09/17/18 14:31 / sld	09/13/18 08:22	ICPMS205-H_180917A	113	43072
Calcium	52	mg/L		1		E200.7	09/17/18 16:07 / sld	09/13/18 08:22	ICP2-HE_180917B	81	43072
Copper	0.002	mg/L		0.001		E200.8	09/17/18 14:31 / sld	09/13/18 08:22	ICPMS205-H_180917A	113	43072
Lead	0.0013	mg/L		0.0003		E200.8	09/17/18 14:31 / sld	09/13/18 08:22	ICPMS205-H_180917A	113	43072
Magnesium	15	mg/L		1		E200.7	09/17/18 16:07 / sld	09/13/18 08:22	ICP2-HE_180917B	81	43072
Mercury	0.0000445	mg/L		5E-06		E245.1	09/14/18 12:36 / dck	09/13/18 15:43	HGCV202-H_180914A	17	43081
Potassium	4	mg/L		1		E200.7	09/17/18 16:07 / sld	09/13/18 08:22	ICP2-HE_180917B	81	43072
Sodium	11	mg/L		1		E200.7	09/17/18 16:07 / sld	09/13/18 08:22	ICP2-HE_180917B	81	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: FC-CFR
Lab ID: H18090238-003
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 11:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.007	mg/L	J	0.008		E200.8	09/17/18 14:31 / sld	09/13/18 08:22	ICPMS205-H_180917A	113	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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: H18090238-004
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 11:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	9	mg/L		1		A2540 D	09/12/18 14:44 / SR		I24 (14410200)_180912A	20	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	09/13/18 12:31 / SR		PHSC_101-H_180913A	145	R138137
Bicarbonate as HCO3	230	mg/L		4		A2320 B	09/13/18 12:31 / SR		PHSC_101-H_180913A	145	R138137
Chloride	5	mg/L		1		E300.0	09/13/18 13:28 / SR		IC METROHM_180913A	16	R138179
Sulfate	20	mg/L		1		E300.0	09/13/18 13:28 / SR		IC METROHM_180913A	16	R138179
Hardness as CaCO3	195	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	3	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	09/13/18 10:09 / cm		FIA203-HE_180913A	52	R138152
Nitrogen, Total	0.28	mg/L		0.05		A4500 N-C	09/14/18 15:09 / kmd	09/13/18 08:20	FIA203-HE_180914B	45	43087
Phosphorus, Total as P	0.051	mg/L		0.003		E365.1	09/14/18 11:34 / kmd	09/13/18 10:14	FIA202-HE_180914B	22	43079
METALS, DISSOLVED											
Arsenic	0.008	mg/L		0.001		E200.8	09/13/18 14:57 / sld		ICPMS205-H_180913B	78	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 14:57 / sld		ICPMS205-H_180913B	78	R138162
Copper	0.0010	mg/L	J	0.001		E200.8	09/13/18 14:57 / sld		ICPMS205-H_180913B	78	R138162
Lead	0.00012	mg/L	J	0.0003		E200.8	09/13/18 14:57 / sld		ICPMS205-H_180913B	78	R138162
Zinc	0.0030	mg/L	J	0.008		E200.8	09/13/18 14:57 / sld		ICPMS205-H_180913B	78	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.009	mg/L		0.001		E200.8	09/17/18 14:43 / sld	09/13/18 08:22	ICPMS205-H_180917A	119	43072
Cadmium	0.00003	mg/L	J	0.00003		E200.8	09/17/18 14:43 / sld	09/13/18 08:22	ICPMS205-H_180917A	119	43072
Calcium	53	mg/L		1		E200.7	09/17/18 16:11 / sld	09/13/18 08:22	ICP2-HE_180917B	82	43072
Copper	0.002	mg/L		0.001		E200.8	09/17/18 14:43 / sld	09/13/18 08:22	ICPMS205-H_180917A	119	43072
Lead	0.0013	mg/L		0.0003		E200.8	09/17/18 14:43 / sld	09/13/18 08:22	ICPMS205-H_180917A	119	43072
Magnesium	15	mg/L		1		E200.7	09/17/18 16:11 / sld	09/13/18 08:22	ICP2-HE_180917B	82	43072
Mercury	0.0000774	mg/L		5E-06		E245.1	09/14/18 12:39 / dck	09/13/18 15:43	HGCV202-H_180914A	18	43081
Potassium	4	mg/L		1		E200.7	09/17/18 16:11 / sld	09/13/18 08:22	ICP2-HE_180917B	82	43072
Sodium	11	mg/L		1		E200.7	09/17/18 16:11 / sld	09/13/18 08:22	ICP2-HE_180917B	82	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: FC-CFR Duplicate
Lab ID: H18090238-004
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 11:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.007	mg/L	J	0.008		E200.8	09/17/18 14:43 / sld	09/13/18 08:22	ICPMS205-H_180917A	: 119	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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: H18090238-005
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 13:30
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	4	mg/L		1		A2540 D	09/12/18 14:45 / SR		I24 (14410200)_180912A	21	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	09/13/18 12:38 / SR		PHSC_101-H_180913A	147	R138137
Bicarbonate as HCO3	160	mg/L		4		A2320 B	09/13/18 12:38 / SR		PHSC_101-H_180913A	147	R138137
Chloride	3	mg/L		1		E300.0	09/13/18 15:06 / SR		IC METROHM_180913A	22	R138179
Sulfate	14	mg/L		1		E300.0	09/13/18 15:06 / SR		IC METROHM_180913A	22	R138179
Hardness as CaCO3	129	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	4	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.009	mg/L	J	0.02		E353.2	09/13/18 10:10 / cm		FIA203-HE_180913A	53	R138152
Nitrogen, Total	0.15	mg/L		0.05		A4500 N-C	09/14/18 15:11 / kmd	09/13/18 08:20	FIA203-HE_180914B	46	43087
Phosphorus, Total as P	0.029	mg/L		0.003		E365.1	09/14/18 11:35 / kmd	09/13/18 10:14	FIA202-HE_180914B	23	43079
METALS, DISSOLVED											
Arsenic	0.005	mg/L		0.001		E200.8	09/13/18 14:59 / sld		ICPMS205-H_180913B	79	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 14:59 / sld		ICPMS205-H_180913B	79	R138162
Copper	0.0007	mg/L	J	0.001		E200.8	09/13/18 14:59 / sld		ICPMS205-H_180913B	79	R138162
Lead	ND	mg/L		0.0003		E200.8	09/13/18 14:59 / sld		ICPMS205-H_180913B	79	R138162
Zinc	0.0031	mg/L	J	0.008		E200.8	09/13/18 14:59 / sld		ICPMS205-H_180913B	79	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.006	mg/L		0.001		E200.8	09/17/18 14:45 / sld	09/13/18 08:22	ICPMS205-H_180917A	120	43072
Cadmium	ND	mg/L		0.00003		E200.8	09/17/18 14:45 / sld	09/13/18 08:22	ICPMS205-H_180917A	120	43072
Calcium	38	mg/L		1		E200.7	09/17/18 16:37 / sld	09/13/18 08:22	ICP2-HE_180917B	89	43072
Copper	0.0009	mg/L	J	0.001		E200.8	09/17/18 14:45 / sld	09/13/18 08:22	ICPMS205-H_180917A	120	43072
Lead	ND	mg/L		0.0003		E200.8	09/17/18 14:45 / sld	09/13/18 08:22	ICPMS205-H_180917A	120	43072
Magnesium	8	mg/L		1		E200.7	09/17/18 16:37 / sld	09/13/18 08:22	ICP2-HE_180917B	89	43072
Potassium	2	mg/L		1		E200.7	09/17/18 16:37 / sld	09/13/18 08:22	ICP2-HE_180917B	89	43072
Sodium	7	mg/L		1		E200.7	09/17/18 16:37 / sld	09/13/18 08:22	ICP2-HE_180917B	89	43072
Zinc	0.003	mg/L	J	0.008		E200.8	09/17/18 14:45 / sld	09/13/18 08:22	ICPMS205-H_180917A	120	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-34
Lab ID: H18090238-006
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 15:00
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	7	mg/L		1		A2540 D	09/12/18 14:45 / SR		I24 (14410200)_180912A	22	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	09/13/18 12:44 / SR		PHSC_101-H_180913A	149	R138137
Bicarbonate as HCO3	190	mg/L		4		A2320 B	09/13/18 12:44 / SR		PHSC_101-H_180913A	149	R138137
Chloride	9	mg/L		1		E300.0	09/13/18 15:21 / SR		IC METROHM_180913A	23	R138179
Sulfate	69	mg/L		1		E300.0	09/13/18 15:21 / SR		IC METROHM_180913A	23	R138179
Hardness as CaCO3	214	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	5	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.02		E353.2	09/13/18 10:11 / cm		FIA203-HE_180913A	54	R138152
Nitrogen, Total	0.36	mg/L		0.05		A4500 N-C	09/14/18 15:18 / kmd	09/13/18 09:40	FIA203-HE_180914B	51	43088
Phosphorus, Total as P	0.029	mg/L		0.003		E365.1	09/14/18 12:01 / kmd	09/13/18 10:14	FIA202-HE_180914B	45	43079
METALS, DISSOLVED											
Arsenic	0.016	mg/L		0.001		E200.8	09/13/18 15:01 / sld		ICPMS205-H_180913B	80	R138162
Cadmium	0.00006	mg/L		0.00003		E200.8	09/13/18 15:01 / sld		ICPMS205-H_180913B	80	R138162
Copper	0.009	mg/L		0.001		E200.8	09/13/18 15:01 / sld		ICPMS205-H_180913B	80	R138162
Lead	0.00017	mg/L	J	0.0003		E200.8	09/13/18 15:01 / sld		ICPMS205-H_180913B	80	R138162
Zinc	0.0067	mg/L	J	0.008		E200.8	09/13/18 15:01 / sld		ICPMS205-H_180913B	80	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.016	mg/L		0.001		E200.8	09/17/18 14:46 / sld	09/13/18 08:22	ICPMS205-H_180917A	121	43072
Cadmium	0.00020	mg/L		0.00003		E200.8	09/17/18 14:46 / sld	09/13/18 08:22	ICPMS205-H_180917A	121	43072
Calcium	62	mg/L		1		E200.7	09/17/18 16:41 / sld	09/13/18 08:22	ICP2-HE_180917B	90	43072
Copper	0.018	mg/L		0.001		E200.8	09/17/18 14:46 / sld	09/13/18 08:22	ICPMS205-H_180917A	121	43072
Lead	0.0012	mg/L		0.0003		E200.8	09/17/18 14:46 / sld	09/13/18 08:22	ICPMS205-H_180917A	121	43072
Magnesium	14	mg/L		1		E200.7	09/17/18 16:41 / sld	09/13/18 08:22	ICP2-HE_180917B	90	43072
Potassium	3	mg/L		1		E200.7	09/17/18 16:41 / sld	09/13/18 08:22	ICP2-HE_180917B	90	43072
Sodium	16	mg/L		1		E200.7	09/17/18 16:41 / sld	09/13/18 08:22	ICP2-HE_180917B	90	43072
Zinc	0.015	mg/L		0.008		E200.8	09/17/18 14:46 / sld	09/13/18 08:22	ICPMS205-H_180917A	121	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-27H
Lab ID: H18090238-007
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 16:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	09/12/18 14:45 / SR		I24 (14410200)_180912A	23	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	09/13/18 12:50 / SR		PHSC_101-H_180913A	151	R138137
Bicarbonate as HCO3	180	mg/L		4		A2320 B	09/13/18 12:50 / SR		PHSC_101-H_180913A	151	R138137
Chloride	8	mg/L		1		E300.0	09/13/18 15:35 / SR		IC METROHM_180913A	24	R138179
Sulfate	71	mg/L		1		E300.0	09/13/18 15:35 / SR		IC METROHM_180913A	24	R138179
Hardness as CaCO3	203	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	6	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.02		E353.2	09/13/18 10:17 / cm		FIA203-HE_180913A	59	R138152
Nitrogen, Total	0.37	mg/L		0.05		A4500 N-C	09/14/18 15:20 / kmd	09/13/18 09:40	FIA203-HE_180914B	52	43088
Phosphorus, Total as P	0.023	mg/L		0.003		E365.1	09/14/18 11:37 / kmd	09/13/18 10:14	FIA202-HE_180914B	25	43079
METALS, DISSOLVED											
Arsenic	0.016	mg/L		0.001		E200.8	09/13/18 15:03 / sld		ICPMS205-H_180913B	81	R138162
Cadmium	0.00005	mg/L		0.00003		E200.8	09/13/18 15:03 / sld		ICPMS205-H_180913B	81	R138162
Copper	0.009	mg/L		0.001		E200.8	09/13/18 15:03 / sld		ICPMS205-H_180913B	81	R138162
Lead	0.00017	mg/L	J	0.0003		E200.8	09/13/18 15:03 / sld		ICPMS205-H_180913B	81	R138162
Zinc	0.0060	mg/L	J	0.008		E200.8	09/13/18 15:03 / sld		ICPMS205-H_180913B	81	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.016	mg/L		0.001		E200.8	09/17/18 14:48 / sld	09/13/18 08:22	ICPMS205-H_180917A	122	43072
Cadmium	0.00008	mg/L		0.00003		E200.8	09/17/18 14:48 / sld	09/13/18 08:22	ICPMS205-H_180917A	122	43072
Calcium	60	mg/L		1		E200.7	09/17/18 16:45 / sld	09/13/18 08:22	ICP2-HE_180917B	91	43072
Copper	0.016	mg/L		0.001		E200.8	09/17/18 14:48 / sld	09/13/18 08:22	ICPMS205-H_180917A	122	43072
Lead	0.0011	mg/L		0.0003		E200.8	09/17/18 14:48 / sld	09/13/18 08:22	ICPMS205-H_180917A	122	43072
Magnesium	13	mg/L		1		E200.7	09/17/18 16:45 / sld	09/13/18 08:22	ICP2-HE_180917B	91	43072
Potassium	3	mg/L		1		E200.7	09/17/18 16:45 / sld	09/13/18 08:22	ICP2-HE_180917B	91	43072
Sodium	14	mg/L		1		E200.7	09/17/18 16:45 / sld	09/13/18 08:22	ICP2-HE_180917B	91	43072
Zinc	0.012	mg/L		0.008		E200.8	09/17/18 14:48 / sld	09/13/18 08:22	ICPMS205-H_180917A	122	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-11F
Lab ID: H18090238-008
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 17:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	09/12/18 14:45 / SR		I24 (14410200)_180912A	24	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	140	mg/L		4		A2320 B	09/13/18 12:57 / SR		PHSC_101-H_180913A	153	R138137
Bicarbonate as HCO3	150	mg/L		4		A2320 B	09/13/18 12:57 / SR		PHSC_101-H_180913A	153	R138137
Chloride	7	mg/L		1		E300.0	09/13/18 15:49 / SR		IC METROHM_180913A	25	R138179
Sulfate	75	mg/L		1		E300.0	09/13/18 15:49 / SR		IC METROHM_180913A	25	R138179
Hardness as CaCO3	200	mg/L		1		A2340 B	09/19/18 07:59 / sld		WATERCALC_180919A	2	R138286
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.020	mg/L	J	0.02		E353.2	09/13/18 10:21 / cm		FIA203-HE_180913A	62	R138152
Nitrogen, Total	0.26	mg/L		0.05		A4500 N-C	09/14/18 15:21 / kmd	09/13/18 09:40	FIA203-HE_180914B	53	43088
Phosphorus, Total as P	0.023	mg/L		0.003		E365.1	09/14/18 11:39 / kmd	09/13/18 10:14	FIA202-HE_180914B	26	43079
METALS, DISSOLVED											
Arsenic	0.016	mg/L		0.001		E200.8	09/13/18 15:05 / sld		ICPMS205-H_180913B	82	R138162
Cadmium	0.00003	mg/L	J	0.00003		E200.8	09/13/18 15:05 / sld		ICPMS205-H_180913B	82	R138162
Copper	0.006	mg/L		0.001		E200.8	09/13/18 15:05 / sld		ICPMS205-H_180913B	82	R138162
Lead	0.00013	mg/L	J	0.0003		E200.8	09/13/18 15:05 / sld		ICPMS205-H_180913B	82	R138162
Zinc	0.0031	mg/L	J	0.008		E200.8	09/13/18 15:05 / sld		ICPMS205-H_180913B	82	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.015	mg/L		0.001		E200.8	09/17/18 14:50 / sld	09/13/18 08:22	ICPMS205-H_180917A	123	43072
Cadmium	0.00005	mg/L		0.00003		E200.8	09/17/18 14:50 / sld	09/13/18 08:22	ICPMS205-H_180917A	123	43072
Calcium	58	mg/L		1		E200.7	09/17/18 16:49 / sld	09/13/18 08:22	ICP2-HE_180917B	92	43072
Copper	0.008	mg/L		0.001		E200.8	09/17/18 14:50 / sld	09/13/18 08:22	ICPMS205-H_180917A	123	43072
Lead	0.0005	mg/L		0.0003		E200.8	09/18/18 11:49 / sld	09/13/18 08:22	ICPMS205-H_180918A	72	43072
Magnesium	14	mg/L		1		E200.7	09/17/18 16:49 / sld	09/13/18 08:22	ICP2-HE_180917B	92	43072
Potassium	3	mg/L		1		E200.7	09/17/18 16:49 / sld	09/13/18 08:22	ICP2-HE_180917B	92	43072
Sodium	12	mg/L		1		E200.7	09/17/18 16:49 / sld	09/13/18 08:22	ICP2-HE_180917B	92	43072
Zinc	0.006	mg/L	J	0.008		E200.8	09/17/18 14:50 / sld	09/13/18 08:22	ICPMS205-H_180917A	123	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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: H18090238-009
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 08:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	4	mg/L		1		A2540 D	09/12/18 14:46 / SR		I24 (14410200)_180912A	27	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	09/13/18 13:04 / SR		PHSC_101-H_180913A	155	R138137
Bicarbonate as HCO3	160	mg/L		4		A2320 B	09/13/18 13:04 / SR		PHSC_101-H_180913A	155	R138137
Chloride	7	mg/L		1		E300.0	09/13/18 16:03 / SR		IC METROHM_180913A	26	R138179
Sulfate	72	mg/L		1		E300.0	09/13/18 16:03 / SR		IC METROHM_180913A	26	R138179
Hardness as CaCO3	186	mg/L		1		A2340 B	09/19/18 07:59 / sld		WATERCALC_180919A	3	R138286
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.02		E353.2	09/13/18 10:22 / cm		FIA203-HE_180913A	63	R138152
Nitrogen, Total	0.28	mg/L		0.05		A4500 N-C	09/14/18 15:22 / kmd	09/13/18 09:40	FIA203-HE_180914B	54	43088
Phosphorus, Total as P	0.023	mg/L		0.003		E365.1	09/14/18 11:54 / kmd	09/13/18 10:14	FIA202-HE_180914B	40	43079
METALS, DISSOLVED											
Arsenic	0.014	mg/L		0.001		E200.8	09/13/18 15:19 / sld		ICPMS205-H_180913B	89	R138162
Cadmium	0.00004	mg/L		0.00003		E200.8	09/13/18 15:19 / sld		ICPMS205-H_180913B	89	R138162
Copper	0.005	mg/L		0.001		E200.8	09/13/18 15:19 / sld		ICPMS205-H_180913B	89	R138162
Lead	0.00013	mg/L	J	0.0003		E200.8	09/13/18 15:19 / sld		ICPMS205-H_180913B	89	R138162
Zinc	0.0054	mg/L	J	0.008		E200.8	09/13/18 15:19 / sld		ICPMS205-H_180913B	89	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.014	mg/L		0.001		E200.8	09/17/18 14:52 / sld	09/13/18 08:22	ICPMS205-H_180917A	124	43072
Cadmium	0.00006	mg/L		0.00003		E200.8	09/17/18 14:52 / sld	09/13/18 08:22	ICPMS205-H_180917A	124	43072
Calcium	54	mg/L		1		E200.7	09/17/18 16:52 / sld	09/13/18 08:22	ICP2-HE_180917B	93	43072
Copper	0.010	mg/L		0.001		E200.8	09/17/18 14:52 / sld	09/13/18 08:22	ICPMS205-H_180917A	124	43072
Lead	0.0008	mg/L		0.0003		E200.8	09/18/18 11:51 / sld	09/13/18 08:22	ICPMS205-H_180918A	73	43072
Magnesium	12	mg/L		1		E200.7	09/17/18 16:52 / sld	09/13/18 08:22	ICP2-HE_180917B	93	43072
Potassium	2	mg/L		1		E200.7	09/17/18 16:52 / sld	09/13/18 08:22	ICP2-HE_180917B	93	43072
Sodium	11	mg/L		1		E200.7	09/17/18 16:52 / sld	09/13/18 08:22	ICP2-HE_180917B	93	43072
Zinc	0.012	mg/L		0.008		E200.8	09/17/18 14:52 / sld	09/13/18 08:22	ICPMS205-H_180917A	124	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-07D Duplicate
Lab ID: H18090238-010
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 08:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	5	mg/L		1		A2540 D	09/12/18 14:47 / SR		I24 (14410200)_180912A	29	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	09/13/18 13:09 / SR		PHSC_101-H_180913A	157	R138137
Bicarbonate as HCO3	160	mg/L		4		A2320 B	09/13/18 13:09 / SR		PHSC_101-H_180913A	157	R138137
Chloride	7	mg/L		1		E300.0	09/13/18 16:17 / SR		IC METROHM_180913A	27	R138179
Sulfate	72	mg/L		1		E300.0	09/13/18 16:17 / SR		IC METROHM_180913A	27	R138179
Hardness as CaCO3	181	mg/L		1		A2340 B	09/19/18 07:59 / sld		WATERCALC_180919A	4	R138286
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.02		E353.2	09/13/18 10:23 / cm		FIA203-HE_180913A	64	R138152
Nitrogen, Total	0.26	mg/L		0.05		A4500 N-C	09/14/18 15:23 / kmd	09/13/18 09:40	FIA203-HE_180914B	55	43088
Phosphorus, Total as P	0.023	mg/L		0.003		E365.1	09/14/18 11:46 / kmd	09/13/18 10:14	FIA202-HE_180914B	33	43079
METALS, DISSOLVED											
Arsenic	0.014	mg/L		0.001		E200.8	09/13/18 15:20 / sld		ICPMS205-H_180913B	90	R138162
Cadmium	0.00004	mg/L		0.00003		E200.8	09/13/18 15:20 / sld		ICPMS205-H_180913B	90	R138162
Copper	0.005	mg/L		0.001		E200.8	09/13/18 15:20 / sld		ICPMS205-H_180913B	90	R138162
Lead	0.00012	mg/L	J	0.0003		E200.8	09/13/18 15:20 / sld		ICPMS205-H_180913B	90	R138162
Zinc	0.0049	mg/L	J	0.008		E200.8	09/13/18 15:20 / sld		ICPMS205-H_180913B	90	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.015	mg/L		0.001		E200.8	09/17/18 15:06 / sld	09/13/18 08:22	ICPMS205-H_180917A	131	43072
Cadmium	0.00007	mg/L		0.00003		E200.8	09/17/18 15:06 / sld	09/13/18 08:22	ICPMS205-H_180917A	131	43072
Calcium	53	mg/L		1		E200.7	09/17/18 16:56 / sld	09/13/18 08:22	ICP2-HE_180917B	94	43072
Copper	0.011	mg/L		0.001		E200.8	09/17/18 15:06 / sld	09/13/18 08:22	ICPMS205-H_180917A	131	43072
Lead	0.0009	mg/L		0.0003		E200.8	09/18/18 11:53 / sld	09/13/18 08:22	ICPMS205-H_180918A	74	43072
Magnesium	12	mg/L		1		E200.7	09/17/18 16:56 / sld	09/13/18 08:22	ICP2-HE_180917B	94	43072
Potassium	2	mg/L		1		E200.7	09/17/18 16:56 / sld	09/13/18 08:22	ICP2-HE_180917B	94	43072
Sodium	11	mg/L		1		E200.7	09/17/18 16:56 / sld	09/13/18 08:22	ICP2-HE_180917B	94	43072
Zinc	0.009	mg/L		0.008		E200.8	09/18/18 11:53 / sld	09/13/18 08:22	ICPMS205-H_180918A	74	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-03A
Lab ID: H18090238-011
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 10:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/12/18 14:47 / SR		I24 (14410200)_180912A	30	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	09/13/18 13:16 / SR		PHSC_101-H_180913A	159	R138137
Bicarbonate as HCO3	130	mg/L		4		A2320 B	09/13/18 13:16 / SR		PHSC_101-H_180913A	159	R138137
Chloride	7	mg/L		1		E300.0	09/13/18 16:31 / SR		IC METROHM_180913A	28	R138179
Sulfate	58	mg/L		1		E300.0	09/13/18 16:31 / SR		IC METROHM_180913A	28	R138179
Hardness as CaCO3	158	mg/L		1		A2340 B	09/19/18 07:59 / sld		WATERCALC_180919A	5	R138286
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02		E353.2	09/13/18 10:24 / cm		FIA203-HE_180913A	65	R138152
Nitrogen, Total	0.23	mg/L		0.05		A4500 N-C	09/14/18 15:24 / kmd	09/13/18 09:40	FIA203-HE_180914B	56	43088
Phosphorus, Total as P	0.028	mg/L		0.003		E365.1	09/14/18 11:48 / kmd	09/13/18 10:14	FIA202-HE_180914B	34	43079
METALS, DISSOLVED											
Arsenic	0.014	mg/L		0.001		E200.8	09/13/18 15:22 / sld		ICPMS205-H_180913B	91	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 15:22 / sld		ICPMS205-H_180913B	91	R138162
Copper	0.004	mg/L		0.001		E200.8	09/13/18 15:22 / sld		ICPMS205-H_180913B	91	R138162
Lead	0.00010	mg/L	J	0.0003		E200.8	09/13/18 15:22 / sld		ICPMS205-H_180913B	91	R138162
Zinc	0.0045	mg/L	J	0.008		E200.8	09/14/18 14:35 / sld		ICPMS205-H_180914C	28	R138203
METALS, TOTAL RECOVERABLE											
Arsenic	0.014	mg/L		0.001		E200.8	09/17/18 15:08 / sld	09/13/18 08:22	ICPMS205-H_180917A	132	43072
Cadmium	0.00004	mg/L		0.00003		E200.8	09/17/18 15:08 / sld	09/13/18 08:22	ICPMS205-H_180917A	132	43072
Calcium	46	mg/L		1		E200.7	09/17/18 17:22 / sld	09/13/18 08:22	ICP2-HE_180917B	101	43072
Copper	0.006	mg/L		0.001		E200.8	09/17/18 15:08 / sld	09/13/18 08:22	ICPMS205-H_180917A	132	43072
Lead	0.0003	mg/L		0.0003		E200.8	09/18/18 11:55 / sld	09/13/18 08:22	ICPMS205-H_180918A	75	43072
Magnesium	10	mg/L		1		E200.7	09/17/18 17:22 / sld	09/13/18 08:22	ICP2-HE_180917B	101	43072
Potassium	2	mg/L		1		E200.7	09/17/18 17:22 / sld	09/13/18 08:22	ICP2-HE_180917B	101	43072
Sodium	10	mg/L		1		E200.7	09/17/18 17:22 / sld	09/13/18 08:22	ICP2-HE_180917B	101	43072
Zinc	0.004	mg/L	J	0.008		E200.8	09/17/18 15:08 / sld	09/13/18 08:22	ICPMS205-H_180917A	132	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: WSC-SBC
Lab ID: H18090238-012
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 11:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	09/12/18 14:47 / SR		I24 (14410200)_180912A	31	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	09/13/18 13:22 / SR		PHSC_101-H_180913A	161	R138137
Bicarbonate as HCO3	160	mg/L		4		A2320 B	09/13/18 13:22 / SR		PHSC_101-H_180913A	161	R138137
Chloride	2	mg/L		1		E300.0	09/13/18 16:45 / SR		IC METROHM_180913A	29	R138179
Sulfate	26	mg/L		1		E300.0	09/13/18 16:45 / SR		IC METROHM_180913A	29	R138179
Hardness as CaCO3	151	mg/L		1		A2340 B	09/19/18 07:59 / sld		WATERCALC_180919A	6	R138286
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.02		E353.2	09/13/18 10:25 / cm		FIA203-HE_180913A	66	R138152
Nitrogen, Total	0.15	mg/L		0.05		A4500 N-C	09/14/18 15:26 / kmd	09/13/18 09:40	FIA203-HE_180914B	57	43088
Phosphorus, Total as P	0.009	mg/L		0.003		E365.1	09/14/18 11:49 / kmd	09/13/18 10:14	FIA202-HE_180914B	35	43079
METALS, DISSOLVED											
Arsenic	0.005	mg/L		0.001		E200.8	09/13/18 15:24 / sld		ICPMS205-H_180913B	92	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 15:24 / sld		ICPMS205-H_180913B	92	R138162
Copper	0.002	mg/L		0.001		E200.8	09/13/18 15:24 / sld		ICPMS205-H_180913B	92	R138162
Lead	0.00007	mg/L	J	0.0003		E200.8	09/13/18 15:24 / sld		ICPMS205-H_180913B	92	R138162
Zinc	0.0047	mg/L	J	0.008		E200.8	09/13/18 15:24 / sld		ICPMS205-H_180913B	92	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.006	mg/L		0.001		E200.8	09/17/18 15:10 / sld	09/13/18 08:22	ICPMS205-H_180917A	133	43072
Cadmium	0.00004	mg/L		0.00003		E200.8	09/17/18 15:10 / sld	09/13/18 08:22	ICPMS205-H_180917A	133	43072
Calcium	45	mg/L		1		E200.7	09/17/18 17:26 / sld	09/13/18 08:22	ICP2-HE_180917B	102	43072
Copper	0.007	mg/L		0.001		E200.8	09/17/18 15:10 / sld	09/13/18 08:22	ICPMS205-H_180917A	133	43072
Lead	0.0006	mg/L		0.0003		E200.8	09/18/18 11:57 / sld	09/13/18 08:22	ICPMS205-H_180918A	76	43072
Magnesium	9	mg/L		1		E200.7	09/17/18 17:26 / sld	09/13/18 08:22	ICP2-HE_180917B	102	43072
Potassium	1	mg/L		1		E200.7	09/17/18 17:26 / sld	09/13/18 08:22	ICP2-HE_180917B	102	43072
Sodium	4	mg/L		1		E200.7	09/17/18 17:26 / sld	09/13/18 08:22	ICP2-HE_180917B	102	43072
Zinc	0.005	mg/L	J	0.008		E200.8	09/17/18 15:10 / sld	09/13/18 08:22	ICPMS205-H_180917A	133	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SS-25
Lab ID: H18090238-013
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 12:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/12/18 14:47 / SR		I24 (14410200)_180912A	32	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	09/13/18 13:27 / SR		PHSC_101-H_180913A	163	R138137
Bicarbonate as HCO3	70	mg/L		4		A2320 B	09/13/18 13:27 / SR		PHSC_101-H_180913A	163	R138137
Chloride	14	mg/L		1		E300.0	09/13/18 18:24 / SR		IC METROHM_180913A	35	R138179
Sulfate	94	mg/L		1		E300.0	09/13/18 18:24 / SR		IC METROHM_180913A	35	R138179
Hardness as CaCO3	181	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	7	R138258
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/14/18 11:30 / kmd		FIA203-HE_180914A	77	R138198
Nitrogen, Nitrate+Nitrite as N	0.012	mg/L	J	0.02		E353.2	09/13/18 10:27 / cm		FIA203-HE_180913A	67	R138152
Nitrogen, Total	0.39	mg/L		0.05		A4500 N-C	09/14/18 15:27 / kmd	09/13/18 09:40	FIA203-HE_180914B	58	43088
Phosphorus, Total as P	0.060	mg/L		0.003		E365.1	09/14/18 11:50 / kmd	09/13/18 10:14	FIA202-HE_180914B	36	43079
METALS, DISSOLVED											
Arsenic	0.025	mg/L		0.001		E200.8	09/13/18 15:26 / sld		ICPMS205-H_180913B	93	R138162
Cadmium	0.00003	mg/L		0.00003		E200.8	09/13/18 15:26 / sld		ICPMS205-H_180913B	93	R138162
Copper	0.004	mg/L		0.001		E200.8	09/13/18 15:26 / sld		ICPMS205-H_180913B	93	R138162
Lead	0.00012	mg/L	J	0.0003		E200.8	09/13/18 15:26 / sld		ICPMS205-H_180913B	93	R138162
Zinc	0.0021	mg/L	J	0.008		E200.8	09/13/18 15:26 / sld		ICPMS205-H_180913B	93	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.026	mg/L		0.001		E200.8	09/17/18 15:12 / sld	09/13/18 08:22	ICPMS205-H_180917A	134	43072
Cadmium	0.00004	mg/L		0.00003		E200.8	09/17/18 15:12 / sld	09/13/18 08:22	ICPMS205-H_180917A	134	43072
Calcium	51	mg/L		1		E200.7	09/17/18 17:30 / sld	09/13/18 08:22	ICP2-HE_180917B	103	43072
Copper	0.004	mg/L		0.001		E200.8	09/17/18 15:12 / sld	09/13/18 08:22	ICPMS205-H_180917A	134	43072
Lead	0.00017	mg/L	J	0.0003		E200.8	09/17/18 15:12 / sld	09/13/18 08:22	ICPMS205-H_180917A	134	43072
Magnesium	13	mg/L		1		E200.7	09/17/18 17:30 / sld	09/13/18 08:22	ICP2-HE_180917B	103	43072
Potassium	3	mg/L		1		E200.7	09/17/18 17:30 / sld	09/13/18 08:22	ICP2-HE_180917B	103	43072
Sodium	18	mg/L		1		E200.7	09/17/18 17:30 / sld	09/13/18 08:22	ICP2-HE_180917B	103	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Client Sample ID: SS-25
Collection Date: 09/11/18 12:15
DateReceived: 09/12/18
Lab ID: H18090238-013
Report Date: 10/14/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.005	mg/L	J	0.008		E200.8	09/17/18 15:12 / sld	09/13/18 08:22	ICPMS205-H_180917A	: 134	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Field Blank #2 MWB-SBC
Lab ID: H18090238-014
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 13:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1		A2540 D	09/12/18 14:48 / SR		I24 (14410200)_180912A	33	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L	J	4		A2320 B	09/13/18 13:34 / SR		PHSC_101-H_180913A	165	R138137
Bicarbonate as HCO3	2	mg/L	J	4		A2320 B	09/13/18 13:34 / SR		PHSC_101-H_180913A	165	R138137
Chloride	ND	mg/L		1		E300.0	09/13/18 16:59 / SR		IC METROHM_180913A	30	R138179
Sulfate	ND	mg/L		1		E300.0	09/13/18 16:59 / SR		IC METROHM_180913A	30	R138179
Hardness as CaCO3	ND	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	8	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02		E353.2	09/13/18 10:28 / cm		FIA203-HE_180913A	68	R138152
Nitrogen, Total	ND	mg/L		0.05		A4500 N-C	09/14/18 15:28 / kmd	09/13/18 09:40	FIA203-HE_180914B	59	43088
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	09/14/18 11:51 / kmd	09/13/18 10:14	FIA202-HE_180914B	37	43079
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.001		E200.8	09/13/18 15:28 / sld		ICPMS205-H_180913B	94	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 15:28 / sld		ICPMS205-H_180913B	94	R138162
Copper	ND	mg/L		0.001		E200.8	09/13/18 15:28 / sld		ICPMS205-H_180913B	94	R138162
Lead	ND	mg/L		0.0003		E200.8	09/13/18 15:28 / sld		ICPMS205-H_180913B	94	R138162
Zinc	0.0069	mg/L	J	0.008		E200.8	09/13/18 15:28 / sld		ICPMS205-H_180913B	94	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.00013	mg/L	J	0.001		E200.8	09/17/18 15:14 / sld	09/13/18 08:22	ICPMS205-H_180917A	135	43072
Cadmium	ND	mg/L		0.00003		E200.8	09/17/18 15:14 / sld	09/13/18 08:22	ICPMS205-H_180917A	135	43072
Calcium	ND	mg/L		1		E200.7	09/17/18 17:34 / sld	09/13/18 08:22	ICP2-HE_180917B	104	43072
Copper	ND	mg/L		0.001		E200.8	09/17/18 15:14 / sld	09/13/18 08:22	ICPMS205-H_180917A	135	43072
Lead	ND	mg/L		0.0003		E200.8	09/17/18 15:14 / sld	09/13/18 08:22	ICPMS205-H_180917A	135	43072
Magnesium	ND	mg/L		1		E200.7	09/17/18 17:34 / sld	09/13/18 08:22	ICP2-HE_180917B	104	43072
Potassium	ND	mg/L		1		E200.7	09/17/18 17:34 / sld	09/13/18 08:22	ICP2-HE_180917B	104	43072
Sodium	ND	mg/L		1		E200.7	09/17/18 17:34 / sld	09/13/18 08:22	ICP2-HE_180917B	104	43072
Zinc	0.002	mg/L	J	0.008		E200.8	09/17/18 15:14 / sld	09/13/18 08:22	ICPMS205-H_180917A	135	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: MWB-SBC
Lab ID: H18090238-015
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 13:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	2	mg/L		1		A2540 D	09/12/18 14:48 / SR		I24 (14410200)_180912A	34	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	09/13/18 13:40 / SR		PHSC_101-H_180913A	167	R138137
Bicarbonate as HCO3	130	mg/L		4		A2320 B	09/13/18 13:40 / SR		PHSC_101-H_180913A	167	R138137
Chloride	7	mg/L		1		E300.0	09/13/18 18:38 / SR		IC METROHM_180913A	36	R138179
Sulfate	135	mg/L		1		E300.0	09/13/18 18:38 / SR		IC METROHM_180913A	36	R138179
Hardness as CaCO3	233	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	9	R138258
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.02		E353.2	09/13/18 10:29 / cm		FIA203-HE_180913A	69	R138152
Nitrogen, Total	0.21	mg/L		0.05		A4500 N-C	09/14/18 15:31 / kmd	09/13/18 09:40	FIA203-HE_180914B	62	43088
Phosphorus, Total as P	0.014	mg/L		0.003		E365.1	09/14/18 11:52 / kmd	09/13/18 10:14	FIA202-HE_180914B	38	43079
METALS, DISSOLVED											
Arsenic	0.019	mg/L		0.001		E200.8	09/13/18 15:30 / sld		ICPMS205-H_180913B	95	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 15:30 / sld		ICPMS205-H_180913B	95	R138162
Copper	0.002	mg/L		0.001		E200.8	09/13/18 15:30 / sld		ICPMS205-H_180913B	95	R138162
Lead	0.00008	mg/L	J	0.0003		E200.8	09/13/18 15:30 / sld		ICPMS205-H_180913B	95	R138162
Zinc	0.0030	mg/L	J	0.008		E200.8	09/13/18 15:30 / sld		ICPMS205-H_180913B	95	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.019	mg/L		0.001		E200.8	09/17/18 15:16 / sld	09/13/18 08:22	ICPMS205-H_180917A	136	43072
Cadmium	0.00003	mg/L	J	0.00003		E200.8	09/17/18 15:16 / sld	09/13/18 08:22	ICPMS205-H_180917A	136	43072
Calcium	68	mg/L		1		E200.7	09/17/18 17:38 / sld	09/13/18 08:22	ICP2-HE_180917B	105	43072
Copper	0.002	mg/L		0.001		E200.8	09/17/18 15:16 / sld	09/13/18 08:22	ICPMS205-H_180917A	136	43072
Lead	0.00018	mg/L	J	0.0003		E200.8	09/17/18 15:16 / sld	09/13/18 08:22	ICPMS205-H_180917A	136	43072
Magnesium	15	mg/L		1		E200.7	09/17/18 17:38 / sld	09/13/18 08:22	ICP2-HE_180917B	105	43072
Potassium	3	mg/L		1		E200.7	09/17/18 17:38 / sld	09/13/18 08:22	ICP2-HE_180917B	105	43072
Sodium	13	mg/L		1		E200.7	09/17/18 17:38 / sld	09/13/18 08:22	ICP2-HE_180917B	105	43072
Zinc	0.005	mg/L	J	0.008		E200.8	09/17/18 15:16 / sld	09/13/18 08:22	ICPMS205-H_180917A	136	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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: H18090238-016
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 15:00
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	3	mg/L		1		A2540 D	09/12/18 14:48 / SR		I24 (14410200)_180912A	35	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	09/13/18 13:46 / SR		PHSC_101-H_180913A	169	R138137
Bicarbonate as HCO3	120	mg/L		4		A2320 B	09/13/18 13:46 / SR		PHSC_101-H_180913A	169	R138137
Chloride	3	mg/L		1		E300.0	09/13/18 18:52 / SR		IC METROHM_180913A	37	R138179
Sulfate	25	mg/L		1		E300.0	09/13/18 18:52 / SR		IC METROHM_180913A	37	R138179
Hardness as CaCO3	107	mg/L		1		A2340 B	09/19/18 07:59 / sld		WATERCALC_180919A	7	R138286
NUTRIENTS											
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.02		E353.2	09/13/18 10:30 / cm		FIA203-HE_180913A	70	R138152
Nitrogen, Total	0.20	mg/L		0.05		A4500 N-C	09/14/18 15:35 / kmd	09/13/18 09:40	FIA203-HE_180914B	65	43088
Phosphorus, Total as P	0.022	mg/L		0.003		E365.1	09/14/18 11:53 / kmd	09/13/18 10:14	FIA202-HE_180914B	39	43079
METALS, DISSOLVED											
Arsenic	0.019	mg/L		0.001		E200.8	09/13/18 15:32 / sld		ICPMS205-H_180913B	96	R138162
Cadmium	ND	mg/L		0.00003		E200.8	09/13/18 15:32 / sld		ICPMS205-H_180913B	96	R138162
Copper	0.002	mg/L		0.001		E200.8	09/13/18 15:32 / sld		ICPMS205-H_180913B	96	R138162
Lead	0.00027	mg/L	J	0.0003		E200.8	09/13/18 15:32 / sld		ICPMS205-H_180913B	96	R138162
Zinc	0.0070	mg/L	J	0.008		E200.8	09/13/18 15:32 / sld		ICPMS205-H_180913B	96	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.019	mg/L		0.001		E200.8	09/17/18 15:17 / sld	09/13/18 08:22	ICPMS205-H_180917A	137	43072
Cadmium	0.00004	mg/L		0.00003		E200.8	09/17/18 15:17 / sld	09/13/18 08:22	ICPMS205-H_180917A	137	43072
Calcium	31	mg/L		1		E200.7	09/17/18 17:41 / sld	09/13/18 08:22	ICP2-HE_180917B	106	43072
Copper	0.004	mg/L		0.001		E200.8	09/17/18 15:17 / sld	09/13/18 08:22	ICPMS205-H_180917A	137	43072
Lead	0.0009	mg/L		0.0003		E200.8	09/18/18 11:59 / sld	09/13/18 08:22	ICPMS205-H_180918A	77	43072
Magnesium	7	mg/L		1		E200.7	09/17/18 17:41 / sld	09/13/18 08:22	ICP2-HE_180917B	106	43072
Potassium	1	mg/L		1		E200.7	09/17/18 17:41 / sld	09/13/18 08:22	ICP2-HE_180917B	106	43072
Sodium	9	mg/L		1		E200.7	09/17/18 17:41 / sld	09/13/18 08:22	ICP2-HE_180917B	106	43072
Zinc	0.007	mg/L	J	0.008		E200.8	09/17/18 15:17 / sld	09/13/18 08:22	ICPMS205-H_180917A	137	43072

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SBC-P2
Lab ID: H18090238-017
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 14:00
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
Solids, Total Suspended TSS @ 105 C	1	mg/L		1		A2540 D	09/12/18 14:48 / SR		I24 (14410200)_180912A	36	TSS180912A
INORGANICS											
Alkalinity, Total as CaCO3	91	mg/L		4		A2320 B	09/13/18 13:51 / SR		PHSC_101-H_180913A	171	R138137
Bicarbonate as HCO3	31	mg/L		4		A2320 B	09/13/18 13:51 / SR		PHSC_101-H_180913A	171	R138137
Chloride	19	mg/L		1		E300.0	09/13/18 19:07 / SR		IC METROHM_180913A	38	R138179
Sulfate	66	mg/L		1		E300.0	09/13/18 19:07 / SR		IC METROHM_180913A	38	R138179
Hardness as CaCO3	140	mg/L		1		A2340 B	09/18/18 09:47 / sld		WATERCALC_180918A	10	R138258
NUTRIENTS											
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	09/14/18 11:32 / kmd		FIA203-HE_180914A	78	R138198
Nitrogen, Nitrate+Nitrite as N	0.010	mg/L	J	0.02		E353.2	09/13/18 10:34 / cm		FIA203-HE_180913A	73	R138152
Nitrogen, Total	0.59	mg/L		0.05		A4500 N-C	09/14/18 15:40 / kmd	09/13/18 09:40	FIA203-HE_180914B	69	43088
Phosphorus, Total as P	0.097	mg/L		0.003		E365.1	09/14/18 11:55 / kmd	09/13/18 10:14	FIA202-HE_180914B	41	43079
METALS, DISSOLVED											
Arsenic	0.030	mg/L		0.001		E200.8	09/13/18 15:46 / sld		ICPMS205-H_180913B	103	R138162
Cadmium	0.00004	mg/L		0.00003		E200.8	09/13/18 15:46 / sld		ICPMS205-H_180913B	103	R138162
Copper	0.005	mg/L		0.001		E200.8	09/13/18 15:46 / sld		ICPMS205-H_180913B	103	R138162
Lead	0.00013	mg/L	J	0.0003		E200.8	09/13/18 15:46 / sld		ICPMS205-H_180913B	103	R138162
Zinc	0.0021	mg/L	J	0.008		E200.8	09/13/18 15:46 / sld		ICPMS205-H_180913B	103	R138162
METALS, TOTAL RECOVERABLE											
Arsenic	0.030	mg/L		0.001		E200.8	09/17/18 15:19 / sld	09/13/18 08:22	ICPMS205-H_180917A	138	43072
Cadmium	0.00005	mg/L		0.00003		E200.8	09/17/18 15:19 / sld	09/13/18 08:22	ICPMS205-H_180917A	138	43072
Calcium	38	mg/L		1		E200.7	09/17/18 17:45 / sld	09/13/18 08:22	ICP2-HE_180917B	107	43072
Copper	0.006	mg/L		0.001		E200.8	09/17/18 15:19 / sld	09/13/18 08:22	ICPMS205-H_180917A	138	43072
Lead	0.00016	mg/L	J	0.0003		E200.8	09/17/18 15:19 / sld	09/13/18 08:22	ICPMS205-H_180917A	138	43072
Magnesium	11	mg/L		1		E200.7	09/17/18 17:45 / sld	09/13/18 08:22	ICP2-HE_180917B	107	43072
Potassium	3	mg/L		1		E200.7	09/17/18 17:45 / sld	09/13/18 08:22	ICP2-HE_180917B	107	43072
Sodium	22	mg/L		1		E200.7	09/17/18 17:45 / sld	09/13/18 08:22	ICP2-HE_180917B	107	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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: H18090238-017
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/11/18 14:00
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Zinc	0.005	mg/L	J	0.008		E200.8	09/17/18 15:19 / sld	09/13/18 08:22	ICPMS205-H_180917A	138	43072

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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-84F
Lab ID: H18090238-018
Matrix: Surface Water

Project: CFROU Monitoring
Collection Date: 09/10/18 10:30
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE											
Mercury	0.0000202	mg/L		5E-06		E245.1	09/19/18 11:57 / dck	09/18/18 12:25	HGCV202-H_180919A	13	43136

Report Definitions: RL - Analyte 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: Trip Blank 18-0155
Lab ID: H18090238-019
Matrix: Trip Blank

Project: CFROU Monitoring
Collection Date: 09/10/18 08:45
DateReceived: 09/12/18
Report Date: 10/14/18

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.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-116A
Lab ID: H18090238-020
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/10/18 08:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	57.5	wt%		0.2		D2974	09/28/18 15:25 / ber		)RYING OVEN 2_180927A	1	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	43.1	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	1	R138423
3050 EXTRACTABLE METALS											
Arsenic	52	mg/kg-dry		1		SW6020	09/25/18 11:27 / sld	09/21/18 09:24	ICPMS205-H_180925B	48	43198
Cadmium	4.0	mg/kg-dry		0.2		SW6020	09/25/18 11:27 / sld	09/21/18 09:24	ICPMS205-H_180925B	48	43198
Copper	567	mg/kg-dry		6		SW6010B	09/24/18 17:35 / sld	09/21/18 09:24	ICP2-HE_180924B	38	43198
Lead	95	mg/kg-dry	D	10		SW6010B	09/24/18 17:35 / sld	09/21/18 09:24	ICP2-HE_180924B	38	43198
Zinc	980	mg/kg-dry		7		SW6010B	09/24/18 17:35 / sld	09/21/18 09:24	ICP2-HE_180924B	38	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: LBR-CFR-02
Lab ID: H18090238-021
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/10/18 13:30
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	58.2	wt%		0.2		D2974	09/28/18 15:25 / ber		DRYING OVEN 2_180927A	3	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	1.3	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	2	R138423
3050 EXTRACTABLE METALS											
Arsenic	37	mg/kg-dry		1		SW6020	09/25/18 11:48 / sld	09/21/18 09:24	ICPMS205-H_180925B	59	43198
Cadmium	1.7	mg/kg-dry		0.2		SW6020	09/25/18 11:48 / sld	09/21/18 09:24	ICPMS205-H_180925B	59	43198
Copper	64	mg/kg-dry		7		SW6010B	09/24/18 17:54 / sld	09/21/18 09:24	ICP2-HE_180924B	43	43198
Lead	227	mg/kg-dry	D	10		SW6010B	09/24/18 17:54 / sld	09/21/18 09:24	ICP2-HE_180924B	43	43198
Zinc	211	mg/kg-dry		7		SW6010B	09/24/18 17:54 / sld	09/21/18 09:24	ICP2-HE_180924B	43	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: LBR-CFR-02 Duplicate
Lab ID: H18090238-022
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/10/18 13:30
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	53.0	wt%		0.2		D2974	09/28/18 15:25 / ber		DRYING OVEN 2_180927A	4	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	0.8	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	3	R138423
3050 EXTRACTABLE METALS											
Arsenic	30	mg/kg-dry		1		SW6020	09/25/18 11:50 / sld	09/21/18 09:24	ICPMS205-H_180925B	60	43198
Cadmium	1.6	mg/kg-dry		0.2		SW6020	09/25/18 11:50 / sld	09/21/18 09:24	ICPMS205-H_180925B	60	43198
Copper	52	mg/kg-dry		6		SW6010B	09/24/18 18:05 / sld	09/21/18 09:24	ICP2-HE_180924B	46	43198
Lead	135	mg/kg-dry	D	10		SW6010B	09/24/18 18:05 / sld	09/21/18 09:24	ICP2-HE_180924B	46	43198
Zinc	151	mg/kg-dry		6		SW6010B	09/24/18 18:05 / sld	09/21/18 09:24	ICP2-HE_180924B	46	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-34
Lab ID: H18090238-023
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/10/18 15:00
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	55.4	wt%		0.2		D2974	09/28/18 15:25 / ber		)RYING OVEN 2_180927A	5	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	1.2	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	4	R138423
3050 EXTRACTABLE METALS											
Arsenic	117	mg/kg-dry		1		SW6020	09/25/18 11:52 / sld	09/21/18 09:24	ICPMS205-H_180925B	61	43198
Cadmium	10.1	mg/kg-dry		0.2		SW6020	09/25/18 11:52 / sld	09/21/18 09:24	ICPMS205-H_180925B	61	43198
Copper	1420	mg/kg-dry		6		SW6010B	09/24/18 18:09 / sld	09/21/18 09:24	ICP2-HE_180924B	47	43198
Lead	288	mg/kg-dry	D	10		SW6010B	09/24/18 18:09 / sld	09/21/18 09:24	ICP2-HE_180924B	47	43198
Zinc	1550	mg/kg-dry		7		SW6010B	09/24/18 18:09 / sld	09/21/18 09:24	ICP2-HE_180924B	47	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-27H
Lab ID: H18090238-024
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/10/18 16:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	47.7	wt%		0.2		D2974	09/28/18 15:25 / ber		DRYING OVEN 2_180927A	6	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	3.2	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	5	R138423
3050 EXTRACTABLE METALS											
Arsenic	184	mg/kg-dry		1		SW6020	09/25/18 11:54 / sld	09/21/18 09:24	ICPMS205-H_180925B	62	43198
Cadmium	8.7	mg/kg-dry		0.2		SW6020	09/25/18 11:54 / sld	09/21/18 09:24	ICPMS205-H_180925B	62	43198
Copper	1550	mg/kg-dry		5		SW6010B	09/24/18 18:12 / sld	09/21/18 09:24	ICP2-HE_180924B	48	43198
Lead	248	mg/kg-dry	D	10		SW6010B	09/24/18 18:12 / sld	09/21/18 09:24	ICP2-HE_180924B	48	43198
Zinc	1440	mg/kg-dry		6		SW6010B	09/24/18 18:12 / sld	09/21/18 09:24	ICP2-HE_180924B	48	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-11F
Lab ID: H18090238-025
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/10/18 17:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	56.9	wt%		0.2		D2974	09/28/18 15:25 / ber		)RYING OVEN 2_180927A	: 7	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	1.4	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	: 6	R138423
3050 EXTRACTABLE METALS											
Arsenic	113	mg/kg-dry		1		SW6020	09/25/18 11:56 / sld	09/21/18 09:24	ICPMS205-H_180925B	: 63	43198
Cadmium	8.0	mg/kg-dry		0.2		SW6020	09/25/18 11:56 / sld	09/21/18 09:24	ICPMS205-H_180925B	: 63	43198
Copper	1240	mg/kg-dry		6		SW6010B	09/24/18 18:16 / sld	09/21/18 09:24	ICP2-HE_180924B	: 49	43198
Lead	204	mg/kg-dry	D	10		SW6010B	09/24/18 18:16 / sld	09/21/18 09:24	ICP2-HE_180924B	: 49	43198
Zinc	1150	mg/kg-dry		7		SW6010B	09/24/18 18:16 / sld	09/21/18 09:24	ICP2-HE_180924B	: 49	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-07D
Lab ID: H18090238-026
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/11/18 08:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	60.7	wt%		0.2		D2974	09/28/18 15:25 / ber		DRYING OVEN 2_180927A	8	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	5.4	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	7	R138423
3050 EXTRACTABLE METALS											
Arsenic	266	mg/kg-dry		1		SW6020	09/25/18 11:58 / sld	09/21/18 09:24	ICPMS205-H_180925B	64	43198
Cadmium	9.0	mg/kg-dry		0.2		SW6020	09/25/18 11:58 / sld	09/21/18 09:24	ICPMS205-H_180925B	64	43198
Copper	2170	mg/kg-dry		7		SW6010B	09/24/18 18:20 / sld	09/21/18 09:24	ICP2-HE_180924B	50	43198
Lead	308	mg/kg-dry	D	20		SW6010B	09/24/18 18:20 / sld	09/21/18 09:24	ICP2-HE_180924B	50	43198
Zinc	1580	mg/kg-dry		8		SW6010B	09/24/18 18:20 / sld	09/21/18 09:24	ICP2-HE_180924B	50	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-03A
Lab ID: H18090238-027
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/11/18 10:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	61.1	wt%		0.2		D2974	09/28/18 15:25 / ber		)RYING OVEN 2_180927A	9	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	0.6	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	8	R138423
3050 EXTRACTABLE METALS											
Arsenic	242	mg/kg-dry		1		SW6020	09/25/18 12:00 / sld	09/21/18 09:24	ICPMS205-H_180925B	65	43198
Cadmium	9.3	mg/kg-dry		0.2		SW6020	09/25/18 12:00 / sld	09/21/18 09:24	ICPMS205-H_180925B	65	43198
Copper	1490	mg/kg-dry		7		SW6010B	09/24/18 18:23 / sld	09/21/18 09:24	ICP2-HE_180924B	51	43198
Lead	395	mg/kg-dry	D	20		SW6010B	09/24/18 18:23 / sld	09/21/18 09:24	ICP2-HE_180924B	51	43198
Zinc	1720	mg/kg-dry		8		SW6010B	09/24/18 18:23 / sld	09/21/18 09:24	ICP2-HE_180924B	51	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-03A Duplicate
Lab ID: H18090238-028
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/11/18 10:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	63.1	wt%		0.2		D2974	09/28/18 15:25 / ber		RYING OVEN 2_180927A	10	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	0.6	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	9	R138423
3050 EXTRACTABLE METALS											
Arsenic	195	mg/kg-dry		1		SW6020	09/25/18 12:02 / sld	09/21/18 09:24	ICPMS205-H_180925B	66	43198
Cadmium	7.7	mg/kg-dry		0.2		SW6020	09/25/18 12:02 / sld	09/21/18 09:24	ICPMS205-H_180925B	66	43198
Copper	1140	mg/kg-dry		8		SW6010B	09/24/18 18:27 / sld	09/21/18 09:24	ICP2-HE_180924B	52	43198
Lead	251	mg/kg-dry	D	20		SW6010B	09/24/18 18:27 / sld	09/21/18 09:24	ICP2-HE_180924B	52	43198
Zinc	1270	mg/kg-dry		8		SW6010B	09/24/18 18:27 / sld	09/21/18 09:24	ICP2-HE_180924B	52	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: WSC-SBC
Lab ID: H18090238-029
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/11/18 11:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	51.7	wt%		0.2		D2974	09/28/18 15:25 / ber		RYING OVEN 2_180927A	: 11	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	7.7	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	: 10	R138423
3050 EXTRACTABLE METALS											
Arsenic	108	mg/kg-dry		1		SW6020	09/25/18 12:04 / sld	09/21/18 09:24	ICPMS205-H_180925B	: 67	43198
Cadmium	3.5	mg/kg-dry		0.2		SW6020	09/25/18 12:04 / sld	09/21/18 09:24	ICPMS205-H_180925B	: 67	43198
Copper	997	mg/kg-dry		6		SW6010B	09/24/18 18:31 / sld	09/21/18 09:24	ICP2-HE_180924B	: 53	43198
Lead	136	mg/kg-dry	D	10		SW6010B	09/24/18 18:31 / sld	09/21/18 09:24	ICP2-HE_180924B	: 53	43198
Zinc	499	mg/kg-dry		6		SW6010B	09/24/18 18:31 / sld	09/21/18 09:24	ICP2-HE_180924B	: 53	43198

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: MWB-SBC
Lab ID: H18090238-030
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/11/18 13:45
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	70.3	wt%		0.2		D2974	09/28/18 15:25 / ber		RYING OVEN 2_180927A	: 12	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	1.5	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	: 11	R138423
3050 EXTRACTABLE METALS											
Arsenic	211	mg/kg-dry		1		SW6020	09/25/18 12:15 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 73	43208
Cadmium	6.6	mg/kg-dry		0.3		SW6020	09/25/18 12:15 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 73	43208
Copper	230	mg/kg-dry		9		SW6010B	09/25/18 15:30 / sld	09/24/18 08:37	ICP2-HE_180925B	: 34	43208
Lead	160	mg/kg-dry		5		SW6020	09/25/18 12:15 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 73	43208
Zinc	666	mg/kg-dry		10		SW6010B	09/25/18 15:30 / sld	09/24/18 08:37	ICP2-HE_180925B	: 34	43208

Report Definitions: RL - Analyte 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: H18090238-031
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/11/18 15:00
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	66.3	wt%		0.2		D2974	09/28/18 15:25 / ber		RYING OVEN 2_180927A	: 13	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	3.8	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	: 12	R138423
3050 EXTRACTABLE METALS											
Arsenic	105	mg/kg-dry		1		SW6020	09/25/18 12:17 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 74	43208
Cadmium	5.1	mg/kg-dry		0.3		SW6020	09/25/18 12:17 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 74	43208
Copper	323	mg/kg-dry		8		SW6010B	09/25/18 15:33 / sld	09/24/18 08:37	ICP2-HE_180925B	: 35	43208
Lead	146	mg/kg-dry		5		SW6020	09/25/18 12:17 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 74	43208
Zinc	608	mg/kg-dry		9		SW6010B	09/25/18 15:33 / sld	09/24/18 08:37	ICP2-HE_180925B	: 35	43208

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Client Sample ID: LC-7.5
Collection Date: 09/10/18 18:15
DateReceived: 09/12/18
Lab ID: H18090238-032
Report Date: 10/14/18
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	54.6	wt%		0.2		D2974	09/28/18 15:25 / ber		RYING OVEN 2_180927A	: 14	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	4.3	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	: 13	R138423
3050 EXTRACTABLE METALS											
Arsenic	95	mg/kg-dry		1		SW6020	09/25/18 12:19 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 75	43208
Cadmium	2.6	mg/kg-dry		0.2		SW6020	09/25/18 12:19 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 75	43208
Copper	409	mg/kg-dry		6		SW6010B	09/25/18 15:37 / sld	09/24/18 08:37	ICP2-HE_180925B	: 36	43208
Lead	131	mg/kg-dry		5		SW6020	09/25/18 12:19 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 75	43208
Zinc	290	mg/kg-dry		7		SW6010B	09/25/18 15:37 / sld	09/24/18 08:37	ICP2-HE_180925B	: 36	43208

Report Definitions: RL - Analyte 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
Project: CFROU Monitoring
Client Sample ID: RTC-1.5
Collection Date: 09/10/18 18:45
DateReceived: 09/12/18
Lab ID: H18090238-033
Report Date: 10/14/18
Matrix: Sediment

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	65.0	wt%		0.2		D2974	09/28/18 15:25 / ber		RYING OVEN 2_180927A	: 15	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	0.7	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	: 14	R138423
3050 EXTRACTABLE METALS											
Arsenic	33	mg/kg-dry		1		SW6020	09/25/18 12:21 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 76	43208
Cadmium	1.9	mg/kg-dry		0.2		SW6020	09/25/18 12:21 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 76	43208
Copper	88	mg/kg-dry		8		SW6010B	09/25/18 15:41 / sld	09/24/18 08:37	ICP2-HE_180925B	: 37	43208
Lead	145	mg/kg-dry		5		SW6020	09/25/18 12:21 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 76	43208
Zinc	208	mg/kg-dry		8		SW6010B	09/25/18 15:41 / sld	09/24/18 08:37	ICP2-HE_180925B	: 37	43208

Report Definitions: RL - Analyte 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: H18090238-034
Matrix: Sediment

Project: CFROU Monitoring
Collection Date: 09/11/18 12:15
DateReceived: 09/12/18
Report Date: 10/14/18

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL CHARACTERISTICS											
Moisture	64.8	wt%		0.2		D2974	09/28/18 15:25 / ber		RYING OVEN 2_180927A	: 16	R138605
SIEVE ANALYSIS											
No. 230 (63 um), Passed	1.0	wt%-wet		0.1		SSSA 15-2	09/24/18 10:22 / swj		MISC SOILS_180924B	: 15	R138423
3050 EXTRACTABLE METALS											
Arsenic	111	mg/kg-dry		1		SW6020	09/25/18 12:23 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 77	43208
Cadmium	9.9	mg/kg-dry		0.3		SW6020	09/25/18 12:23 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 77	43208
Copper	402	mg/kg-dry		8		SW6010B	09/25/18 15:45 / sld	09/24/18 08:37	ICP2-HE_180925B	: 38	43208
Lead	397	mg/kg-dry		5		SW6020	09/25/18 12:23 / sld	09/24/18 08:37	ICPMS205-H_180925B	: 77	43208
Zinc	1690	mg/kg-dry		9		SW6010B	09/25/18 15:45 / sld	09/24/18 08:37	ICP2-HE_180925B	: 38	43208

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

Client: MT DEQ-Federal Superfund
Work Order: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 42837

Date: *14-Oct-18*

Run ID :Run Order: **FIA202-HE_180914B: 11** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**

Analysis Date: **09/14/18 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
Phosphorus, Total as P	-0.000200	0.010		0		0	0				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA202-HE_180914B: 12** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **09/14/18 11:22** Units: **mg/L** **Prep Info:** Prep Date: **8/7/2018** Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.249	0.010	0.25	0	**100**	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA202-HE_180914B: 43** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **09/14/18 11:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.101	0.010	0.1	0	**101**	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43072

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180917B: 77** SampType: **Method Blank** Lab ID: **MB-43072** Method: **E200.7**
Analysis Date: **09/17/18 15:52** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.09									
Magnesium	ND	0.009									
Potassium	ND	0.06									
Sodium	ND	0.03									

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 78** SampType: **Laboratory Control Sample** Lab ID: **LCS-43072** Method: **E200.7**
Analysis Date: **09/17/18 15:56** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.2	1.0	25	0	**101**	85	115				
Magnesium	25.2	1.0	25	0	**101**	85	115				
Potassium	26.5	1.0	25	0	**106**	85	115				
Sodium	26.5	1.0	25	0	**106**	85	115				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 83** SampType: **Serial Dilution** Lab ID: **H18090238-004CDIL** Method: **E200.7**
Analysis Date: **09/17/18 16:15** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	53.4	1.0		0		0	0	53.15	**0.5**	10	
Magnesium	15.1	1.0		0		0	0	15.07	**0.3**	10	
Potassium	3.82	1.0		0		0	0	3.973	**4.0**	10	
Sodium	11.2	1.0		0		0	0	11.18	**0.0**	10	

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 85** SampType: **Sample Matrix Spike** Lab ID: **H18090238-004CMS3** Method: **E200.7**
Analysis Date: **09/17/18 16:23** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	77.2	1.0	25	53.15	**96**	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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43072

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180917B: 85** SampType: **Sample Matrix Spike** Lab ID: **H18090238-004CMS3** Method: **E200.7**
Analysis Date: **09/17/18 16:23** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	39.6	1.0	25	15.07	98	70	130				
Potassium	30.0	1.0	25	3.973	104	70	130				
Sodium	37.2	1.0	25	11.18	104	70	130				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 88** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-004CMSD3** Method: **E200.7**
Analysis Date: **09/17/18 16:34** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	76.8	1.0	25	53.15	95	70	130	77.16	0.5	20	
Magnesium	39.6	1.0	25	15.07	98	70	130	39.57	0.1	20	
Potassium	30.5	1.0	25	3.973	106	70	130	30.01	1.5	20	
Sodium	37.6	1.0	25	11.18	106	70	130	37.16	1.3	20	

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 95** SampType: **Serial Dilution** Lab ID: **H18090238-010CDIL** Method: **E200.7**
Analysis Date: **09/17/18 17:00** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	48.6	1.0		0		0	0	52.88	8.4	10	
Magnesium	11.0	1.0		0		0	0	11.89	7.8	10	
Potassium	2.08	1.0		0		0	0	2.401		10	N
Sodium	9.80	1.0		0		0	0	10.87	10	10	R

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 97** SampType: **Sample Matrix Spike** Lab ID: **H18090238-010CMS3** Method: **E200.7**
Analysis Date: **09/17/18 17:07** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	77.6	1.0	25	52.88	99	70	130				
Magnesium	36.3	1.0	25	11.89	97	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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43072

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180917B: 97** SampType: **Sample Matrix Spike** Lab ID: **H18090238-010CMS3** Method: **E200.7**

Analysis Date: **09/17/18 17:07** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	28.5	1.0	25	2.401	105	70	130				
Sodium	37.1	1.0	25	10.87	105	70	130				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 100** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-010CMSD3** Method: **E200.7**

Analysis Date: **09/17/18 17:19** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	76.4	1.0	25	52.88	94	70	130	77.57	1.5	20	
Magnesium	35.5	1.0	25	11.89	95	70	130	36.26	2.1	20	
Potassium	29.0	1.0	25	2.401	106	70	130	28.54	1.5	20	
Sodium	37.7	1.0	25	10.87	107	70	130	37.08	1.8	20	

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43072

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180917A: 107** SampType: **Method Blank** Lab ID: **MB-43072** Method: **E200.8**
Analysis Date: **09/17/18 14:19** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0001	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0002									
Lead	ND	4E-05									
Zinc	0.002	0.001									

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 114** SampType: **Laboratory Control Sample** Lab ID: **LCS-43072** Method: **E200.8**
Analysis Date: **09/17/18 14:33** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.0001265	102	85	115				
Cadmium	0.263	0.0010	0.25	0	105	85	115				
Copper	0.529	0.0050	0.5	0	106	85	115				
Lead	0.541	0.0010	0.5	0	108	85	115				
Zinc	0.510	0.010	0.5	0.001603	102	85	115				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 125** SampType: **Sample Matrix Spike** Lab ID: **H18090238-004CMS3** Method: **E200.8**
Analysis Date: **09/17/18 14:54** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.514	0.0010	0.5	0.009087	101	70	130				
Cadmium	0.257	0.0010	0.25	0.00002789	103	70	130				
Copper	0.513	0.0050	0.5	0.001556	102	70	130				
Lead	0.548	0.0010	0.5	0.001345	109	70	130				
Zinc	0.504	0.010	0.5	0.006701	100	70	130				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43072

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180917A: 126** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-004CMSD3** Method: **E200.8**

Analysis Date: **09/17/18 14:56** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.505	0.0010	0.5	0.009087	99	70	130	0.5145	1.8	20	
Cadmium	0.247	0.0010	0.25	0.00002789	99	70	130	0.2569	4.1	20	
Copper	0.498	0.0050	0.5	0.001556	99	70	130	0.5127	2.8	20	
Lead	0.526	0.0010	0.5	0.001345	105	70	130	0.5475	4.1	20	
Zinc	0.493	0.010	0.5	0.006701	97	70	130	0.5043	2.3	20	

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 139** SampType: **Sample Matrix Spike** Lab ID: **H18090238-010CMS3** Method: **E200.8**

Analysis Date: **09/17/18 15:21** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.507	0.0010	0.5	0.01464	98	70	130				
Cadmium	0.247	0.0010	0.25	0.00006999	99	70	130				
Copper	0.501	0.0050	0.5	0.0107	98	70	130				
Lead	0.515	0.0010	0.5	0.0009127	103	70	130				
Zinc	0.491	0.010	0.5	0.008941	96	70	130				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 140** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-010CMSD3** Method: **E200.8**

Analysis Date: **09/17/18 15:23** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.01464	99	70	130	0.5069	0.6	20	
Cadmium	0.243	0.0010	0.25	0.00006999	97	70	130	0.247	1.6	20	
Copper	0.508	0.0050	0.5	0.0107	99	70	130	0.5009	1.4	20	
Lead	0.517	0.0010	0.5	0.0009127	103	70	130	0.5151	0.4	20	
Zinc	0.495	0.010	0.5	0.008941	97	70	130	0.4911	0.8	20	

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43072

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180918A: 70** SampType: **Method Blank** Lab ID: **MB-43072** Method: **E200.8**

Analysis Date: **09/18/18 11:45** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0001	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0002									
Lead	ND	4E-05									
Zinc	0.001	0.001									

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43079

Date: *14-Oct-18*

Run ID :Run Order: **FIA202-HE_180914B: 13** SampType: **Method Blank** Lab ID: **MB-43079** Method: **E365.1**
Analysis Date: **09/14/18 11:23** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.0004									

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA202-HE_180914B: 14** SampType: **Laboratory Control Sample** Lab ID: **LCS-43079** Method: **E365.1**
Analysis Date: **09/14/18 11:25** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.381	0.010	0.4	0	95	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA202-HE_180914B: 18** SampType: **Sample Matrix Spike** Lab ID: **H18090238-001DMS** Method: **E365.1**
Analysis Date: **09/14/18 11:30** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.223	0.010	0.2	0.01393	105	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA202-HE_180914B: 19** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-001DMSD** Method: **E365.1**
Analysis Date: **09/14/18 11:31** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.228	0.010	0.2	0.01393	107	90	110	0.223	2.1	20	

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA202-HE_180914B: 31** SampType: **Sample Matrix Spike** Lab ID: **H18090238-009DMS** Method: **E365.1**
Analysis Date: **09/14/18 11:44** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.225	0.010	0.2	0.02261	101	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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43079

Date: *14-Oct-18*

Run ID :Run Order: **FIA202-HE_180914B: 31** SampType: **Sample Matrix Spike** Lab ID: **H18090238-009DMS** Method: **E365.1**

Analysis Date: **09/14/18 11:44** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E365.1**

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

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA202-HE_180914B: 32** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-009DMSD** Method: **E365.1**

Analysis Date: **09/14/18 11:45** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.215	0.010	0.2	0.02261	**96**	90	110	0.2248	**4.6**	20	

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43081

Date: *14-Oct-18*

Run ID :Run Order: **HGCV202-H_180914A: 11** SampType: **Method Blank** Lab ID: **MB-43081** Method: **E245.1**
Analysis Date: **09/14/18 12:17** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1E-06									

Associated samples: **H18090238-002C, H18090238-003C, H18090238-004C**

Run ID :Run Order: **HGCV202-H_180914A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-43081** Method: **E245.1**
Analysis Date: **09/14/18 12:20** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.51E-05	0.00010	0.000075	0	100	90	110				

Associated samples: **H18090238-002C, H18090238-003C, H18090238-004C**

Run ID :Run Order: **HGCV202-H_180914A: 14** SampType: **Sample Matrix Spike** Lab ID: **H18090230-001CMS** Method: **E245.1**
Analysis Date: **09/14/18 12:27** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.44E-05	5.0E-06	0.000075	0.00000193	97	70	130				

Associated samples: **H18090238-002C, H18090238-003C, H18090238-004C**

Run ID :Run Order: **HGCV202-H_180914A: 15** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090230-001CMSD** Method: **E245.1**
Analysis Date: **09/14/18 12:30** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.85E-05	5.0E-06	0.000075	0.00000193	102	70	130	0.0000744	5.4	20	

Associated samples: **H18090238-002C, H18090238-003C, H18090238-004C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43087

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180914B: 9** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**
Analysis Date: **09/14/18 14:24** 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, Total	0.00550	0.10		0		0	0				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **FIA203-HE_180914B: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **A4500 N-C**
Analysis Date: **09/14/18 14:26** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	1.05	0.10	1	0	105	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A**

Run ID :Run Order: **FIA203-HE_180914B: 12** SampType: **Method Blank** Lab ID: **MB-43087** Method: **A4500 N-C**
Analysis Date: **09/14/18 14:27** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.03									

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A**

Run ID :Run Order: **FIA203-HE_180914B: 13** SampType: **Laboratory Control Sample** Lab ID: **LCS-43087** Method: **A4500 N-C**
Analysis Date: **09/14/18 14:28** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	8.12	0.30	7.44	0	109	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A**

Run ID :Run Order: **FIA203-HE_180914B: 37** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **09/14/18 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, Total	0.514	0.10	0.5	0	103	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43087

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180914B: 42** SampType: **Sample Matrix Spike** Lab ID: **H18090238-002AMS** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:06** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	1.10	0.10	1	0	110	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A**

Run ID :Run Order: **FIA203-HE_180914B: 43** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-002AMSD** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:07** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	1.05	0.10	1	0	105	90	110	1.101	4.6	20	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A**

Run ID :Run Order: **FIA203-HE_180914B: 47** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **09/14/18 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, Total	0.515	0.10	0.5	0	103	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **FIA203-HE_180914B: 63** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.514	0.10	0.5	0	103	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43088

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180914B: 49** SampType: **Method Blank** Lab ID: **MB-43088** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:14** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.03									

Associated samples: **H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **FIA203-HE_180914B: 50** SampType: **Laboratory Control Sample** Lab ID: **LCS-43088** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:15** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	7.72	0.30	7.44	0	104	90	110				

Associated samples: **H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **FIA203-HE_180914B: 60** SampType: **Sample Matrix Spike** Lab ID: **H18090238-014AMS** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:29** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.982	0.10	1	0	98	90	110				

Associated samples: **H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **FIA203-HE_180914B: 61** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-014AMSD** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:30** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	0.980	0.10	1	0	98	90	110	0.9823	0.2	20	

Associated samples: **H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **FIA203-HE_180914B: 66** SampType: **Sample Matrix Spike** Lab ID: **H18090238-016AMS** Method: **A4500 N-C**
Analysis Date: **09/14/18 15:36** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	1.23	0.10	1	0.2036	102	90	110				

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

Client: MT DEQ-Federal Superfund
Work Order: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43088

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180914B: 66** SampType: **Sample Matrix Spike** Lab ID: **H18090238-016AMS** Method: **A4500 N-C**

Analysis Date: **09/14/18 15:36** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** Prep Method: **A4500 N-C**

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

Associated samples: **H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **FIA203-HE_180914B: 67** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-016AMSD** Method: **A4500 N-C**

Analysis Date: **09/14/18 15:37** Units: **mg/L** **Prep Info:** Prep Date: **9/13/2018** 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	1.22	0.10	1	0.2036	**101**	90	110	1.226	**0.8**	20	

Associated samples: **H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43136

Date: *14-Oct-18*

Run ID :Run Order: **HGCV202-H_180919A: 11** SampType: **Method Blank** Lab ID: **MB-43136** Method: **E245.1**
Analysis Date: **09/19/18 11:51** Units: **mg/L** **Prep Info:** Prep Date: **9/18/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	1E-06									

Associated samples: **H18090238-018A**

Run ID :Run Order: **HGCV202-H_180919A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-43136** Method: **E245.1**
Analysis Date: **09/19/18 11:54** Units: **mg/L** **Prep Info:** Prep Date: **9/18/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	7.70E-05	0.00010	0.000075	0	**103**	90	110				

Associated samples: **H18090238-018A**

Run ID :Run Order: **HGCV202-H_180919A: 14** SampType: **Sample Matrix Spike** Lab ID: **H18090238-018AMS** Method: **E245.1**
Analysis Date: **09/19/18 12:01** Units: **mg/L** **Prep Info:** Prep Date: **9/18/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	8.85E-05	5.0E-06	0.000075	0.00002025	**91**	70	130				

Associated samples: **H18090238-018A**

Run ID :Run Order: **HGCV202-H_180919A: 15** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-018AMSD** Method: **E245.1**
Analysis Date: **09/19/18 12:04** Units: **mg/L** **Prep Info:** Prep Date: **9/18/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	9.15E-05	5.0E-06	0.000075	0.00002025	**95**	70	130	0.00008849	**3.3**	20	

Associated samples: **H18090238-018A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43198

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180924B: 35** SampType: **Method Blank** Lab ID: **MB-43198** Method: **SW6010B**
Analysis Date: **09/24/18 17:24** Units: **mg/kg** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.6									
Lead	ND	1									
Zinc	ND	0.6									

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 36** SampType: **Laboratory Fortified Blank** Lab ID: **LFB-43198** Method: **SW6010B**
Analysis Date: **09/24/18 17:28** Units: **mg/kg** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	53.9	1.0	52.5	0	**103**	80	120				
Lead	56.0	1.2	52.5	0	**107**	80	120				
Zinc	56.7	1.0	52.5	0	**108**	80	120				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 37** SampType: **Laboratory Control Sample** Lab ID: **LCS-43198** Method: **SW6010B**
Analysis Date: **09/24/18 17:32** Units: **mg/kg** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	123	2.8	137	0	**90**	76.6	108.8				
Lead	109	5.9	105	0	**104**	74.4	108.6				
Zinc	243	3.1	231	0	**105**	75.3	111.7				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 39** SampType: **Serial Dilution** Lab ID: **H18090238-020ADIL** Method: **SW6010B**
Analysis Date: **09/24/18 17:39** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	578	31		0		0	0	567.1	**2.0**	10	
Lead	96.4	65		0		0	0	94.93		10	N
Zinc	1020	34		0		0	0	980	**4.2**	10	

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

Client: MT DEQ-Federal Superfund
Work Order: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43198

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180924B: 39** SampType: **Serial Dilution** Lab ID: **H18090238-020ADIL** Method: **SW6010B**
Analysis Date: **09/24/18 17:39** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method:

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

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 40** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18090238-020APDS** Method: **SW6010B**
Analysis Date: **09/24/18 17:43** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	1080	6.5	586.5	567.1	**88**	75	125				
Lead	604	13	586.5	94.93	**87**	75	125				
Zinc	1500	7.1	586.5	980	**88**	75	125				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 41** SampType: **Sample Matrix Spike** Lab ID: **H18090238-020AMS** Method: **SW6010B**
Analysis Date: **09/24/18 17:47** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	679	6.4	116.1	567.1		75	125				A
Lead	224	13	116.1	94.93	**111**	75	125				
Zinc	1120	7.0	116.1	980		75	125				A

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 42** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-020AMSD** Method: **SW6010B**
Analysis Date: **09/24/18 17:50** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	644	6.2	112.9	567.1		75	125	678.7	**5.2**	20	A
Lead	210	13	112.9	94.93	**101**	75	125	224.3	**6.8**	20	
Zinc	1080	6.8	112.9	980		75	125	1123	**3.6**	20	A

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43198

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180925B: 44** SampType: **Method Blank** Lab ID: **MB-43198** Method: **SW6020**
Analysis Date: **09/25/18 11:19** Units: **mg/kg** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.09	0.04									
Cadmium	ND	0.02									

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICPMS205-H_180925B: 49** SampType: **Serial Dilution** Lab ID: **H18090238-020ADIL** Method: **SW6020**
Analysis Date: **09/25/18 11:29** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	52.9	2.2		0		0	0	51.83	**2.1**	10	
Cadmium	3.89	1.0		0		0	0	3.994		10	N

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICPMS205-H_180925B: 50** SampType: **Laboratory Control Sample** Lab ID: **LCS-43198** Method: **SW6020**
Analysis Date: **09/25/18 11:31** Units: **mg/kg** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	176	1.0	196	0.09409	**90**	71.4	105.1				
Cadmium	100	1.0	99	0	**101**	73.9	106.1				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICPMS205-H_180925B: 51** SampType: **Laboratory Fortified Blank** Lab ID: **LFB-43198** Method: **SW6020**
Analysis Date: **09/25/18 11:33** Units: **mg/kg** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	55.1	1.0	52.5	0.09409	**105**	80	120				
Cadmium	28.0	1.0	26.25	0	**107**	80	120				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43198

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180925B: 52** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18090238-020APDS1** Method: **SW6020**

Analysis Date: **09/25/18 11:35** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	108	1.0	56.95	51.83	98	75	125				
Cadmium	60.6	1.0	56.95	3.994	99	75	125				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICPMS205-H_180925B: 53** SampType: **Sample Matrix Spike** Lab ID: **H18090238-020AMS** Method: **SW6020**

Analysis Date: **09/25/18 11:37** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	172	1.0	116.1	51.83	104	75	125				
Cadmium	63.9	1.0	58.06	3.994	103	75	125				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICPMS205-H_180925B: 54** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-020AMSD** Method: **SW6020**

Analysis Date: **09/25/18 11:39** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/21/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	169	1.0	112.9	51.83	104	75	125	172	1.7	20	
Cadmium	61.5	1.0	56.47	3.994	102	75	125	63.92	3.8	20	

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43208

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180925B: 31** SampType: **Method Blank** Lab ID: **MB-43208** Method: **SW6010B**
Analysis Date: **09/25/18 15:19** Units: **mg/kg** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.6									
Zinc	ND	0.6									

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 32** SampType: **Laboratory Fortified Blank** Lab ID: **LFB-43208** Method: **SW6010B**
Analysis Date: **09/25/18 15:22** Units: **mg/kg** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	48.7	1.0	47.7	0	102	80	120				
Zinc	49.9	1.0	47.7	0	105	80	120				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 33** SampType: **Laboratory Control Sample** Lab ID: **LCS-43208** Method: **SW6010B**
Analysis Date: **09/25/18 15:26** Units: **mg/kg** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	124	2.7	137	0	91	76.6	108.8				
Zinc	251	2.9	231	0	109	75.3	111.7				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 44** SampType: **Serial Dilution** Lab ID: **H18090302-007ADIL** Method: **SW6010B**
Analysis Date: **09/25/18 16:07** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	32.6	17		0		0	0	30.46		10	N
Zinc	86.3	18		0		0	0	84.04		10	N

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 45** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18090302-007APDS** Method: **SW6010B**
Analysis Date: **09/25/18 16:11** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	327	3.4	311.5	30.46	95	75	125				
Zinc	395	3.7	311.5	84.04	100	75	125				

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

Client: MT DEQ-Federal Superfund
Work Order: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43208

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180925B: 45** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18090302-007APDS** Method: **SW6010B**

Analysis Date: **09/25/18 16:11** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method:

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

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 46** SampType: **Sample Matrix Spike** Lab ID: **H18090302-007AMS** Method: **SW6010B**

Analysis Date: **09/25/18 16:14** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	87.8	3.4	62.08	30.46	92	75	125				
Zinc	183	3.7	62.08	84.04	159	75	125				S

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 47** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090302-007AMSD** Method: **SW6010B**

Analysis Date: **09/25/18 16:18** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	94.5	3.5	63.09	30.46	101	75	125	87.79	7.3	20	
Zinc	163	3.8	63.09	84.04	125	75	125	182.8	12	20	

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43208

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180925B: 72** SampType: **Method Blank** Lab ID: **MB-43208** Method: **SW6020**
Analysis Date: **09/25/18 12:13** Units: **mg/kg** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.07	0.04									
Cadmium	ND	0.02									
Lead	ND	0.07									

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 80** SampType: **Laboratory Control Sample** Lab ID: **LCS-43208** Method: **SW6020**
Analysis Date: **09/25/18 12:29** Units: **mg/kg** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	177	1.0	196	0.07299	90	71.4	105.1				
Cadmium	100	1.0	99	0	101	73.9	106.1				
Lead	112	1.0	105	0	107	74.4	108.6				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 81** SampType: **Laboratory Fortified Blank** Lab ID: **LFB-43208** Method: **SW6020**
Analysis Date: **09/25/18 12:31** Units: **mg/kg** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	1.0	47.7	0.07299	103	80	120				
Cadmium	25.1	1.0	23.85	0	105	80	120				
Lead	50.2	1.0	47.7	0	105	80	120				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 87** SampType: **Serial Dilution** Lab ID: **H18090302-007ADIL** Method: **SW6020**
Analysis Date: **09/25/18 12:43** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.60	1.2		0		0	0	4.69		10	N
Cadmium	ND	1.0		0		0	0	0.1213		10	
Lead	13.0	2.2		0		0	0	13.12		10	N

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43208

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180925B: 90** SampType: **Serial Dilution** Lab ID: **H18090302-009ADIL** Method: **SW6020**
Analysis Date: **09/25/18 12:48** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	352	2.3		0		0	0	341.6	3.1	10	
Cadmium	18.6	1.1		0		0	0	17.77	4.4	10	
Lead	801	4.3		0		0	0	755.2	5.8	10	

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 91** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18090302-007APDS1** Method: **SW6020**
Analysis Date: **09/25/18 12:50** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	34.7	1.0	30.24	4.69	99	75	125				
Cadmium	30.9	1.0	30.24	0.1213	102	75	125				
Lead	43.1	1.0	30.24	13.12	99	75	125				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 92** SampType: **Sample Matrix Spike** Lab ID: **H18090302-007AMS** Method: **SW6020**
Analysis Date: **09/25/18 12:52** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	66.8	1.0	62.08	4.69	100	75	125				
Cadmium	32.1	1.0	31.04	0.1213	103	75	125				
Lead	74.9	1.0	62.08	13.12	100	75	125				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 93** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090302-007AMSD** Method: **SW6020**
Analysis Date: **09/25/18 12:54** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	67.8	1.0	63.09	4.69	100	75	125	66.8	1.4	20	
Cadmium	31.4	1.0	31.55	0.1213	99	75	125	32.12	2.2	20	
Lead	83.7	1.0	63.09	13.12	112	75	125	74.94	11	20	

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43208

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180925B: 94** SampType: **Post Digestion/Distillation Spike** Lab ID: **H18090302-009APDS1** Method: **SW6020**

Analysis Date: **09/25/18 12:56** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	396	1.0	59.04	341.6		75	125				A
Cadmium	76.2	1.0	59.04	17.77	99	75	125				
Lead	811	1.0	59.04	755.2		75	125				A

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 95** SampType: **Sample Matrix Spike** Lab ID: **H18090302-009AMS** Method: **SW6020**

Analysis Date: **09/25/18 12:58** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	450	1.0	112.1	341.6	97	75	125				
Cadmium	74.4	1.0	56.05	17.77	101	75	125				
Lead	875	1.0	112.1	755.2		75	125				A

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.

Run ID :Run Order: **ICPMS205-H_180925B: 96** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090302-009AMSD** Method: **SW6020**

Analysis Date: **09/25/18 13:00** Units: **mg/kg-dry** **Prep Info:** Prep Date: **9/24/2018** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	460	1.0	111.1	341.6	106	75	125	450.3	2.1	20	
Cadmium	75.5	1.0	55.55	17.77	104	75	125	74.39	1.5	20	
Lead	902	1.0	111.1	755.2		75	125	874.6	3.1	20	A

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

- S= Spike recovery outside of QC advisory limits. The recovery in the Laboratory Control Sample was within QC advisory limits. This suggests that the Matrix Spike recover is due to matrix interference.

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138137

Date: *14-Oct-18*

Run ID :Run Order: **PHSC_101-H_180913A: 135** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **09/13/18 11:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	2									

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **PHSC_101-H_180913A: 136** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **09/13/18 12:00** 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
Alkalinity, Total as CaCO3	590	4.0	600	0	98	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **PHSC_101-H_180913A: 139** SampType: **Sample Duplicate** Lab ID: **H18090238-001ADUP** Method: **A2320 B**

Analysis Date: **09/13/18 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
Alkalinity, Total as CaCO3	130	4.0		0				132.6	0.3	10	
Bicarbonate as HCO3	160	4.0		0				161.2	0.3	10	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **PHSC_101-H_180913A: 179** SampType: **Sample Duplicate** Lab ID: **H18090251-003CDUP** Method: **A2320 B**

Analysis Date: **09/13/18 14:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	140	4.0		0				137.4	0.9	10	
Bicarbonate as HCO3	150	4.0		0				152.6	0.4	10	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138152

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180913A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E353.2**
Analysis Date: **09/13/18 09:18** 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	1.07	0.010	1	0	107	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 10** SampType: **Method Blank** Lab ID: **MBLK** Method: **E353.2**
Analysis Date: **09/13/18 09:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	ND	0.009									

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E353.2**
Analysis Date: **09/13/18 09:20** 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, Nitrate+Nitrite as N	1.07	0.011	1	0	107	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 42** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **09/13/18 09:57** 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	0.499	0.010	0.5	0	100	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 55** SampType: **Sample Matrix Spike** Lab ID: **H18090238-003DMS** Method: **E353.2**
Analysis Date: **09/13/18 10:12** 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, Nitrate+Nitrite as N	1.12	0.011	1	0.02837	109	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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138152

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180913A: 55** SampType: **Sample Matrix Spike** Lab ID: **H18090238-003DMS** Method: **E353.2**
Analysis Date: **09/13/18 10:12** 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: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 56** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-003DMSD** Method: **E353.2**
Analysis Date: **09/13/18 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	1.13	0.011	1	0.02837	110	90	110	1.12	1.0	10	

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 58** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **09/13/18 10:16** 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	0.503	0.010	0.5	0	101	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 60** SampType: **Sample Matrix Spike** Lab ID: **H18090238-007DMS** Method: **E353.2**
Analysis Date: **09/13/18 10:18** 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	0.1127	111	90	110				S

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 61** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-007DMSD** Method: **E353.2**
Analysis Date: **09/13/18 10:19** 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	1.23	0.011	1	0.1127	111	90	110	1.221	0.5	10	S

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138152

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180913A: 72** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**

Analysis Date: **09/13/18 10:33** 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
Nitrogen, Nitrate+Nitrite as N	0.513	0.010	0.5	0	103	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 74** SampType: **Sample Matrix Spike** Lab ID: **H18090238-017DMS** Method: **E353.2**

Analysis Date: **09/13/18 10:35** 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	1.11	0.011	1	0.009919	110	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180913A: 75** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-017DMSD** Method: **E353.2**

Analysis Date: **09/13/18 10:36** 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	1.12	0.011	1	0.009919	111	90	110	1.108	1.5	10	S

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138162

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180913B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **09/13/18 12:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0605	0.0050	0.06	0	101	90	110				
Cadmium	0.0306	0.0010	0.03	0	102	90	110				
Copper	0.0614	0.010	0.06	0	102	90	110				
Lead	0.0614	0.010	0.06	0	102	90	110				
Zinc	0.0617	0.010	0.06	0	103	90	110				

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **09/13/18 12:44** 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	7.69E-05	0.0050		0							
Cadmium	0.000240	0.0010		0							
Copper	0.000150	0.010		0							
Lead	0.000108	0.010		0							
Zinc	0.000327	0.010		0							

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/13/18 12:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01	0	104	70	130				
Cadmium	0.0104	0.0010	0.01	0	104	70	130				
Copper	0.0198	0.010	0.02	0	99	70	130				
Lead	8.18E-05	0.010		0		0	0				
Zinc	0.0100	0.010	0.01	0	100	70	130				

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138162

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180913B: 17** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **09/13/18 12:59** 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	ND	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0001									
Lead	ND	3E-05									
Zinc	ND	0.0003									

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 18** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **09/13/18 13:01** 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	0.0501	0.0050	0.05	0	100	85	115				
Cadmium	0.0503	0.0010	0.05	0	101	85	115				
Copper	0.0508	0.010	0.05	0	101	85	115				
Lead	0.0506	0.010	0.05	0	101	85	115				
Zinc	0.0510	0.010	0.05	0	102	85	115				

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 69** SampType: **Sample Matrix Spike** Lab ID: **H18090228-001EMS** Method: **E200.8**

Analysis Date: **09/13/18 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	0.0590	0.0010	0.05	0.0022	114	70	130				
Cadmium	0.0496	0.0010	0.05	0.0000809	99	70	130				
Copper	0.0509	0.0050	0.05	0.001196	99	70	130				
Lead	0.0522	0.0010	0.05	0.0002999	104	70	130				
Zinc	0.0512	0.010	0.05	0.000934	101	70	130				

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138162

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180913B: 70** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090228-001EMSD** Method: **E200.8**

Analysis Date: **09/13/18 14:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0588	0.0010	0.05	0.0022	113	70	130	0.05903	0.5	20	
Cadmium	0.0502	0.0010	0.05	0.0000809	100	70	130	0.04961	1.2	20	
Copper	0.0510	0.0050	0.05	0.001196	100	70	130	0.05094	0.0	20	
Lead	0.0524	0.0010	0.05	0.0002999	104	70	130	0.05217	0.5	20	
Zinc	0.0513	0.010	0.05	0.000934	101	70	130	0.05123	0.2	20	

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 83** SampType: **Sample Matrix Spike** Lab ID: **H18090238-005BMS** Method: **E200.8**

Analysis Date: **09/13/18 15:07** 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	0.0576	0.0010	0.05	0.005488	104	70	130				
Cadmium	0.0502	0.0010	0.05	0	100	70	130				
Copper	0.0502	0.0050	0.05	0.0006826	99	70	130				
Lead	0.0508	0.0010	0.05	0	102	70	130				
Zinc	0.0538	0.010	0.05	0.003148	101	70	130				

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 84** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-005BMSD** Method: **E200.8**

Analysis Date: **09/13/18 15:09** 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	0.0580	0.0010	0.05	0.005488	105	70	130	0.05761	0.6	20	
Cadmium	0.0502	0.0010	0.05	0	100	70	130	0.05017	0.1	20	
Copper	0.0506	0.0050	0.05	0.0006826	100	70	130	0.05025	0.6	20	
Lead	0.0513	0.0010	0.05	0	103	70	130	0.05084	0.8	20	
Zinc	0.0541	0.010	0.05	0.003148	102	70	130	0.0538	0.6	20	

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138162

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180913B: 97** SampType: **Sample Matrix Spike** Lab ID: **H18090238-015BMS** Method: **E200.8**

Analysis Date: **09/13/18 15:34** 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	0.0703	0.0010	0.05	0.01896	103	70	130				
Cadmium	0.0510	0.0010	0.05	0	102	70	130				
Copper	0.0509	0.0050	0.05	0.001861	98	70	130				
Lead	0.0509	0.0010	0.05	0.00008254	102	70	130				
Zinc	0.0530	0.010	0.05	0.002952	100	70	130				

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 98** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-015BMSD** Method: **E200.8**

Analysis Date: **09/13/18 15:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0708	0.0010	0.05	0.01896	104	70	130	0.07028	0.7	20	
Cadmium	0.0501	0.0010	0.05	0	100	70	130	0.05103	1.9	20	
Copper	0.0514	0.0050	0.05	0.001861	99	70	130	0.05094	1.0	20	
Lead	0.0506	0.0010	0.05	0.00008254	101	70	130	0.05088	0.5	20	
Zinc	0.0535	0.010	0.05	0.002952	101	70	130	0.05296	1.0	20	

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

Run ID :Run Order: **ICPMS205-H_180913B: 107** SampType: **Sample Matrix Spike** Lab ID: **H18090182-001BMS** Method: **E200.8**

Analysis Date: **09/13/18 15:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0641	0.0010	0.05	0.01251	103	70	130				
Cadmium	0.0489	0.0010	0.05	0	98	70	130				
Copper	0.0475	0.0050	0.05	0.000365	94	70	130				
Lead	0.0509	0.0010	0.05	0.001179	99	70	130				
Zinc	0.180	0.010	0.05	0.1353	89	70	130				

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138162

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180913B: 108** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090182-001BMSD** Method: **E200.8**

Analysis Date: **09/13/18 15:55** 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	0.0642	0.0010	0.05	0.01251	**103**	70	130	0.06413	**0.1**	20	
Cadmium	0.0504	0.0010	0.05	0	**101**	70	130	0.04887	**3.1**	20	
Copper	0.0479	0.0050	0.05	0.000365	**95**	70	130	0.04748	**0.8**	20	
Lead	0.0514	0.0010	0.05	0.001179	**100**	70	130	0.05087	**1.1**	20	
Zinc	0.180	0.010	0.05	0.1353	**89**	70	130	0.1798	**0.1**	20	

Associated samples: **H18090238-001B, H18090238-002B, H18090238-003B, H18090238-004B, H18090238-005B, H18090238-006B, H18090238-007B, H18090238-008B, H18090238-009B, H18090238-010B, H18090238-011B, H18090238-012B, H18090238-013B, H18090238-014B, H18090238-015B, H18090238-016B, H18090238-017B**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138179

Date: *14-Oct-18*

Run ID :Run Order: **IC METROHM_180913A: 2** SampType: **Method Blank** Lab ID: **ICB** Method: **E300.0**

Analysis Date: **09/13/18 09:57** 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	ND	0.009									
Sulfate	ND	0.01									

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 3** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E300.0**

Analysis Date: **09/13/18 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
Chloride	95.9	1.0	100	0	96	90	110				
Sulfate	396	1.0	400	0	99	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 4** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E300.0**

Analysis Date: **09/13/18 10:25** 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	24.0	1.0	25	0	96	90	110				
Sulfate	101	1.0	100	0	101	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 5** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **09/13/18 10:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	48.6	1.0	50	0	97	90	110				
Sulfate	201	1.0	200	0	101	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138179

Date: *14-Oct-18*

Run ID :Run Order: **IC METROHM_180913A: 17** SampType: **Sample Matrix Spike** Lab ID: **H18090238-004AMS** Method: **E300.0**

Analysis Date: **09/13/18 13:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	29.5	1.0	25	4.623	99	90	110				
Sulfate	122	1.0	100	19.57	103	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 18** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-004AMSD** Method: **E300.0**

Analysis Date: **09/13/18 13:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	29.3	1.0	25	4.623	99	90	110	29.46	0.4	20	
Sulfate	122	1.0	100	19.57	103	90	110	122.5	0.3	20	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 19** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **09/13/18 14:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	48.7	1.0	50	0	97	90	110				
Sulfate	203	1.0	200	0	102	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 31** SampType: **Sample Matrix Spike** Lab ID: **H18090238-014AMS** Method: **E300.0**

Analysis Date: **09/13/18 17:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23.7	1.0	25	0	95	90	110				
Sulfate	99.6	1.0	100	0	100	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138179

Date: *14-Oct-18*

Run ID :Run Order: **IC METROHM_180913A: 32** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-014AMSD** Method: **E300.0**

Analysis Date: **09/13/18 17:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23.6	1.0	25	0	94	90	110	23.68	0.4	20	
Sulfate	99.5	1.0	100	0	99	90	110	99.64	0.2	20	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 33** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **09/13/18 17:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	47.8	1.0	50	0	96	90	110				
Sulfate	199	1.0	200	0	99	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 45** SampType: **Sample Matrix Spike** Lab ID: **H18090251-006CMS** Method: **E300.0**

Analysis Date: **09/13/18 20:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	31.7	1.0	25	7.555	96	90	110				
Sulfate	226	1.0	100	126	100	90	110				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **IC METROHM_180913A: 46** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090251-006CMSD** Method: **E300.0**

Analysis Date: **09/13/18 21:00** 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	31.9	1.0	25	7.555	97	90	110	31.67	0.6	20	
Sulfate	228	1.0	100	126	102	90	110	225.8	0.9	20	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138191

Date: *14-Oct-18*

Run ID :Run Order: **FIA202-HE_180914B: 29** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **09/14/18 11:42** 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
Phosphorus, Total as P	0.103	0.010	0.1	0	**103**	90	110				

Associated samples: **H18090238-001D, H18090238-002D, H18090238-003D, H18090238-004D, H18090238-005D, H18090238-006D, H18090238-007D, H18090238-008D, H18090238-009D, H18090238-010D, H18090238-011D, H18090238-012D, H18090238-013D, H18090238-014D, H18090238-015D, H18090238-016D, H18090238-017D**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138197

Date: *14-Oct-18*

Run ID :Run Order: **HGCV202-H_180914A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **09/14/18 12:04** 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
Mercury	0.000103	0.00010	0.0001	0	103	90	110				

Associated samples: **H18090238-002C, H18090238-003C, H18090238-004C**

Run ID :Run Order: **HGCV202-H_180914A: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV1** Method: **E245.1**

Analysis Date: **09/14/18 12:07** 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
Mercury	0.000100	0.00010	0.0001	0	100	95	105				

Associated samples: **H18090238-002C, H18090238-003C, H18090238-004C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138198

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180914A: 7** SampType: **Method Blank** Lab ID: **MBLK** Method: **E350.1**
Analysis Date: **09/14/18 10:05** 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
Nitrogen, Ammonia as N	ND	0.02									

Associated samples: **H18090238-013D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180914A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E350.1**
Analysis Date: **09/14/18 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, Ammonia as N	10.5	0.50	10.3	0	102	90	110				

Associated samples: **H18090238-013D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180914A: 10** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E350.1**
Analysis Date: **09/14/18 10:09** 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	1.01	0.055	1	0	101	90	110				

Associated samples: **H18090238-013D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180914A: 65** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E350.1**
Analysis Date: **09/14/18 11:16** 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	0.516	0.050	0.5	0	103	90	110				

Associated samples: **H18090238-013D, H18090238-017D**

Run ID :Run Order: **FIA203-HE_180914A: 84** SampType: **Sample Matrix Spike** Lab ID: **H18090251-002FMS** Method: **E350.1**
Analysis Date: **09/14/18 11:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.863	0.055	1	0	86	80	120				

Associated samples: **H18090238-013D, H18090238-017D**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138198

Date: *14-Oct-18*

Run ID :Run Order: **FIA203-HE_180914A: 85** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090251-002FMSD** Method: **E350.1**

Analysis Date: **09/14/18 11:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	0.845	0.055	1	0	**84**	80	120	0.8627	**2.1**	10	

Associated samples: **H18090238-013D, H18090238-017D**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138203

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180914C: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **09/14/18 12:49** 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
Zinc	0.0622	0.010	0.06	0	104	90	110				

Associated samples: **H18090238-011B**

Run ID :Run Order: **ICPMS205-H_180914C: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **09/14/18 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
Zinc	0.000434	0.010		0							

Associated samples: **H18090238-011B**

Run ID :Run Order: **ICPMS205-H_180914C: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**
Analysis Date: **09/14/18 12:53** 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
Zinc	0.0101	0.010	0.01	0	101	70	130				

Associated samples: **H18090238-011B**

Run ID :Run Order: **ICPMS205-H_180914C: 17** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**
Analysis Date: **09/14/18 13:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	ND	0.0003									

Associated samples: **H18090238-011B**

Run ID :Run Order: **ICPMS205-H_180914C: 18** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**
Analysis Date: **09/14/18 13:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0511	0.010	0.05	0	102	85	115				

Associated samples: **H18090238-011B**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138203

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180914C: 36** SampType: **Sample Matrix Spike** Lab ID: **H18090238-011BMS** Method: **E200.8**

Analysis Date: **09/14/18 14:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0533	0.010	0.05	0.004525	97	70	130				

Associated samples: **H18090238-011B**

Run ID :Run Order: **ICPMS205-H_180914C: 37** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18090238-011BMSD** Method: **E200.8**

Analysis Date: **09/14/18 14:52** 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	0.0533	0.010	0.05	0.004525	98	70	130	0.05326	0.1	20	

Associated samples: **H18090238-011B**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138224

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180917A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **09/17/18 11:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0610	0.0050	0.06	0	102	90	110				
Cadmium	0.0314	0.0010	0.03	0	105	90	110				
Copper	0.0621	0.010	0.06	0	104	90	110				
Lead	0.0622	0.010	0.06	0	104	90	110				
Zinc	0.0628	0.010	0.06	0	105	90	110				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **09/17/18 11:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.82E-05	0.0050		0							
Cadmium	0.000247	0.0010		0							
Copper	0.000121	0.010		0							
Lead	0.000763	0.010		0							
Zinc	0.000331	0.010		0							

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/17/18 11:10** 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	0.00997	0.0050	0.01	0	100	70	130				
Cadmium	0.0100	0.0010	0.01	0	100	70	130				
Copper	0.0190	0.010	0.02	0	95	70	130				
Lead	0.000454	0.010		0		0	0				
Zinc	0.00969	0.010	0.01	0	97	70	130				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138224

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180917A: 192** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **09/17/18 17:40** 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	0.0593	0.0050	0.06	0	99	90	110				
Cadmium	0.0296	0.0010	0.03	0	99	90	110				
Copper	0.0602	0.010	0.06	0	100	90	110				
Lead	0.0573	0.010	0.06	0	95	90	110				
Zinc	0.0610	0.010	0.06	0	102	90	110				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 193** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **09/17/18 17:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.39E-05	0.0050		0							
Cadmium	0.000231	0.0010		0							
Copper	0.000141	0.010		0							
Lead	6.19E-05	0.010		0							
Zinc	0.000389	0.010		0							

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICPMS205-H_180917A: 194** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/17/18 17:44** 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	0.00982	0.0050	0.01	0	98	70	130				
Cadmium	0.00935	0.0010	0.01	0	93	70	130				
Copper	0.0189	0.010	0.02	0	94	70	130				
Lead	4.81E-05	0.010		0		0	0				
Zinc	0.00942	0.010	0.01	0	94	70	130				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138225

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180917B: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **09/17/18 11:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.6	1.0	40	0	99	95	105				
Magnesium	39.6	1.0	40	0	99	95	105				
Potassium	40.2	1.0	40	0	100	95	105				
Sodium	40.2	1.0	40	0	100	95	105				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 7** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV-1** Method: **E200.7**

Analysis Date: **09/17/18 11:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.3	1.0	25	0	101	95	105				
Magnesium	25.1	1.0	25	0	101	95	105				
Potassium	25.8	1.0	25	0	103	95	105				
Sodium	25.8	1.0	25	0	103	95	105				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 10** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **09/17/18 11:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	475	1.0	500	0	95	80	120				
Magnesium	523	1.0	500	0	105	80	120				
Potassium	-0.0192	1.0		0		0	0				
Sodium	0.0216	1.0		0		0	0				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **09/17/18 11:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	465	1.0	500	0	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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138225

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180917B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **09/17/18 11:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	512	1.0	500	0	102	80	120				
Potassium	19.3	1.0	20	0	97	80	120				
Sodium	19.2	1.0	20	0	96	80	120				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 74** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **09/17/18 15:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.1	1.0	25	0	100	90	110				
Magnesium	24.9	1.0	25	0	100	90	110				
Potassium	26.0	1.0	25	0	104	90	110				
Sodium	26.2	1.0	25	0	105	90	110				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 86** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **09/17/18 16:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.8	1.0	25	0	99	90	110				
Magnesium	24.5	1.0	25	0	98	90	110				
Potassium	26.4	1.0	25	0	106	90	110				
Sodium	26.5	1.0	25	0	106	90	110				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

Run ID :Run Order: **ICP2-HE_180917B: 98** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **09/17/18 17:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.5	1.0	25	0	98	90	110				
Magnesium	24.1	1.0	25	0	96	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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138225

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180917B: 98** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **09/17/18 17:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	25.9	1.0	25	0	**104**	90	110				
Sodium	26.2	1.0	25	0	**105**	90	110				

Associated samples: **H18090238-001C, H18090238-002C, H18090238-003C, H18090238-004C, H18090238-005C, H18090238-006C, H18090238-007C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-013C, H18090238-014C, H18090238-015C, H18090238-016C, H18090238-017C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138264

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180918A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **09/18/18 09:47** 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
Lead	0.0614	0.010	0.06	0	102	90	110				
Zinc	0.0628	0.010	0.06	0	105	90	110				

Associated samples: **H18090238-001C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-016C**

Run ID :Run Order: **ICPMS205-H_180918A: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **09/18/18 09:49** 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
Lead	2.65E-05	0.010		0							
Zinc	0.000328	0.010		0							

Associated samples: **H18090238-001C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-016C**

Run ID :Run Order: **ICPMS205-H_180918A: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**
Analysis Date: **09/18/18 09:51** 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
Lead	4.29E-06	0.010		0		0	0				
Zinc	0.0102	0.010	0.01	0	102	70	130				

Associated samples: **H18090238-001C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-016C**

Run ID :Run Order: **ICPMS205-H_180918A: 28** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **09/18/18 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
Lead	0.0599	0.010	0.06	0	100	90	110				
Zinc	0.0620	0.010	0.06	0	103	90	110				

Associated samples: **H18090238-001C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-016C**

Run ID :Run Order: **ICPMS205-H_180918A: 29** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **09/18/18 10:25** 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
Lead	6.83E-05	0.010		0							
Zinc	0.000384	0.010		0							

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138264

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180918A: 29** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **09/18/18 10:25** 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

Associated samples: **H18090238-001C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-016C**

Run ID :Run Order: **ICPMS205-H_180918A: 30** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **09/18/18 10:27** 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
Lead	5.72E-05	0.010		0		0	0				
Zinc	0.00988	0.010	0.01	0	99	70	130				

Associated samples: **H18090238-001C, H18090238-008C, H18090238-009C, H18090238-010C, H18090238-011C, H18090238-012C, H18090238-016C**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138308

Date: *14-Oct-18*

Run ID :Run Order: **HGCV202-H_180919A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **09/19/18 11:37** 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
Mercury	9.99E-05	0.00010	0.0001	0	100	90	110				

Associated samples: **H18090238-018A**

Run ID :Run Order: **HGCV202-H_180919A: 9** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV1** Method: **E245.1**

Analysis Date: **09/19/18 11:41** 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
Mercury	0.000101	0.00010	0.0001	0	101	95	105				

Associated samples: **H18090238-018A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138450

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180924B: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6010B**

Analysis Date: **09/24/18 11:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.798	0.012	0.8	0	100	90	110				
Lead	0.772	0.050	0.8	0	96	90	110				
Zinc	0.803	0.010	0.8	0	100	90	110				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 10** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **SW6010B**

Analysis Date: **09/24/18 11:39** 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
Copper	0.00299	0.012		0		0	0				
Lead	-0.0253	0.050		0		0	0				
Zinc	0.000330	0.010		0		0	0				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

Run ID :Run Order: **ICP2-HE_180924B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **SW6010B**

Analysis Date: **09/24/18 11:43** 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
Copper	0.501	0.012	0.5	0	100	80	120				
Lead	0.842	0.050	1	0	84	80	120				
Zinc	0.963	0.010	1	0	96	80	120				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138459

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180925B: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6020**

Analysis Date: **09/25/18 09:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0611	0.0010	0.06	0	102	90	110				
Cadmium	0.0307	0.0010	0.03	0	102	90	110				
Lead	0.0606	0.0010	0.06	0	101	90	110				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A, H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **SW6020**

Analysis Date: **09/25/18 09:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.97E-05	0.0010		0							
Cadmium	0.000241	0.0010		0							
Lead	-0.000150	0.0010		0							

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A, H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **SW6020**

Analysis Date: **09/25/18 09:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0101	0.0010	0.01	0	101	70	130				
Cadmium	0.0102	0.0010	0.01	0	102	70	130				
Lead	-0.000209	0.0010		0		0	0				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A, H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 28** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6020**

Analysis Date: **09/25/18 09:53** 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	0.0608	0.0010	0.06	0	101	90	110				
Cadmium	0.0304	0.0010	0.03	0	101	90	110				
Lead	0.0611	0.0010	0.06	0	102	90	110				

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

Client: MT DEQ-Federal Superfund
Work Order: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138459

Date: *14-Oct-18*

Run ID :Run Order: **ICPMS205-H_180925B: 28** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6020**

Analysis Date: **09/25/18 09:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

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

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A, H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 29** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **SW6020**

Analysis Date: **09/25/18 09:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.78E-05	0.0010		0							
Cadmium	0.000232	0.0010		0							
Lead	0.000134	0.0010		0							

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A, H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICPMS205-H_180925B: 30** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **SW6020**

Analysis Date: **09/25/18 09:56** 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	0.0010	0.01	0	104	70	130				
Cadmium	0.0103	0.0010	0.01	0	103	70	130				
Lead	0.000110	0.0010		0		0	0				

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A, H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138507

Date: *14-Oct-18*

Run ID :Run Order: **ICP2-HE_180925B: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **SW6010B**

Analysis Date: **09/25/18 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
Copper	0.792	0.012	0.8	0	99	90	110				
Zinc	0.796	0.010	0.8	0	100	90	110				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 10** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **SW6010B**

Analysis Date: **09/25/18 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
Copper	0.000530	0.012		0		0	0				
Zinc	0.00129	0.010		0		0	0				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

Run ID :Run Order: **ICP2-HE_180925B: 11** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **SW6010B**

Analysis Date: **09/25/18 10:24** 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
Copper	0.515	0.012	0.5	0	103	80	120				
Zinc	0.958	0.010	1	0	96	80	120				

Associated samples: **H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R138605

Date: *14-Oct-18*

Run ID :Run Order: **SOIL DRYING OVEN 2_180927A: 2** SampType: **Sample Duplicate** Lab ID: **H18090238-020ADUP** Method: **D2974**

Analysis Date: **09/28/18 15:25** Units: **wt%** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Moisture	57.5	0.20		0				57.5	0.1	20	

Associated samples: **H18090238-020A, H18090238-021A, H18090238-022A, H18090238-023A, H18090238-024A, H18090238-025A, H18090238-026A, H18090238-027A, H18090238-028A, H18090238-029A, H18090238-030A, H18090238-031A, H18090238-032A, H18090238-033A, H18090238-034A**

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS180912A

Date: *14-Oct-18*

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 1** SampType: **Method Blank** Lab ID: **MB-1_180912A** Method: **A2540 D**

Analysis Date: **09/12/18 14:40** 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
Solids, Total Suspended TSS @ 105 C	ND	0.3									

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-2_180912A** Method: **A2540 D**

Analysis Date: **09/12/18 14:40** 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
Solids, Total Suspended TSS @ 105 C	93.0	10	100	0	**93**	80	120				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 4** SampType: **Sample Duplicate** Lab ID: **H18090203-001BDUP** Method: **A2540 D**

Analysis Date: **09/12/18 14:40** 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
Solids, Total Suspended TSS @ 105 C	10.0	10		0				10	**0.0**	5	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 1** SampType: **Sample Duplicate** Lab ID: **H18090222-007ADUP** Method: **A2540 D**

Analysis Date: **09/12/18 14:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	5.00	10		0				4		5	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 2** SampType: **Method Blank** Lab ID: **MB-25_180912A** Method: **A2540 D**

Analysis Date: **09/12/18 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	0.3									

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: H18090238
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS180912A

Date: *14-Oct-18*

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 2** SampType: **Method Blank** Lab ID: **MB-25_180912A** Method: **A2540 D**

Analysis Date: **09/12/18 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

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

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-26_180912A** Method: **A2540 D**

Analysis Date: **09/12/18 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	100.0	10	100	0	100	80	120				

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 2** SampType: **Sample Duplicate** Lab ID: **H18090238-009ADUP** Method: **A2540 D**

Analysis Date: **09/12/18 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	3.86	10		0				3.571		5	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

Run ID :Run Order: **ACCU-124 (14410200)_180912A: 3** SampType: **Sample Duplicate** Lab ID: **H18090237-001ADUP** Method: **A2540 D**

Analysis Date: **09/12/18 14:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	3.60	10		0				3.6		5	

Associated samples: **H18090238-001A, H18090238-002A, H18090238-003A, H18090238-004A, H18090238-005A, H18090238-006A, H18090238-007A, H18090238-008A, H18090238-009A, H18090238-010A, H18090238-011A, H18090238-012A, H18090238-013A, H18090238-014A, H18090238-015A, H18090238-016A, H18090238-017A**

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

Work Order Receipt Checklist

MT DEQ-Federal Superfund H18090238

Login completed by: Jessica C. Smith
Date Received: 9/12/2018
Reviewed by: BL2000\rtooke
Received by: TLL
Reviewed Date: 9/13/2018
Carrier name: Hand Del

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

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:

Cooler 1 was received at 0.7 °C, Cooler 2 at 0.8 °C, Cooler 3 at 1.3 °C, Cooler 4 at 1.0 °C. On Ice. Box 1 was received at 19.9 °C, and Box 2 at 20.7 °C. No Ice. Methyl Mercury trip blank was received at 19.9 °C. No Ice. JCS 09/12/18

BROOKS APPLIED LABS
18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

October 10, 2018

Energy Laboratories, Inc.
ATTN: Jonathan Dee Hager
PO Box 5688
Helena, MT 59604
jhager@energylab.com

RE: Project ENL-HL1201

Dear Mr. Jonathan Hager,

On September 13, 2018, Brooks Applied Labs (BAL) received five (5) water samples. The samples were logged-in for the analyses of methyl mercury (MeHg) according to the chain-of-custody form. All samples were received and stored according to BAL SOPs and EPA methodology.

Water samples were pre-preserved with 6N hydrochloric acid and were distilled via EPA Method 1630.

The results were method blank corrected as described in the calculations section of the relevant BAL SOP(s) and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without qualification (aside from concentration qualifiers) and all associated quality control sample results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Betty Vordahl
Project Manager
Betty@brooksapplied.com

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Report Information

Laboratory Accreditation

BAL 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. BAL 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.brooksapplied.com/resources/certificates-permits/>. 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

AR	as received	**MS**	matrix spike
BAL	Brooks Applied Labs	**MSD**	matrix spike duplicate
BLK	method blank	**ND**	non-detect
BS	blank spike	**NR**	non-reportable
CAL	calibration standard	**N/C**	not calculated
CCB	continuing calibration blank	**PS**	post preparation spike
CCV	continuing calibration verification	**REC**	percent recovery
COC	chain of custody record	**RPD**	relative percent difference
D	dissolved fraction	**SCV**	secondary calibration verification
DUP	duplicate	**SOP**	standard operating procedure
IBL	instrument blank	**SRM**	standard reference material
ICV	initial calibration verification	**T**	total fraction
MDL	method detection limit	**TR**	total recoverable fraction
MRL	method reporting limit		

Definition of Data Qualifiers

(Effective 9/23/09)

E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Please see narrative for explanation.
J Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
J-1 Estimated value. A full explanation is presented in the narrative.
M Duplicate precision (RPD) was not within acceptance criteria. Please see narrative for explanation.
N Spike recovery was not within acceptance criteria. Please see narrative for explanation.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X 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 Applied 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 BAL.

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H18090238-002E	1837039-01	Water	Sample	09/10/2018	09/13/2018
H18090238-003E	1837039-02	Water	Sample	09/10/2018	09/13/2018
H18090238-004E	1837039-03	Water	Sample	09/10/2018	09/13/2018
H18090238-018B	1837039-04	Water	Sample	09/10/2018	09/13/2018
H18090238-019A	1837039-05	Water	Trip Blank	09/10/2018	09/13/2018

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	09/19/2018	09/20/2018	B182453	1801270

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
H18090238-002E										
1837039-01	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B182453	1801270
H18090238-003E										
1837039-02	MeHg	Water	TR	0.817		0.023	0.050	ng/L	B182453	1801270
H18090238-004E										
1837039-03	MeHg	Water	TR	0.820		0.023	0.050	ng/L	B182453	1801270
H18090238-018B										
1837039-04	MeHg	Water	TR	0.244		0.023	0.050	ng/L	B182453	1801270
H18090238-019A										
1837039-05	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B182453	1801270

Project ID: ENL-HL1201
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Accuracy & Precision Summary

Batch: B182453
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B182453-BS1	**Blank Spike, (1834011)**								
	MeHg		1.000	0.942	ng/L	94%	67-133		
B182453-MS1	**Matrix Spike (1837039-02)**								
	MeHg	0.817	2.000	2.857	ng/L	102%	65-135		
B182453-MSD1	**Matrix Spike Duplicate (1837039-02)**								
	MeHg	0.817	2.000	2.908	ng/L	105%	65-135	2%	35

Method Blanks & Reporting Limits

Batch: B182453
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B182453-BLK1	0.005	ng/L
B182453-BLK2	0.007	ng/L
B182453-BLK3	0.002	ng/L
B182453-BLK4	0.004	ng/L

Average: 0.005 **Standard Deviation:** 0.002 **MDL:** 0.023
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.049

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Sample Containers

Lab ID: 1837039-01
Sample: H18090238-002E
Report Matrix: Water
Sample Type: Sample
Collected: 09/10/2018
Received: 09/13/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	18-0155	2.0mL 6N HCl (PP)	1831059	<2	Cooler - 1837039

Lab ID: 1837039-02
Sample: H18090238-003E
Report Matrix: Water
Sample Type: Sample
Collected: 09/10/2018
Received: 09/13/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	18-0155	2.0mL 6N HCl (PP)	1831059	<2	Cooler - 1837039

Lab ID: 1837039-03
Sample: H18090238-004E
Report Matrix: Water
Sample Type: Sample
Collected: 09/10/2018
Received: 09/13/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	18-0155	2.0mL 6N HCl (PP)	1831059	<2	Cooler - 1837039

Lab ID: 1837039-04
Sample: H18090238-018B
Report Matrix: Water
Sample Type: Sample
Collected: 09/10/2018
Received: 09/13/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	18-0155	2.0mL 6N HCl (PP)	1831059	<2	Cooler - 1837039

Lab ID: 1837039-05
Sample: H18090238-019A
Report Matrix: Water
Sample Type: Trip Blank
Collected: 09/10/2018
Received: 09/13/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle Hg-Sp	250mL	18-0155	2.0mL 6N HCl (PP)	1831059	<2	Cooler - 1837039

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager

Shipping Containers

Cooler - 1837039

Received: September 13, 2018 10:00
Tracking No: 1Z37EW970164506679 via UPS
Coolant Type: Ice
Temperature: 2.7 °C

Description: Cooler
Damaged in transit? No
Returned to client? No
Comments: IR#18

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

Energy Laboratories Inc
3161 East Lyndale Avenue
Helena, MT 59601
4064420711

H18090238

CHAIN-OF-CUSTODY RECORD

12-Sep-18

PO:

Earliest HT Expires: Mon, 9/17
Test Codes: SUB-BROOKSRAND

Earliest Due Date: 9/21/2018
 # Bus. Days Until Due: 7

Subcontractor:
Brooks Applied Labs
18804 North Creek Parkway
Bothell, WA 98011
TEL: 2066326206
FAX: 2066326017
Acct #: 2066326206

Subcontractor's Client

Requested Tests

					SUB-BROOKSRAND
	H18090238-002E	Surface Water	09/10/18 11:00 A	1 - 500ML-P-NF-HCL	1
	H18090238-003E	Surface Water	09/10/18 11:00 A	1 - 500ML-P-NF-HCL	1
	H18090238-004E	Surface Water	09/10/18 11:00 A	1 - 500ML-P-NF-HCL	1
	H18090238-018B	Surface Water	09/10/18 10:00 A	1 - 500ML-P-NF-HCL	1
	H18090238-019A	Trip Blank	09/10/18 08:00 A	1 - 500ML-P-NF-HCL	1

On Hold

Comments:

QC Level:
STD

Methyl Hg

		Date/Time			Date/Time
Relinquished by:		9-12-18 15:16	**Received by:**		9/13/18@ 1000
Relinquished by:			**Received by:**		

Shipped By:	Custody Seal	Intact	Receipt Temp: °C	Temp Blank	On Ice
	Y N	Y N		Y N	Y N

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Account Information *(Billing information)*

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Joe Naughton
Phone	214-4478
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered

C1 = 0.7
C2 = 0.8
C3 = 1.3
C4 = 1.0
} TB
C5 = 19.9 Hg TB
Box1 = 19.9
Box2 = 20.7°

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	T.Traxler, J. Naughton
Sampler Phone	214-4478
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk., Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
C1 1	CFR-116A	9-10-18	0845	5	W	✓	✓	✓	✓		✓	✓	✓				H18090238
2	Field Blank #1 FC-CFR	9-10-18	1115	5	W	✓	✓	✓	✓		✓	✓	✓				
3	FC-CFR	9-10-18	1145	5	W	✓	✓	✓	✓		✓	✓	✓				
4	FC-CFR Duplicate	9-10-18	1145	5	W	✓	✓	✓	✓		✓	✓	✓				
C2 5	LBR-CFR-02	9-10-18	1330	5	W	✓	✓	✓	✓		✓	✓	✓				
6	CFR-34	9-10-18	1500	5	W	✓	✓	✓	✓		✓	✓	✓				
7	CFR-27H	9-10-18	1615	5	W	✓	✓	✓	✓		✓	✓	✓				
8	CFR-11F	9-10-18	1715	5	W	✓	✓	✓	✓		✓	✓	✓				
C3 9	CFR-07D	9-11-18	0845	5	W	✓	✓	✓	✓		✓	✓	✓				
10	CFR-07D Duplicate	9-11-18	0845	5	W	✓	✓	✓	✓		✓	✓	✓				

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	9-12-18 1205	[signature]	[signature]		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (Print)	Date/Time	Signature
				Tracy Ferrel	9/12/18 12:05	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
Hand	1	Y (N) C B	Y N	See °C Comments C1-C4 Box1 C1-4 Box2	(Y) N C5	(Y) N C5 C1-2 Box1 C3 Box2 C4	CC Cash Check_____	$	

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Account Information (Billing information)

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Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	▣Hard Copy ▣Email
Receive Report	☐Hard Copy ▣Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Joe Naughton
Phone	214-4478
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	joe.naughton@respec.com
Receive Report	☐Hard Copy ▣Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All dissolved samples field filtered
Sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 = 0.7
C2 = 0.8
C3 = 1.3
C4 = 1.0
} TB
C5 = 19.9° Hg TB

Box 1 = 19.9
Box 2 = 20.7

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	T. Traxler, J. Naughton
Sampler Phone	214-4478
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk. ,Sulfate, Chloride	Hardness (TR Ca & Mg)	Total As, Cd, Cu, Pb, Zn	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C3	1 CFR-03A	9-11-18	1015	5	W	✓	✓	✓	✓		✓	✓	✓				H18090238
	2 WSC-SBC	9-11-18	1115	5	W	✓	✓	✓	✓		✓	✓	✓				
	3 SS-25	9-11-18	1215	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C4	4 Field Blank #2 MWB-SBC	9-11-18	1315	5	W	✓	✓	✓	✓		✓	✓	✓				
	5 MWB-SBC	9-11-18	1345	5	W	✓	✓	✓	✓		✓	✓	✓				
	6 MCWC-MWB	9-11-18	1500	5	W	✓	✓	✓	✓		✓	✓	✓				
	7 SBC-P2	9-11-18	1400	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
Box 1	8 CFR-116A	9-10-18	0845	1	S									✓			
	9 LBR-CFR-02	9-10-18	1330	1	S									✓			
	10 LBR-CFR-02 Duplicate	9-10-18	1330	1	S									✓			

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	9-12-18 1205	[signature]	[signature]		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Tracy Lerch	9/12/18 1205	[signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	1	Y (N) C B	Y N	See Comments °C	(Y) N C1-4 C5 Box 1+2	(Y) N C1-4 C5 Box 1+2	CC Cash Check_____	$	

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Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information (if different than Account Information)

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Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

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C5 = 19.9°Hg TB
} TB

Box 1 = 19.9
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Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	T. Traxler, J. Naughton
Sampler Phone	214-4478
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
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DW - Drinking Water

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Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Total As, Cd, Cu, Pb, Zn	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
Box1	1 CFR-34	9-10-18	1500	1	S	✓			H18090238
	2 CFR-27H	9-10-18	1615	1	S	✓			
	3 CFR-11F	9-10-18	1715	1	S	✓			
	4 CFR-07D	9-11-18	0845	1	S	✓			
	5 CFR-03A	9-11-18	1015	1	S	✓			
	6 CFR-03A Duplicate	9-11-18	1015	1	S	✓			
	7 WSC-SBC	9-11-18	1115	1	S	✓			
Box2	8 MWB-SBC	9-11-18	1345	1	S	✓			
	9 MCWC-MWB	9-11-18	1500	1	S	✓			
Box1	10 LC-7.5	9-10-18	1815	1	S	✓			

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	9-12-18 1205	[signature]			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Nacy Corral	Date/Time 9/12/18 12:05	Signature [signature]

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	4	Y (N) C B	Y N	Sel °C Comment	Y N C1-4 C5 Box1+2	Y N C1-4 C5 Box1+2	CC Cash Check	$	

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Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

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Company/Name	RESPEC
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Mailing Address	820 N. Montana Ave. Suite A
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C4=1.0
C5=19.9° Hg TB
} TB Box 1=19.9 Box 2 20.7

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	T. Traxler, J. Naughton
Sampler Phone	214-4478
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
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	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Total As, Cd, Cu, Pb, Zn	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
Box 1	1 RTC-1.5	9-10-18	1845	1	S	✓			H18090238
Box 2	2 SS-25	9-11-18	1215	1	S	✓			
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	9-12-18 1205		Tracy Lovrak		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Tracy Lovrak	9/12/18 1205	Tracy Lovrak

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
Hand	5	Y (N) C B	Y N	See Comments	(Y) N	(Y) N	CC Cash Check_____	$	
					C1-4 C5 Box 1+2	C1-4 C5 Box 1+2			

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 subcontracted data will be clearly notated on your analytical report.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information *(Billing information)*

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	26462

Report Information *(if different than Account Information)*

Company/Name	RESPEC
Contact	Joe Naughton
Phone	214-4478
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 = 0.7
C2 = 0.8
C3 = 1.3
C4 = 1.0
C5 = 19.90 HgTB
} TB Box 1 = 19.9, Box 2 = 20.7

Project Information

Project Name, PWSID, Permit, etc. CFROU Monitoring	
Sampler Name T.Traxler, J. Naughton	Sampler Phone 214-4478
Sample Origin State Montana	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Total Mercury, low level	Methyl Mercury (contract)								See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
C1 1	CFR-84F	9-10-18	1030	1	W	✓	✓										H18090238
2	Field Blank #1 FC-CFR	9-10-18	1115	1	W	✓	✓										
3	FC-CFR	9-10-18	1145	1	W	✓	✓										
4	FC-CFR Duplicate	9-10-18	1145	1	W	✓	✓										
5																	
6																	
7																	
8																	
9																	
10																	

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Erich Weber	9-12-18 1205				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
					9/12/18 12:05	

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number *(cash/check only)*
Hand	4	Y (N) C B	Y N	See °C	(Y) (N)	(Y) (N)	CC Cash Check_____	$	

Comments: C1-4 C5 Box 1 & 2 C1-4 C5 Box 1 & 2

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 subcontracted data will be clearly notated on your analytical report.

APPENDIX B4

ANALYTICAL LABORATORY RESULTS
4TH QUARTER MONITORING

ANALYTICAL SUMMARY REPORT

January 03, 2019

MT DEQ-Federal Superfund
PO Box 200901
Helena, MT 59620-0901

Work Order: H18110515 Quote ID: H1525 - CFR Monitoring-474374

Project Name: CFROU Monitoring

Energy Laboratories Inc Helena MT received the following 18 samples for MT DEQ-Federal Superfund on 11/28/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18110515-001	CFR-116A	11/26/18 8:45	11/28/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18110515-002	Field Blank #1 FC-CFR	11/26/18 13:00	11/28/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended Subcontracted, Analytics
H18110515-003	FC-CFR	11/26/18 13:30	11/28/18	Surface Water	Same As Above
H18110515-004	FC-CFR Duplicate	11/26/18 13:30	11/28/18	Surface Water	Same As Above
H18110515-005	LBR-CFR-02	11/26/18 15:45	11/28/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18110515-006	CFR-34	11/26/18 17:15	11/28/18	Surface Water	Same As Above

ANALYTICAL SUMMARY REPORT

H18110515-007	CFR-27H	11/27/18 8:30	11/28/18	Surface Water	Same As Above
H18110515-008	CFR-11F	11/27/18 9:30	11/28/18	Surface Water	Same As Above
H18110515-009	CFR-07D	11/27/18 10:15	11/28/18	Surface Water	Same As Above
H18110515-010	Field Blank #2 CFR-03A	11/27/18 11:00	11/28/18	Surface Water	Same As Above
H18110515-011	CFR-03A	11/27/18 11:15	11/28/18	Surface Water	Same As Above
H18110515-012	WSC-SBC	11/27/18 12:00	11/28/18	Surface Water	Same As Above
H18110515-013	SS-25	11/27/18 12:45	11/28/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18110515-014	MWB-SBC	11/27/18 13:45	11/28/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18110515-015	SBC-P2	11/27/18 14:30	11/28/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18110515-016	SBC-P2 Duplicate	11/27/18 14:30	11/28/18	Surface Water	Same As Above

ANALYTICAL SUMMARY REPORT

H18110515-017	MCWC-MWB	11/27/18 16:00	11/28/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Suspended
H18110515-018	CFR-84F	11/26/18 11:30	11/28/18	Surface Water	Mercury, Total Recoverable Mercury Digestion by E245.1 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:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-116A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-001
Collection Date: 11/26/18 08:45
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	6	mg/L		1	0.3	A2540 D	11/28/18 13:18 / cm			-124 (14410200)_181128A	4	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	2	A2320 B	11/28/18 11:49 / SR			PHSC_101-H_181128A	35	R140191
Bicarbonate as HCO3	170	mg/L		4	2	A2320 B	11/28/18 11:49 / SR			PHSC_101-H_181128A	35	R140191
Chloride	5	mg/L		1	0.009	E300.0	11/28/18 20:52 / SR			IC METROHM_181128B	26	R140238
Sulfate	52	mg/L		1	0.01	E300.0	11/28/18 20:52 / SR			IC METROHM_181128B	26	R140238
Hardness as CaCO3	164	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	1	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.02	0.009	E353.2	12/04/18 16:21 / km			FIA203-HE_181204B	32	R140387
Nitrogen, Total	0.19	mg/L		0.05	0.03	A4500 N-C	12/04/18 09:51 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	14	43987
Phosphorus, Total as P	0.024	mg/L		0.003	0.002	E365.1	11/29/18 14:46 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	24	43955
METALS, DISSOLVED												
Arsenic	0.005	mg/L		0.001	0.00004	E200.8	11/29/18 12:09 / sld			ICPMS205-H_181129A	59	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:09 / sld			ICPMS205-H_181129A	59	R140242
Copper	0.003	mg/L		0.001	0.0001	E200.8	11/29/18 12:09 / sld			ICPMS205-H_181129A	59	R140242
Lead	0.00008	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:09 / sld			ICPMS205-H_181129A	59	R140242
Zinc	0.009	mg/L		0.008	0.0003	E200.8	11/29/18 12:09 / sld			ICPMS205-H_181129A	59	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.006	mg/L		0.001	0.00004	E200.8	11/30/18 12:41 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	50	43949
Cadmium	0.00006	mg/L		0.00003	0.00003	E200.8	11/30/18 12:41 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	50	43949
Calcium	47	mg/L		1	0.09	E200.7	11/30/18 12:08 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	57	43949
Copper	0.008	mg/L		0.001	0.0002	E200.8	11/30/18 12:41 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	50	43949
Lead	0.0009	mg/L		0.0003	0.00004	E200.8	11/30/18 12:41 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	50	43949
Magnesium	12	mg/L		1	0.2	E200.7	11/30/18 12:08 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	57	43949
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 12:08 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	57	43949
Sodium	11	mg/L		1	0.03	E200.7	11/30/18 12:08 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	57	43949
Zinc	0.013	mg/L		0.008	0.001	E200.8	11/30/18 12:41 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	50	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: Field Blank #1 FC-CFR
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-002
Collection Date: 11/26/18 13:00
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1	0.3	A2540 D	11/28/18 13:18 / cm			-124 (14410200)_181128A	5	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	2	mg/L	J	4	2	A2320 B	11/28/18 11:55 / SR			PHSC_101-H_181128A	37	R140191
Bicarbonate as HCO3	2	mg/L	J	4	2	A2320 B	11/28/18 11:55 / SR			PHSC_101-H_181128A	37	R140191
Chloride	ND	mg/L		1	0.009	E300.0	11/28/18 21:06 / SR			IC METROHM_181128B	27	R140238
Sulfate	0.01	mg/L	J	1	0.01	E300.0	11/28/18 21:06 / SR			IC METROHM_181128B	27	R140238
Hardness as CaCO3	1	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	2	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	12/04/18 16:22 / km			FIA203-HE_181204B	33	R140387
Nitrogen, Total	ND	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:04 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	22	43987
Phosphorus, Total as P	ND	mg/L		0.003	0.002	E365.1	11/29/18 14:47 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	25	43955
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.001	0.00004	E200.8	11/29/18 12:11 / sld			ICPMS205-H_181129A	60	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:11 / sld			ICPMS205-H_181129A	60	R140242
Copper	ND	mg/L		0.001	0.0001	E200.8	11/29/18 12:11 / sld			ICPMS205-H_181129A	60	R140242
Lead	ND	mg/L		0.0003	0.00003	E200.8	11/29/18 12:11 / sld			ICPMS205-H_181129A	60	R140242
Zinc	0.0078	mg/L	J	0.008	0.0003	E200.8	12/04/18 16:36 / sld			ICPMS205-H_181204A	174	R140358
METALS, TOTAL RECOVERABLE												
Arsenic	0.00005	mg/L	J	0.001	0.00004	E200.8	11/30/18 12:43 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	51	43949
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/30/18 12:43 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	51	43949
Calcium	0.58	mg/L	J	1	0.09	E200.7	11/30/18 12:12 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	58	43949
Copper	ND	mg/L		0.001	0.0002	E200.8	11/30/18 12:43 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	51	43949
Lead	ND	mg/L		0.0003	0.00004	E200.8	11/30/18 12:43 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	51	43949
Magnesium	0.010	mg/L	J	1	0.009	E200.7	11/30/18 12:12 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	58	43949
Mercury	ND	ug/L		0.005	0.001	E245.1	11/29/18 16:22 / dck	11/28/18 18:57	E245.1	HGCV202-H_181129A	60	43948
Potassium	ND	mg/L		1	0.06	E200.7	11/30/18 12:12 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	58	43949
Sodium	ND	mg/L		1	0.03	E200.7	11/30/18 12:12 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	58	43949
Zinc	0.002	mg/L	J	0.008	0.001	E200.8	11/30/18 12:43 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	51	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: FC-CFR
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-003
Collection Date: 11/26/18 13:30
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	14	mg/L		1	0.3	A2540 D	11/28/18 13:18 / cm			-124 (14410200)_181128A	6	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	160	mg/L		4	2	A2320 B	11/28/18 12:01 / SR			PHSC_101-H_181128A	39	R140191
Bicarbonate as HCO3	190	mg/L		4	2	A2320 B	11/28/18 12:01 / SR			PHSC_101-H_181128A	39	R140191
Chloride	4	mg/L		1	0.009	E300.0	11/28/18 21:20 / SR			IC METROHM_181128B	28	R140238
Sulfate	19	mg/L		1	0.01	E300.0	11/28/18 21:20 / SR			IC METROHM_181128B	28	R140238
Hardness as CaCO3	154	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	3	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.17	mg/L		0.02	0.009	E353.2	12/04/18 16:23 / km			FIA203-HE_181204B	34	R140387
Nitrogen, Total	0.39	mg/L		0.05	0.03	A4500 N-C	12/04/18 09:57 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	19	43987
Phosphorus, Total as P	0.048	mg/L		0.003	0.002	E365.1	11/29/18 15:20 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	51	43955
METALS, DISSOLVED												
Arsenic	0.006	mg/L		0.001	0.00004	E200.8	11/29/18 12:13 / sld			ICPMS205-H_181129A	61	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:13 / sld			ICPMS205-H_181129A	61	R140242
Copper	0.0010	mg/L	J	0.001	0.0001	E200.8	11/29/18 12:13 / sld			ICPMS205-H_181129A	61	R140242
Lead	0.00010	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:13 / sld			ICPMS205-H_181129A	61	R140242
Zinc	0.0057	mg/L	J	0.008	0.0003	E200.8	11/29/18 12:13 / sld			ICPMS205-H_181129A	61	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.007	mg/L		0.001	0.00004	E200.8	11/30/18 12:45 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	52	43949
Cadmium	0.00003	mg/L		0.00003	0.00003	E200.8	11/30/18 12:45 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	52	43949
Calcium	41	mg/L		1	0.09	E200.7	11/30/18 12:16 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	59	43949
Copper	0.002	mg/L		0.001	0.0002	E200.8	11/30/18 12:45 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	52	43949
Lead	0.0018	mg/L		0.0003	0.00004	E200.8	11/30/18 12:45 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	52	43949
Magnesium	12	mg/L		1	0.2	E200.7	11/30/18 12:16 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	59	43949
Mercury	0.061	ug/L		0.005	0.001	E245.1	11/29/18 16:32 / dck	11/28/18 18:57	E245.1	HGCV202-H_181129A	63	43948
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 12:16 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	59	43949
Sodium	9	mg/L		1	0.03	E200.7	11/30/18 12:16 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	59	43949
Zinc	0.009	mg/L		0.008	0.001	E200.8	11/30/18 12:45 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	52	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: FC-CFR Duplicate
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-004
Collection Date: 11/26/18 13:30
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	12	mg/L		1	0.3	A2540 D	11/28/18 13:18 / cm			-124 (14410200)_181128A	7	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	160	mg/L		4	2	A2320 B	11/28/18 12:12 / SR			PHSC_101-H_181128A	43	R140191
Bicarbonate as HCO3	190	mg/L		4	2	A2320 B	11/28/18 12:12 / SR			PHSC_101-H_181128A	43	R140191
Chloride	4	mg/L		1	0.009	E300.0	11/28/18 21:35 / SR			IC METROHM_181128B	29	R140238
Sulfate	20	mg/L		1	0.01	E300.0	11/28/18 21:35 / SR			IC METROHM_181128B	29	R140238
Hardness as CaCO3	158	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	4	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.17	mg/L		0.02	0.009	E353.2	12/04/18 16:25 / km			FIA203-HE_181204B	35	R140387
Nitrogen, Total	0.38	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:08 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	26	43987
Phosphorus, Total as P	0.057	mg/L		0.003	0.002	E365.1	11/29/18 14:49 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	27	43955
METALS, DISSOLVED												
Arsenic	0.006	mg/L		0.001	0.00004	E200.8	11/29/18 12:15 / sld			ICPMS205-H_181129A	62	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:15 / sld			ICPMS205-H_181129A	62	R140242
Copper	0.0005	mg/L	J	0.001	0.0001	E200.8	01/02/19 17:31 / sld			ICPMS205-H_190102A	89	R141051
Lead	0.00019	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:15 / sld			ICPMS205-H_181129A	62	R140242
Zinc	0.0072	mg/L	J	0.008	0.0003	E200.8	11/29/18 12:15 / sld			ICPMS205-H_181129A	62	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.007	mg/L		0.001	0.00004	E200.8	11/30/18 12:47 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	53	43949
Cadmium	0.00004	mg/L		0.00003	0.00003	E200.8	11/30/18 12:47 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	53	43949
Calcium	42	mg/L		1	0.09	E200.7	11/30/18 12:20 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	60	43949
Copper	0.002	mg/L		0.001	0.0002	E200.8	11/30/18 12:47 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	53	43949
Lead	0.0024	mg/L		0.0003	0.00004	E200.8	11/30/18 12:47 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	53	43949
Magnesium	13	mg/L		1	0.2	E200.7	11/30/18 12:20 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	60	43949
Mercury	0.089	ug/L		0.005	0.001	E245.1	11/29/18 16:35 / dck	11/28/18 18:57	E245.1	HGCV202-H_181129A	64	43948
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 12:20 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	60	43949
Sodium	10	mg/L		1	0.03	E200.7	11/30/18 12:20 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	60	43949
Zinc	0.011	mg/L		0.008	0.001	E200.8	11/30/18 12:47 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	53	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: LBR-CFR-02
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-005
Collection Date: 11/26/18 15:45
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	11/28/18 13:19 / cm			-124 (14410200)_181128A	8	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	130	mg/L		4	2	A2320 B	11/28/18 12:17 / SR			PHSC_101-H_181128A	45	R140191
Bicarbonate as HCO3	150	mg/L		4	2	A2320 B	11/28/18 12:17 / SR			PHSC_101-H_181128A	45	R140191
Chloride	3	mg/L		1	0.009	E300.0	11/29/18 10:42 / SR			IC METROHM_181129A	7	R140277
Sulfate	18	mg/L		1	0.01	E300.0	11/29/18 10:42 / SR			IC METROHM_181129A	7	R140277
Hardness as CaCO3	133	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	5	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.015	mg/L	J	0.02	0.009	E353.2	12/04/18 16:26 / km			FIA203-HE_181204B	36	R140387
Nitrogen, Total	0.08	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:06 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	24	43987
Phosphorus, Total as P	0.020	mg/L		0.003	0.002	E365.1	11/29/18 14:53 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	30	43955
METALS, DISSOLVED												
Arsenic	0.004	mg/L		0.001	0.00004	E200.8	11/29/18 12:17 / sld			ICPMS205-H_181129A	63	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:17 / sld			ICPMS205-H_181129A	63	R140242
Copper	0.0006	mg/L	J	0.001	0.0001	E200.8	11/29/18 12:17 / sld			ICPMS205-H_181129A	63	R140242
Lead	ND	mg/L		0.0003	0.00003	E200.8	11/29/18 12:17 / sld			ICPMS205-H_181129A	63	R140242
Zinc	0.012	mg/L		0.008	0.0003	E200.8	11/29/18 12:17 / sld			ICPMS205-H_181129A	63	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.004	mg/L		0.001	0.00004	E200.8	11/30/18 12:49 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	54	43949
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/30/18 12:49 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	54	43949
Calcium	39	mg/L		1	0.09	E200.7	11/30/18 15:31 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	110	43949
Copper	0.0009	mg/L	J	0.001	0.0002	E200.8	11/30/18 12:49 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	54	43949
Lead	0.00012	mg/L	J	0.0003	0.00004	E200.8	11/30/18 12:49 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	54	43949
Magnesium	9	mg/L		1	0.2	E200.7	11/30/18 15:31 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	110	43949
Potassium	2	mg/L		1	0.06	E200.7	11/30/18 15:31 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	110	43949
Sodium	7	mg/L		1	0.03	E200.7	11/30/18 15:31 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	110	43949
Zinc	0.003	mg/L	J	0.008	0.001	E200.8	11/30/18 12:49 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	54	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-34
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-006
Collection Date: 11/26/18 17:15
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	12	mg/L		1	0.3	A2540 D	11/28/18 13:19 / cm			-124 (14410200)_181128A	9	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	160	mg/L		4	2	A2320 B	11/28/18 12:22 / SR			PHSC_101-H_181128A	47	R140191
Bicarbonate as HCO3	190	mg/L		4	2	A2320 B	11/28/18 12:22 / SR			PHSC_101-H_181128A	47	R140191
Chloride	10	mg/L		1	0.009	E300.0	11/29/18 10:56 / SR			IC METROHM_181129A	8	R140277
Sulfate	74	mg/L		1	0.01	E300.0	11/29/18 10:56 / SR			IC METROHM_181129A	8	R140277
Hardness as CaCO3	220	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	6	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.23	mg/L		0.02	0.009	E353.2	12/04/18 16:27 / km			FIA203-HE_181204B	37	R140387
Nitrogen, Total	0.43	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:07 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	25	43987
Phosphorus, Total as P	0.034	mg/L		0.003	0.002	E365.1	11/29/18 14:56 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	33	43955
METALS, DISSOLVED												
Arsenic	0.008	mg/L		0.001	0.00004	E200.8	11/29/18 12:19 / sld			ICPMS205-H_181129A	64	R140242
Cadmium	0.00006	mg/L		0.00003	0.00003	E200.8	11/29/18 12:19 / sld			ICPMS205-H_181129A	64	R140242
Copper	0.005	mg/L		0.001	0.0001	E200.8	11/29/18 12:19 / sld			ICPMS205-H_181129A	64	R140242
Lead	0.00012	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:19 / sld			ICPMS205-H_181129A	64	R140242
Zinc	0.010	mg/L		0.008	0.0003	E200.8	11/29/18 12:19 / sld			ICPMS205-H_181129A	64	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.010	mg/L		0.001	0.00004	E200.8	11/30/18 12:51 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	55	43949
Cadmium	0.00011	mg/L		0.00003	0.00003	E200.8	11/30/18 12:51 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	55	43949
Calcium	64	mg/L		1	0.09	E200.7	11/30/18 15:35 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	111	43949
Copper	0.019	mg/L		0.001	0.0002	E200.8	11/30/18 12:51 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	55	43949
Lead	0.0021	mg/L		0.0003	0.00004	E200.8	11/30/18 12:51 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	55	43949
Magnesium	14	mg/L		1	0.2	E200.7	11/30/18 15:35 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	111	43949
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 15:35 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	111	43949
Sodium	16	mg/L		1	0.03	E200.7	11/30/18 15:35 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	111	43949
Zinc	0.023	mg/L		0.008	0.001	E200.8	11/30/18 12:51 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	55	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-27H
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-007
Collection Date: 11/27/18 08:30
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	11	mg/L		1	0.3	A2540 D	11/28/18 13:19 / cm			124 (14410200)_181128A	10	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	150	mg/L		4	2	A2320 B	11/28/18 12:28 / SR			PHSC_101-H_181128A	49	R140191
Bicarbonate as HCO3	180	mg/L		4	2	A2320 B	11/28/18 12:28 / SR			PHSC_101-H_181128A	49	R140191
Chloride	10	mg/L		1	0.009	E300.0	11/29/18 11:10 / SR			IC METROHM_181129A	9	R140277
Sulfate	72	mg/L		1	0.01	E300.0	11/29/18 11:10 / SR			IC METROHM_181129A	9	R140277
Hardness as CaCO3	211	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	7	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.02	0.009	E353.2	12/04/18 16:31 / km			FIA203-HE_181204B	40	R140387
Nitrogen, Total	0.42	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:10 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	27	43987
Phosphorus, Total as P	0.029	mg/L		0.003	0.002	E365.1	11/29/18 14:57 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	34	43955
METALS, DISSOLVED												
Arsenic	0.008	mg/L		0.001	0.00004	E200.8	11/29/18 12:21 / sld			ICPMS205-H_181129A	65	R140242
Cadmium	0.00005	mg/L		0.00003	0.00003	E200.8	11/29/18 12:21 / sld			ICPMS205-H_181129A	65	R140242
Copper	0.004	mg/L		0.001	0.0001	E200.8	11/29/18 12:21 / sld			ICPMS205-H_181129A	65	R140242
Lead	0.00011	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:21 / sld			ICPMS205-H_181129A	65	R140242
Zinc	0.010	mg/L		0.008	0.0003	E200.8	11/29/18 12:21 / sld			ICPMS205-H_181129A	65	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.009	mg/L		0.001	0.00004	E200.8	11/30/18 13:06 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	63	43949
Cadmium	0.00012	mg/L		0.00003	0.00003	E200.8	11/30/18 13:06 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	63	43949
Calcium	62	mg/L		1	0.09	E200.7	11/30/18 15:39 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	112	43949
Copper	0.017	mg/L		0.001	0.0002	E200.8	11/30/18 13:06 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	63	43949
Lead	0.0020	mg/L		0.0003	0.00004	E200.8	11/30/18 13:06 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	63	43949
Magnesium	14	mg/L		1	0.2	E200.7	11/30/18 15:39 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	112	43949
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 15:39 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	112	43949
Sodium	15	mg/L		1	0.03	E200.7	11/30/18 15:39 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	112	43949
Zinc	0.021	mg/L		0.008	0.001	E200.8	11/30/18 13:06 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	63	43949

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-008
Collection Date: 11/27/18 09:30
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	8	mg/L		1	0.3	A2540 D	11/28/18 13:20 / cm			124 (14410200)_181128A	11	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	150	mg/L		4	2	A2320 B	11/28/18 12:33 / SR			PHSC_101-H_181128A	51	R140191
Bicarbonate as HCO3	180	mg/L		4	2	A2320 B	11/28/18 12:33 / SR			PHSC_101-H_181128A	51	R140191
Chloride	10	mg/L		1	0.009	E300.0	11/29/18 11:24 / SR			IC METROHM_181129A	10	R140277
Sulfate	82	mg/L		1	0.01	E300.0	11/29/18 11:24 / SR			IC METROHM_181129A	10	R140277
Hardness as CaCO3	229	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	8	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.14	mg/L		0.02	0.009	E353.2	12/04/18 16:32 / km			FIA203-HE_181204B	41	R140387
Nitrogen, Total	0.32	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:11 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	28	43987
Phosphorus, Total as P	0.025	mg/L		0.003	0.002	E365.1	11/29/18 14:58 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	35	43955
METALS, DISSOLVED												
Arsenic	0.009	mg/L		0.001	0.00004	E200.8	11/29/18 12:22 / sld			ICPMS205-H_181129A	66	R140242
Cadmium	0.00005	mg/L		0.00003	0.00003	E200.8	11/29/18 12:22 / sld			ICPMS205-H_181129A	66	R140242
Copper	0.004	mg/L		0.001	0.0001	E200.8	11/29/18 12:22 / sld			ICPMS205-H_181129A	66	R140242
Lead	0.00011	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:22 / sld			ICPMS205-H_181129A	66	R140242
Zinc	0.010	mg/L		0.008	0.0003	E200.8	11/29/18 12:22 / sld			ICPMS205-H_181129A	66	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.010	mg/L		0.001	0.00004	E200.8	11/30/18 13:08 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	64	43949
Cadmium	0.00010	mg/L		0.00003	0.00003	E200.8	11/30/18 13:08 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	64	43949
Calcium	67	mg/L		1	0.09	E200.7	11/30/18 15:43 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	113	43949
Copper	0.012	mg/L		0.001	0.0002	E200.8	11/30/18 13:08 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	64	43949
Lead	0.0013	mg/L		0.0003	0.00004	E200.8	11/30/18 13:08 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	64	43949
Magnesium	15	mg/L		1	0.2	E200.7	11/30/18 15:43 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	113	43949
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 15:43 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	113	43949
Sodium	14	mg/L		1	0.03	E200.7	11/30/18 15:43 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	113	43949
Zinc	0.016	mg/L		0.008	0.001	E200.8	11/30/18 13:08 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	64	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-07D
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-009
Collection Date: 11/27/18 10:15
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	6	mg/L		1	0.3	A2540 D	11/28/18 13:21 / cm			124 (14410200)_181128A	12	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		4	2	A2320 B	11/28/18 12:39 / SR			PHSC_101-H_181128A	53	R140191
Bicarbonate as HCO3	180	mg/L		4	2	A2320 B	11/28/18 12:39 / SR			PHSC_101-H_181128A	53	R140191
Chloride	10	mg/L		1	0.009	E300.0	11/29/18 11:38 / SR			IC METROHM_181129A	11	R140277
Sulfate	82	mg/L		1	0.01	E300.0	11/29/18 11:38 / SR			IC METROHM_181129A	11	R140277
Hardness as CaCO3	226	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	9	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.14	mg/L		0.02	0.009	E353.2	12/04/18 16:35 / km			FIA203-HE_181204B	44	R140387
Nitrogen, Total	0.30	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:12 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	29	43987
Phosphorus, Total as P	0.019	mg/L		0.003	0.002	E365.1	11/29/18 14:59 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	36	43955
METALS, DISSOLVED												
Arsenic	0.009	mg/L		0.001	0.00004	E200.8	11/29/18 12:36 / sld			ICPMS205-H_181129A	73	R140242
Cadmium	0.00005	mg/L		0.00003	0.00003	E200.8	11/29/18 12:36 / sld			ICPMS205-H_181129A	73	R140242
Copper	0.004	mg/L		0.001	0.0001	E200.8	11/29/18 12:36 / sld			ICPMS205-H_181129A	73	R140242
Lead	0.00010	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:36 / sld			ICPMS205-H_181129A	73	R140242
Zinc	0.009	mg/L		0.008	0.0003	E200.8	11/29/18 12:36 / sld			ICPMS205-H_181129A	73	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.009	mg/L		0.001	0.00004	E200.8	11/30/18 13:10 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	65	43949
Cadmium	0.00009	mg/L		0.00003	0.00003	E200.8	11/30/18 13:10 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	65	43949
Calcium	66	mg/L		1	0.09	E200.7	11/30/18 15:47 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	114	43949
Copper	0.011	mg/L		0.001	0.0002	E200.8	11/30/18 13:10 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	65	43949
Lead	0.0011	mg/L		0.0003	0.00004	E200.8	11/30/18 13:10 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	65	43949
Magnesium	15	mg/L		1	0.2	E200.7	11/30/18 15:47 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	114	43949
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 15:47 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	114	43949
Sodium	13	mg/L		1	0.03	E200.7	11/30/18 15:47 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	114	43949
Zinc	0.013	mg/L		0.008	0.001	E200.8	11/30/18 13:10 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	65	43949

Report Definitions:
RL - Analyte reporting limit.
J - Estimated value. The analyte was present but less than the 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 CFR-03A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-010
Collection Date: 11/27/18 11:00
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	ND	mg/L		1	0.3	A2540 D	11/28/18 13:21 / cm			124 (14410200)_181128A	13	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	2	mg/L	J	4	2	A2320 B	11/28/18 12:44 / SR			PHSC_101-H_181128A	55	R140191
Bicarbonate as HCO3	2	mg/L	J	4	2	A2320 B	11/28/18 12:44 / SR			PHSC_101-H_181128A	55	R140191
Chloride	0.036	mg/L	J	1	0.009	E300.0	11/29/18 11:52 / SR			IC METROHM_181129A	12	R140277
Sulfate	0.01	mg/L	J	1	0.01	E300.0	11/29/18 11:52 / SR			IC METROHM_181129A	12	R140277
Hardness as CaCO3	1	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	10	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	12/04/18 16:41 / km			FIA203-HE_181204B	49	R140387
Nitrogen, Total	ND	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:21 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	37	43987
Phosphorus, Total as P	0.002	mg/L	J	0.003	0.002	E365.1	11/29/18 15:01 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	37	43955
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.001	0.00004	E200.8	11/29/18 12:38 / sld			ICPMS205-H_181129A	74	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:38 / sld			ICPMS205-H_181129A	74	R140242
Copper	0.0002	mg/L	J	0.001	0.0001	E200.8	11/29/18 12:38 / sld			ICPMS205-H_181129A	74	R140242
Lead	ND	mg/L		0.0003	0.00003	E200.8	11/29/18 12:38 / sld			ICPMS205-H_181129A	74	R140242
Zinc	0.017	mg/L		0.008	0.0003	E200.8	11/29/18 12:38 / sld			ICPMS205-H_181129A	74	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.00006	mg/L	J	0.001	0.00004	E200.8	11/30/18 13:12 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	66	43949
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/30/18 13:12 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	66	43949
Calcium	0.58	mg/L	J	1	0.09	E200.7	11/30/18 15:51 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	115	43949
Copper	0.0005	mg/L	J	0.001	0.0002	E200.8	11/30/18 13:12 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	66	43949
Lead	0.00019	mg/L	J	0.0003	0.00004	E200.8	11/30/18 13:12 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	66	43949
Magnesium	0.015	mg/L	J	1	0.009	E200.7	11/30/18 15:51 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	115	43949
Potassium	ND	mg/L		1	0.06	E200.7	11/30/18 15:51 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	115	43949
Sodium	ND	mg/L		1	0.03	E200.7	11/30/18 15:51 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	115	43949
Zinc	0.003	mg/L	J	0.008	0.001	E200.8	11/30/18 13:12 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	66	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-03A
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-011
Collection Date: 11/27/18 11:15
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	4	mg/L		1	0.3	A2540 D	11/28/18 13:21 / cm			124 (14410200)_181128A	14	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	130	mg/L		4	2	A2320 B	11/28/18 12:50 / SR			PHSC_101-H_181128A	57	R140191
Bicarbonate as HCO3	150	mg/L		4	2	A2320 B	11/28/18 12:50 / SR			PHSC_101-H_181128A	57	R140191
Chloride	13	mg/L		1	0.009	E300.0	11/29/18 12:06 / SR			IC METROHM_181129A	13	R140277
Sulfate	68	mg/L		1	0.01	E300.0	11/29/18 12:06 / SR			IC METROHM_181129A	13	R140277
Hardness as CaCO3	193	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	11	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.02	0.009	E353.2	12/04/18 16:38 / km			FIA203-HE_181204B	46	R140387
Nitrogen, Total	0.22	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:17 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	33	43987
Phosphorus, Total as P	0.022	mg/L		0.003	0.002	E365.1	11/29/18 15:02 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	38	43955
METALS, DISSOLVED												
Arsenic	0.008	mg/L		0.001	0.00004	E200.8	11/29/18 12:40 / sld			ICPMS205-H_181129A	75	R140242
Cadmium	0.00006	mg/L		0.00003	0.00003	E200.8	11/29/18 12:40 / sld			ICPMS205-H_181129A	75	R140242
Copper	0.004	mg/L		0.001	0.0001	E200.8	11/29/18 12:40 / sld			ICPMS205-H_181129A	75	R140242
Lead	0.00011	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:40 / sld			ICPMS205-H_181129A	75	R140242
Zinc	0.0075	mg/L	J	0.008	0.0003	E200.8	11/29/18 12:40 / sld			ICPMS205-H_181129A	75	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.008	mg/L		0.001	0.00004	E200.8	11/30/18 13:14 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	67	43949
Cadmium	0.00009	mg/L		0.00003	0.00003	E200.8	11/30/18 13:14 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	67	43949
Calcium	57	mg/L		1	0.09	E200.7	11/30/18 15:55 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	116	43949
Copper	0.007	mg/L		0.001	0.0002	E200.8	11/30/18 13:14 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	67	43949
Lead	0.0006	mg/L		0.0003	0.00004	E200.8	11/30/18 13:14 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	67	43949
Magnesium	13	mg/L		1	0.2	E200.7	11/30/18 15:55 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	116	43949
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 15:55 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	116	43949
Sodium	14	mg/L		1	0.03	E200.7	11/30/18 15:55 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	116	43949
Zinc	0.009	mg/L		0.008	0.001	E200.8	11/30/18 13:14 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	67	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: WSC-SBC
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-012
Collection Date: 11/27/18 12:00
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	3	mg/L		1	0.3	A2540 D	11/28/18 13:22 / cm			124 (14410200)_181128A	15	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	130	mg/L		4	2	A2320 B	11/28/18 12:56 / SR			PHSC_101-H_181128A	59	R140191
Bicarbonate as HCO3	160	mg/L		4	2	A2320 B	11/28/18 12:56 / SR			PHSC_101-H_181128A	59	R140191
Chloride	2	mg/L		1	0.009	E300.0	11/29/18 12:21 / SR			IC METROHM_181129A	14	R140277
Sulfate	31	mg/L		1	0.01	E300.0	11/29/18 12:21 / SR			IC METROHM_181129A	14	R140277
Hardness as CaCO3	162	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	12	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.02	0.009	E353.2	12/04/18 16:39 / km			FIA203-HE_181204B	47	R140387
Nitrogen, Total	0.15	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:59 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	65	43987
Phosphorus, Total as P	0.010	mg/L		0.003	0.002	E365.1	11/29/18 15:03 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	39	43955
METALS, DISSOLVED												
Arsenic	0.004	mg/L		0.001	0.00004	E200.8	11/29/18 12:42 / sld			ICPMS205-H_181129A	76	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:42 / sld			ICPMS205-H_181129A	76	R140242
Copper	0.002	mg/L		0.001	0.0001	E200.8	11/29/18 12:42 / sld			ICPMS205-H_181129A	76	R140242
Lead	0.00005	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:42 / sld			ICPMS205-H_181129A	76	R140242
Zinc	0.0066	mg/L	J	0.008	0.0003	E200.8	11/29/18 12:42 / sld			ICPMS205-H_181129A	76	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.004	mg/L		0.001	0.00004	E200.8	11/30/18 13:16 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	68	43949
Cadmium	0.00005	mg/L		0.00003	0.00003	E200.8	11/30/18 13:16 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	68	43949
Calcium	48	mg/L		1	0.09	E200.7	11/30/18 14:07 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	88	43949
Copper	0.005	mg/L		0.001	0.0002	E200.8	11/30/18 13:16 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	68	43949
Lead	0.0004	mg/L		0.0003	0.00004	E200.8	11/30/18 13:16 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	68	43949
Magnesium	10	mg/L		1	0.2	E200.7	11/30/18 14:07 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	88	43949
Potassium	1	mg/L		1	0.06	E200.7	11/30/18 14:07 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	88	43949
Sodium	4	mg/L		1	0.03	E200.7	11/30/18 14:07 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	88	43949
Zinc	0.005	mg/L	J	0.008	0.001	E200.8	11/30/18 13:16 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	68	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SS-25
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-013
Collection Date: 11/27/18 12:45
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	11/28/18 13:22 / cm			124 (14410200)_181128A	16	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	2	A2320 B	11/28/18 13:17 / SR			PHSC_101-H_181128A	63	R140191
Bicarbonate as HCO3	140	mg/L		4	2	A2320 B	11/28/18 13:17 / SR			PHSC_101-H_181128A	63	R140191
Chloride	24	mg/L		1	0.009	E300.0	11/29/18 12:35 / SR			IC METROHM_181129A	15	R140277
Sulfate	109	mg/L		1	0.01	E300.0	11/29/18 12:35 / SR			IC METROHM_181129A	15	R140277
Hardness as CaCO3	227	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	13	R140314
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	11/29/18 11:17 / km			FIA203-HE_181129A	20	R140240
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.02	0.009	E353.2	12/04/18 16:40 / km			FIA203-HE_181204B	48	R140387
Nitrogen, Total	0.30	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:46 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	56	43987
Phosphorus, Total as P	0.037	mg/L		0.003	0.002	E365.1	11/29/18 15:04 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	40	43955
METALS, DISSOLVED												
Arsenic	0.013	mg/L		0.001	0.00004	E200.8	11/29/18 12:44 / sld			ICPMS205-H_181129A	77	R140242
Cadmium	0.00010	mg/L		0.00003	0.00003	E200.8	11/29/18 12:44 / sld			ICPMS205-H_181129A	77	R140242
Copper	0.005	mg/L		0.001	0.0001	E200.8	11/29/18 12:44 / sld			ICPMS205-H_181129A	77	R140242
Lead	0.00016	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:44 / sld			ICPMS205-H_181129A	77	R140242
Zinc	0.009	mg/L		0.008	0.0003	E200.8	11/29/18 12:44 / sld			ICPMS205-H_181129A	77	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.013	mg/L		0.001	0.00004	E200.8	11/30/18 13:18 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	69	43949
Cadmium	0.00013	mg/L		0.00003	0.00003	E200.8	11/30/18 13:18 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	69	43949
Calcium	65	mg/L		1	0.09	E200.7	11/30/18 14:11 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	89	43949
Copper	0.007	mg/L		0.001	0.0002	E200.8	11/30/18 13:18 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	69	43949
Lead	0.0006	mg/L		0.0003	0.00004	E200.8	11/30/18 13:18 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	69	43949
Magnesium	15	mg/L		1	0.2	E200.7	11/30/18 14:11 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	89	43949
Potassium	4	mg/L		1	0.06	E200.7	11/30/18 14:11 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	89	43949
Sodium	23	mg/L		1	0.03	E200.7	11/30/18 14:11 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	89	43949
Zinc	0.011	mg/L		0.008	0.001	E200.8	11/30/18 13:18 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	69	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: MWB-SBC
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-014
Collection Date: 11/27/18 13:45
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	11/28/18 13:22 / cm			124 (14410200)_181128A	17	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	2	A2320 B	11/28/18 13:28 / SR			PHSC_101-H_181128A	67	R140191
Bicarbonate as HCO3	150	mg/L		4	2	A2320 B	11/28/18 13:28 / SR			PHSC_101-H_181128A	67	R140191
Chloride	7	mg/L		1	0.009	E300.0	11/29/18 12:49 / SR			IC METROHM_181129A	16	R140277
Sulfate	153	mg/L		1	0.01	E300.0	11/29/18 12:49 / SR			IC METROHM_181129A	16	R140277
Hardness as CaCO3	260	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	14	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.02	0.009	E353.2	12/04/18 16:42 / km			FIA203-HE_181204B	50	R140387
Nitrogen, Total	0.24	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:25 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	40	43987
Phosphorus, Total as P	0.017	mg/L		0.003	0.002	E365.1	11/29/18 15:05 / km	11/29/18 10:42	E365.1	FIA202-HE_181129B	41	43955
METALS, DISSOLVED												
Arsenic	0.016	mg/L		0.001	0.00004	E200.8	11/29/18 12:46 / sld			ICPMS205-H_181129A	78	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 12:46 / sld			ICPMS205-H_181129A	78	R140242
Copper	0.002	mg/L		0.001	0.0001	E200.8	11/29/18 12:46 / sld			ICPMS205-H_181129A	78	R140242
Lead	0.00012	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:46 / sld			ICPMS205-H_181129A	78	R140242
Zinc	0.0062	mg/L	J	0.008	0.0003	E200.8	11/29/18 12:46 / sld			ICPMS205-H_181129A	78	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.016	mg/L		0.001	0.00004	E200.8	11/30/18 13:20 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	70	43949
Cadmium	0.00003	mg/L		0.00003	0.00003	E200.8	11/30/18 13:20 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	70	43949
Calcium	76	mg/L		1	0.09	E200.7	11/30/18 14:15 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	90	43949
Copper	0.002	mg/L		0.001	0.0002	E200.8	11/30/18 13:20 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	70	43949
Lead	0.0005	mg/L		0.0003	0.00004	E200.8	11/30/18 13:20 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	70	43949
Magnesium	17	mg/L		1	0.2	E200.7	11/30/18 14:15 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	90	43949
Potassium	3	mg/L		1	0.06	E200.7	11/30/18 14:15 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	90	43949
Sodium	14	mg/L		1	0.03	E200.7	11/30/18 14:15 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	90	43949
Zinc	0.006	mg/L	J	0.008	0.001	E200.8	11/30/18 13:20 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	70	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SBC-P2
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-015
Collection Date: 11/27/18 14:30
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	11/28/18 13:22 / cm			124 (14410200)_181128A	18	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	2	A2320 B	11/28/18 13:33 / SR			PHSC_101-H_181128A	69	R140191
Bicarbonate as HCO3	140	mg/L		4	2	A2320 B	11/28/18 13:33 / SR			PHSC_101-H_181128A	69	R140191
Chloride	31	mg/L		1	0.009	E300.0	11/29/18 14:13 / SR			IC METROHM_181129A	21	R140277
Sulfate	90	mg/L		1	0.01	E300.0	11/29/18 14:13 / SR			IC METROHM_181129A	21	R140277
Hardness as CaCO3	194	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	15	R140314
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	11/29/18 11:18 / km			FIA203-HE_181129A	21	R140240
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	12/04/18 16:44 / km			FIA203-HE_181204B	51	R140387
Nitrogen, Total	0.33	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:26 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	41	43987
Phosphorus, Total as P	0.044	mg/L		0.003	0.002	E365.1	12/04/18 09:29 / km	12/03/18 09:30	E365.1	FIA202-HE_181204A	16	43976
METALS, DISSOLVED												
Arsenic	0.011	mg/L		0.001	0.00004	E200.8	11/29/18 12:48 / sld			ICPMS205-H_181129A	79	R140242
Cadmium	0.00014	mg/L		0.00003	0.00003	E200.8	11/29/18 12:48 / sld			ICPMS205-H_181129A	79	R140242
Copper	0.007	mg/L		0.001	0.0001	E200.8	11/29/18 12:48 / sld			ICPMS205-H_181129A	79	R140242
Lead	0.00018	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:48 / sld			ICPMS205-H_181129A	79	R140242
Zinc	0.009	mg/L		0.008	0.0003	E200.8	11/29/18 12:48 / sld			ICPMS205-H_181129A	79	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.011	mg/L		0.001	0.00004	E200.8	11/30/18 13:33 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	77	43949
Cadmium	0.00016	mg/L		0.00003	0.00003	E200.8	11/30/18 13:33 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	77	43949
Calcium	56	mg/L		1	0.09	E200.7	11/30/18 14:18 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	91	43949
Copper	0.008	mg/L		0.001	0.0002	E200.8	11/30/18 13:33 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	77	43949
Lead	0.0006	mg/L		0.0003	0.00004	E200.8	11/30/18 13:33 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	77	43949
Magnesium	13	mg/L		1	0.2	E200.7	11/30/18 14:18 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	91	43949
Potassium	5	mg/L		1	0.06	E200.7	11/30/18 14:18 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	91	43949
Sodium	26	mg/L		1	0.03	E200.7	11/30/18 14:18 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	91	43949
Zinc	0.013	mg/L		0.008	0.001	E200.8	11/30/18 13:33 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	77	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: SBC-P2 Duplicate
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-016
Collection Date: 11/27/18 14:30
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	2	mg/L		1	0.3	A2540 D	11/28/18 13:24 / cm			124 (14410200)_181128A	19	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		4	2	A2320 B	11/28/18 13:39 / SR			PHSC_101-H_181128A	71	R140191
Bicarbonate as HCO3	140	mg/L		4	2	A2320 B	11/28/18 13:39 / SR			PHSC_101-H_181128A	71	R140191
Chloride	31	mg/L		1	0.009	E300.0	11/29/18 14:27 / SR			IC METROHM_181129A	22	R140277
Sulfate	90	mg/L		1	0.01	E300.0	11/29/18 14:27 / SR			IC METROHM_181129A	22	R140277
Hardness as CaCO3	196	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	16	R140314
NUTRIENTS												
Nitrogen, Ammonia as N	ND	mg/L		0.05	0.02	E350.1	11/29/18 11:20 / km			FIA203-HE_181129A	22	R140240
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.02	0.009	E353.2	12/05/18 16:12 / km			FIA203-HE_181205A	12	R140415
Nitrogen, Total	0.32	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:27 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	42	43987
Phosphorus, Total as P	0.043	mg/L		0.003	0.002	E365.1	12/04/18 09:35 / km	12/03/18 09:30	E365.1	FIA202-HE_181204A	21	43976
METALS, DISSOLVED												
Arsenic	0.011	mg/L		0.001	0.00004	E200.8	11/29/18 12:50 / sld			ICPMS205-H_181129A	80	R140242
Cadmium	0.00016	mg/L		0.00003	0.00003	E200.8	11/29/18 12:50 / sld			ICPMS205-H_181129A	80	R140242
Copper	0.007	mg/L		0.001	0.0001	E200.8	11/29/18 12:50 / sld			ICPMS205-H_181129A	80	R140242
Lead	0.00017	mg/L	J	0.0003	0.00003	E200.8	11/29/18 12:50 / sld			ICPMS205-H_181129A	80	R140242
Zinc	0.010	mg/L		0.008	0.0003	E200.8	11/29/18 12:50 / sld			ICPMS205-H_181129A	80	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.011	mg/L		0.001	0.00004	E200.8	11/30/18 13:35 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	78	43949
Cadmium	0.00017	mg/L		0.00003	0.00003	E200.8	11/30/18 13:35 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	78	43949
Calcium	56	mg/L		1	0.09	E200.7	11/30/18 14:22 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	92	43949
Copper	0.008	mg/L		0.001	0.0002	E200.8	11/30/18 13:35 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	78	43949
Lead	0.0006	mg/L		0.0003	0.00004	E200.8	11/30/18 13:35 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	78	43949
Magnesium	14	mg/L		1	0.2	E200.7	11/30/18 14:22 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	92	43949
Potassium	5	mg/L		1	0.06	E200.7	11/30/18 14:22 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	92	43949
Sodium	26	mg/L		1	0.03	E200.7	11/30/18 14:22 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	92	43949
Zinc	0.014	mg/L		0.008	0.001	E200.8	11/30/18 13:35 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	78	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: MCWC-MWB
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-017
Collection Date: 11/27/18 16:00
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
Solids, Total Suspended TSS @ 105 C	10	mg/L		1	0.3	A2540 D	11/28/18 13:25 / cm			124 (14410200)_181128A	20	TSS181128A
INORGANICS												
Alkalinity, Total as CaCO3	100	mg/L		4	2	A2320 B	11/28/18 13:44 / SR			PHSC_101-H_181128A	73	R140191
Bicarbonate as HCO3	130	mg/L		4	2	A2320 B	11/28/18 13:44 / SR			PHSC_101-H_181128A	73	R140191
Chloride	3	mg/L		1	0.009	E300.0	11/29/18 14:41 / SR			IC METROHM_181129A	23	R140277
Sulfate	35	mg/L		1	0.01	E300.0	11/29/18 14:41 / SR			IC METROHM_181129A	23	R140277
Hardness as CaCO3	125	mg/L		1	1	A2340 B	12/03/18 09:05 / sld			WATERCALC_181203A	17	R140314
NUTRIENTS												
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.02	0.009	E353.2	12/05/18 16:15 / km			FIA203-HE_181205A	15	R140415
Nitrogen, Total	0.23	mg/L		0.05	0.03	A4500 N-C	12/04/18 10:29 / km	12/03/18 13:31	A4500 N-	FIA203-HE_181204A	43	43987
Phosphorus, Total as P	0.034	mg/L		0.003	0.002	E365.1	12/04/18 10:03 / km	12/03/18 09:30	E365.1	FIA202-HE_181204A	46	43976
METALS, DISSOLVED												
Arsenic	0.016	mg/L		0.001	0.00004	E200.8	11/29/18 13:03 / sld			ICPMS205-H_181129A	87	R140242
Cadmium	ND	mg/L		0.00003	0.00003	E200.8	11/29/18 13:03 / sld			ICPMS205-H_181129A	87	R140242
Copper	0.002	mg/L		0.001	0.0001	E200.8	11/29/18 13:03 / sld			ICPMS205-H_181129A	87	R140242
Lead	0.00027	mg/L	J	0.0003	0.00003	E200.8	11/29/18 13:03 / sld			ICPMS205-H_181129A	87	R140242
Zinc	0.008	mg/L		0.008	0.0003	E200.8	11/29/18 13:03 / sld			ICPMS205-H_181129A	87	R140242
METALS, TOTAL RECOVERABLE												
Arsenic	0.017	mg/L		0.001	0.00004	E200.8	11/30/18 13:37 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	79	43949
Cadmium	0.00012	mg/L		0.00003	0.00003	E200.8	11/30/18 13:37 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	79	43949
Calcium	36	mg/L		1	0.09	E200.7	11/30/18 14:34 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	95	43949
Copper	0.010	mg/L		0.001	0.0002	E200.8	11/30/18 13:37 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	79	43949
Lead	0.0031	mg/L		0.0003	0.00004	E200.8	11/30/18 13:37 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	79	43949
Magnesium	9	mg/L		1	0.2	E200.7	11/30/18 14:34 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	95	43949
Potassium	1	mg/L		1	0.06	E200.7	11/30/18 14:34 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	95	43949
Sodium	11	mg/L		1	0.03	E200.7	11/30/18 14:34 / sld	11/29/18 08:16	E200.2	ICP2-HE_181130A	95	43949
Zinc	0.019	mg/L		0.008	0.001	E200.8	11/30/18 13:37 / sld	11/29/18 08:16	E200.2	ICPMS205-H_181130B	79	43949

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Federal Superfund
Client Sample ID: CFR-84F
Project: CFROU Monitoring
Matrix: Surface Water

Lab ID: H18110515-018
Collection Date: 11/26/18 11:30
DateReceived: 11/28/18
Report Date: 01/03/19

Analyses	Result	Units	QUAL	RL	MDL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, TOTAL RECOVERABLE												
Mercury	0.019	ug/L		0.005	0.001	E245.1	11/29/18 16:38 / dck	11/28/18 18:57	E245.1	HGCV202-H_181129A	65	43948

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

Client: MT DEQ-Federal Superfund
Work Order: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 181129wa-LLhg202

Date: *03-Jan-19*

Run ID :Run Order: **HGCV202-H_181129A: 8** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E245.1**

Analysis Date: **11/29/18 13:24** Units: **ug/L** **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	0.0971	0.0050	0.1	0	97	90	110				

Associated samples: **H18110515-002C, H18110515-003C, H18110515-004C, H18110515-018A**

Run ID :Run Order: **HGCV202-H_181129A: 58** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E245.1**

Analysis Date: **11/29/18 16:16** Units: **ug/L** **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	0.103	0.0050	0.1	0	103	90	110				

Associated samples: **H18110515-002C, H18110515-003C, H18110515-004C, H18110515-018A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43931

Date: *03-Jan-19*

Run ID :Run Order: **FIA202-HE_181129B: 10** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**
Analysis Date: **11/29/18 14:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.000850	0.010		0		0	0				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 11** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**
Analysis Date: **11/29/18 14:27** Units: **mg/L** **Prep Info:** Prep Date: **11/28/2018** 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	0.247	0.010	0.25	0	99	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 29** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **11/29/18 14:52** 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
Phosphorus, Total as P	0.0985	0.010	0.1	0	99	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 43** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**
Analysis Date: **11/29/18 15:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total as P	0.0991	0.010	0.1	0	99	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181204A: 9** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **E365.1**
Analysis Date: **12/04/18 09:16** 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
Phosphorus, Total as P	0.000940	0.010		0		0	0				

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43931

Date: *03-Jan-19*

Run ID :Run Order: **FIA202-HE_181204A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E365.1**

Analysis Date: **12/04/18 09:19** Units: **mg/L** **Prep Info:** Prep Date: **11/28/2018** 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	0.243	0.010	0.25	0	97	90	110				

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA202-HE_181204A: 40** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E365.1**

Analysis Date: **12/04/18 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
Phosphorus, Total as P	0.0990	0.010	0.1	0	99	90	110				

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43948

Date: *03-Jan-19*

Run ID :Run Order: **HGCV202-H_181129A: 41** SampType: **Method Blank** Lab ID: **MB-43948** Method: **E245.1**
Analysis Date: **11/29/18 15:21** Units: **ug/L** **Prep Info:** Prep Date: **11/28/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.001									

Associated samples: **H18110515-002C, H18110515-003C, H18110515-004C, H18110515-018A**

Run ID :Run Order: **HGCV202-H_181129A: 42** SampType: **Laboratory Control Sample** Lab ID: **LCS-43948** Method: **E245.1**
Analysis Date: **11/29/18 15:24** Units: **ug/L** **Prep Info:** Prep Date: **11/28/2018** Prep Method: **E245.1**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0513	0.0050	0.05	0	**103**	90	110				

Associated samples: **H18110515-002C, H18110515-003C, H18110515-004C, H18110515-018A**

Run ID :Run Order: **HGCV202-H_181129A: 61** SampType: **Sample Matrix Spike** Lab ID: **H18110515-002CMS** Method: **E245.1**
Analysis Date: **11/29/18 16:25** Units: **ug/L** **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	0.0523	0.0050	0.05	0	**105**	70	130				

Associated samples: **H18110515-002C, H18110515-003C, H18110515-004C, H18110515-018A**

Run ID :Run Order: **HGCV202-H_181129A: 62** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-002CMSD** Method: **E245.1**
Analysis Date: **11/29/18 16:29** Units: **ug/L** **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	0.0513	0.0050	0.05	0	**103**	70	130	0.05226	**1.8**	20	

Associated samples: **H18110515-002C, H18110515-003C, H18110515-004C, H18110515-018A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43949

Date: *03-Jan-19*

Run ID :Run Order: **ICP2-HE_181130A: 52** SampType: **Method Blank** Lab ID: **MB-43949** Method: **E200.7**
Analysis Date: **11/30/18 11:49** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.09									
Magnesium	ND	0.009									
Potassium	ND	0.06									
Sodium	ND	0.03									

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 53** SampType: **Laboratory Control Sample** Lab ID: **LCS-43949** Method: **E200.7**
Analysis Date: **11/30/18 11:53** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.1	1.0	25	0	100	85	115				
Magnesium	25.1	1.0	25	0	101	85	115				
Potassium	27.8	1.0	25	0	111	85	115				
Sodium	28.1	1.0	25	0	112	85	115				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 61** SampType: **Serial Dilution** Lab ID: **H18110515-004CDIL** Method: **E200.7**
Analysis Date: **11/30/18 12:24** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	43.1	1.0		0		0	0	42.26	1.9	10	
Magnesium	12.3	1.0		0		0	0	12.86	4.4	10	
Potassium	2.65	1.0		0		0	0	3.296		10	N
Sodium	8.78	1.0		0		0	0	9.784	11	10	R

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 84** SampType: **Serial Dilution** Lab ID: **H18110515-011CDIL** Method: **E200.7**
Analysis Date: **11/30/18 13:52** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	57.6	1.0		0		0	0	56.68	1.7	10	

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

Client: MT DEQ-Federal Superfund
Work Order: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43949

Date: *03-Jan-19*

Run ID :Run Order: **ICP2-HE_181130A: 84** SampType: **Serial Dilution** Lab ID: **H18110515-011CDIL** Method: **E200.7**

Analysis Date: **11/30/18 13:52** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	12.3	1.0		0		0	0	12.59	1.9	10	
Potassium	2.57	1.0		0		0	0	2.919		10	N
Sodium	12.7	1.0		0		0	0	13.54	6.2	10	

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 86** SampType: **Sample Matrix Spike** Lab ID: **H18110515-011CMS3** Method: **E200.7**

Analysis Date: **11/30/18 13:59** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	79.5	1.0	25	56.68	91	70	130				
Magnesium	37.4	1.0	25	12.59	99	70	130				
Potassium	28.2	1.0	25	2.919	101	70	130				
Sodium	38.4	1.0	25	13.54	99	70	130				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 87** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-011CMSD3** Method: **E200.7**

Analysis Date: **11/30/18 14:03** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	80.7	1.0	25	56.68	96	70	130	79.53	1.5	20	
Magnesium	38.2	1.0	25	12.59	103	70	130	37.4	2.2	20	
Potassium	29.8	1.0	25	2.919	107	70	130	28.24	5.3	20	
Sodium	40.6	1.0	25	13.54	108	70	130	38.38	5.6	20	

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 108** SampType: **Sample Matrix Spike** Lab ID: **H18110515-004CMS3** Method: **E200.7**

Analysis Date: **11/30/18 15:24** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	70.9	1.0	25	42.26	115	70	130				
Magnesium	39.9	1.0	25	12.86	108	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43949

Date: *03-Jan-19*

Run ID :Run Order: **ICP2-HE_181130A: 108** SampType: **Sample Matrix Spike** Lab ID: **H18110515-004CMS3** Method: **E200.7**

Analysis Date: **11/30/18 15:24** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	30.0	1.0	25	3.296	107	70	130				
Sodium	35.9	1.0	25	9.784	104	70	130				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 109** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-004CMSD3** Method: **E200.7**

Analysis Date: **11/30/18 15:28** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	71.3	1.0	25	42.26	116	70	130	70.9	0.5	20	
Magnesium	40.0	1.0	25	12.86	109	70	130	39.86	0.4	20	
Potassium	30.1	1.0	25	3.296	107	70	130	29.97	0.4	20	
Sodium	36.2	1.0	25	9.784	106	70	130	35.88	0.8	20	

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43949

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181130B: 49** SampType: **Method Blank** Lab ID: **MB-43949** Method: **E200.8**
Analysis Date: **11/30/18 12:39** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0002									
Lead	4E-05	4E-05									
Zinc	ND	0.001									

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICPMS205-H_181130B: 56** SampType: **Laboratory Control Sample** Lab ID: **LCS-43949** Method: **E200.8**
Analysis Date: **11/30/18 12:53** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 5	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	0.252	0.0010	0.25	0	101	85	115				
Copper	0.521	0.0050	0.5	0	104	85	115				
Lead	0.526	0.0010	0.5	0.00003689	105	85	115				
Zinc	0.498	0.010	0.5	0	100	85	115				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICPMS205-H_181130B: 57** SampType: **Sample Matrix Spike** Lab ID: **H18110515-004CMS3** Method: **E200.8**
Analysis Date: **11/30/18 12:54** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.492	0.0010	0.5	0.007087	97	70	130				
Cadmium	0.241	0.0010	0.25	0.00003709	97	70	130				
Copper	0.509	0.0050	0.5	0.001631	102	70	130				
Lead	0.503	0.0010	0.5	0.002387	100	70	130				
Zinc	0.488	0.010	0.5	0.01133	95	70	130				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43949

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181130B: 58** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-004CMSD3** Method: **E200.8**

Analysis Date: **11/30/18 12:56** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.507	0.0010	0.5	0.007087	100	70	130	0.4925	2.8	20	
Cadmium	0.252	0.0010	0.25	0.00003709	101	70	130	0.2414	4.5	20	
Copper	0.522	0.0050	0.5	0.001631	104	70	130	0.5094	2.5	20	
Lead	0.517	0.0010	0.5	0.002387	103	70	130	0.5026	2.9	20	
Zinc	0.507	0.010	0.5	0.01133	99	70	130	0.4883	3.8	20	

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICPMS205-H_181130B: 71** SampType: **Sample Matrix Spike** Lab ID: **H18110515-011CMS3** Method: **E200.8**

Analysis Date: **11/30/18 13:22** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.500	0.0010	0.5	0.008229	98	70	130				
Cadmium	0.247	0.0010	0.25	0.00008639	99	70	130				
Copper	0.509	0.0050	0.5	0.006865	100	70	130				
Lead	0.504	0.0010	0.5	0.000624	101	70	130				
Zinc	0.491	0.010	0.5	0.009004	96	70	130				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICPMS205-H_181130B: 72** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-011CMSD3** Method: **E200.8**

Analysis Date: **11/30/18 13:24** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.516	0.0010	0.5	0.008229	102	70	130	0.5003	3.1	20	
Cadmium	0.256	0.0010	0.25	0.00008639	102	70	130	0.2471	3.6	20	
Copper	0.534	0.0050	0.5	0.006865	105	70	130	0.5087	4.8	20	
Lead	0.526	0.0010	0.5	0.000624	105	70	130	0.5039	4.4	20	
Zinc	0.508	0.010	0.5	0.009004	100	70	130	0.4906	3.4	20	

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43949

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_190102A: 37** SampType: **Method Blank** Lab ID: **MB-43949** Method: **E200.8**

Analysis Date: **01/02/19 15:50** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E200.2**

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4E-05	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0002									
Lead	7E-05	4E-05									
Zinc	ND	0.001									

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43955

Date: *03-Jan-19*

Run ID :Run Order: **FIA202-HE_181129B: 14** SampType: **Method Blank** Lab ID: **MB-43955** Method: **E365.1**
Analysis Date: **11/29/18 14:32** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** 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	0.002									

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 17** SampType: **Laboratory Control Sample** Lab ID: **LCS-43955** Method: **E365.1**
Analysis Date: **11/29/18 14:37** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** 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	0.422	0.010	0.4	0	105	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 19** SampType: **Sample Matrix Spike** Lab ID: **H18110388-004CMS** Method: **E365.1**
Analysis Date: **11/29/18 14:40** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** 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	0.242	0.010	0.2	0.02393	109	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 20** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110388-004CMSD** Method: **E365.1**
Analysis Date: **11/29/18 14:42** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** 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	0.240	0.010	0.2	0.02393	108	90	110	0.2422	0.8	20	

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 31** SampType: **Sample Matrix Spike** Lab ID: **H18110515-005DMS** Method: **E365.1**
Analysis Date: **11/29/18 14:54** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** 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	0.230	0.010	0.2	0.01977	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43955

Date: *03-Jan-19*

Run ID :Run Order: **FIA202-HE_181129B: 31** SampType: **Sample Matrix Spike** Lab ID: **H18110515-005DMS** Method: **E365.1**

Analysis Date: **11/29/18 14:54** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** Prep Method: **E365.1**

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

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

Run ID :Run Order: **FIA202-HE_181129B: 32** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-005DMSD** Method: **E365.1**

Analysis Date: **11/29/18 14:55** Units: **mg/L** **Prep Info:** Prep Date: **11/29/2018** 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	0.221	0.010	0.2	0.01977	**101**	90	110	0.2302	**4.2**	20	

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43976

Date: *03-Jan-19*

Run ID :Run Order: **FIA202-HE_181204A: 11** SampType: **Method Blank** Lab ID: **MB-43976** Method: **E365.1**
Analysis Date: **12/04/18 09:20** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.002									

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA202-HE_181204A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-43976** Method: **E365.1**
Analysis Date: **12/04/18 09:22** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.420	0.010	0.4	0	105	90	110				

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA202-HE_181204A: 17** SampType: **Sample Matrix Spike** Lab ID: **H18110515-015DMS** Method: **E365.1**
Analysis Date: **12/04/18 09:30** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.267	0.010	0.2	0.04386	111	90	110				S

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA202-HE_181204A: 18** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-015DMSD** Method: **E365.1**
Analysis Date: **12/04/18 09:31** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.270	0.010	0.2	0.04386	113	90	110	0.2667	1.1	20	S

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA202-HE_181204A: 33** SampType: **Sample Matrix Spike** Lab ID: **H18110573-004DMS** Method: **E365.1**
Analysis Date: **12/04/18 09:48** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.246	0.010	0.2	0.032	107	90	110				

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43976

Date: *03-Jan-19*

Run ID :Run Order: **FIA202-HE_181204A: 34** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110573-004DMSD** Method: **E365.1**

Analysis Date: **12/04/18 09:49** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.251	0.010	0.2	0.032	**109**	90	110	0.2456	**2.1**	20	

Associated samples: **H18110515-015D, H18110515-016D, H18110515-017D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43987

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181204A: 9** SampType: **Initial Calibration Blank, Instrument Blank** Lab ID: **ICB** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:43** 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
Nitrogen, Total	0.00610	0.10		0		0	0				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 10** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.520	0.10	0.5	0	104	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:48** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.990	0.10	1	0	99	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 12** SampType: **Laboratory Control Sample** Lab ID: **LCS-43987** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:49** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	7.62	0.30	7.44	0	102	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 13** SampType: **Method Blank** Lab ID: **MB-43987** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:50** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	0.03									

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43987

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181204A: 13** SampType: **Method Blank** Lab ID: **MB-43987** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:50** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** Prep Method: **A4500 N-C**

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

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 15** SampType: **Sample Matrix Spike** Lab ID: **H18110515-001AMS** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:52** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	1.19	0.10	1	0.1934	100	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 16** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-001AMSD** Method: **A4500 N-C**
Analysis Date: **12/04/18 09:54** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	1.16	0.10	1	0.1934	97	90	110	1.189	2.3	20	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 20** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **12/04/18 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, Total	0.490	0.10	0.5	0	98	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 31** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **12/04/18 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, Total	0.506	0.10	0.5	0	101	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 43987

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181204A: 34** SampType: **Sample Matrix Spike** Lab ID: **H18110515-011AMS** Method: **A4500 N-C**
Analysis Date: **12/04/18 10:18** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	1.18	0.10	1	0.2173	96	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 35** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-011AMSD** Method: **A4500 N-C**
Analysis Date: **12/04/18 10:19** Units: **mg/L** **Prep Info:** Prep Date: **12/3/2018** 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	1.16	0.10	1	0.2173	94	90	110	1.177	1.6	20	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 53** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **12/04/18 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
Nitrogen, Total	0.487	0.10	0.5	0	97	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **FIA203-HE_181204A: 61** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **A4500 N-C**
Analysis Date: **12/04/18 10:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Total	0.538	0.10	0.5	0	108	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140191

Date: *03-Jan-19*

Run ID :Run Order: **PHSC_101-H_181128A: 15** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **11/28/18 09:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	2									

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **PHSC_101-H_181128A: 16** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **11/28/18 10:05** 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	600	4.0	600	0	100	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **PHSC_101-H_181128A: 19** SampType: **Sample Duplicate** Lab ID: **H18110387-003BDUP** Method: **A2320 B**

Analysis Date: **11/28/18 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
Alkalinity, Total as CaCO3	240	4.0		0				238.8	0.1	10	
Bicarbonate as HCO3	290	4.0		0				290.7	0.1	10	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **PHSC_101-H_181128A: 41** SampType: **Sample Duplicate** Lab ID: **H18110515-003ADUP** Method: **A2320 B**

Analysis Date: **11/28/18 12:06** 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
Alkalinity, Total as CaCO3	160	4.0		0				157	0.3	10	
Bicarbonate as HCO3	190	4.0		0				190.9	0.4	10	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **PHSC_101-H_181128A: 62** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **11/28/18 13:07** 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
Alkalinity, Total as CaCO3	610	4.0	600	0	101	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140191

Date: *03-Jan-19*

Run ID :Run Order: **PHSC_101-H_181128A: 62** SampType: **Laboratory Control Sample** Lab ID: **LCS** Method: **A2320 B**

Analysis Date: **11/28/18 13:07** 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

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **PHSC_101-H_181128A: 65** SampType: **Sample Duplicate** Lab ID: **H18110515-013ADUP** Method: **A2320 B**

Analysis Date: **11/28/18 13:22** 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
Alkalinity, Total as CaCO3	120	4.0		0				121.6	**0.7**	10	
Bicarbonate as HCO3	150	4.0		0				144.1	**1.3**	10	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **PHSC_101-H_181128A: 79** SampType: **Method Blank** Lab ID: **MBLK** Method: **A2320 B**

Analysis Date: **11/28/18 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	ND	2									

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **PHSC_101-H_181128A: 88** SampType: **Sample Duplicate** Lab ID: **H18110524-001ADUP** Method: **A2320 B**

Analysis Date: **11/28/18 14:51** 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
Alkalinity, Total as CaCO3	21	4.0		0				21.85	**2.5**	10	
Bicarbonate as HCO3	25	4.0		0				26.05	**2.6**	10	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140238

Date: *03-Jan-19*

Run ID :Run Order: **IC METROHM_181128B: 1** SampType: **Method Blank** Lab ID: **ICB** Method: **E300.0**
Analysis Date: **11/28/18 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	ND	0.009									
Sulfate	ND	0.01									

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A**

Run ID :Run Order: **IC METROHM_181128B: 2** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E300.0**
Analysis Date: **11/28/18 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100	0	100	90	110				
Sulfate	387	1.0	400	0	97	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A**

Run ID :Run Order: **IC METROHM_181128B: 3** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E300.0**
Analysis Date: **11/28/18 15:00** 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	26.2	1.0	25	0	105	90	110				
Sulfate	108	1.0	100	0	108	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A**

Run ID :Run Order: **IC METROHM_181128B: 18** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**
Analysis Date: **11/28/18 18:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51.3	1.0	50	0	103	90	110				
Sulfate	203	1.0	200	0	101	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A**

Run ID :Run Order: **IC METROHM_181128B: 30** SampType: **Sample Matrix Spike** Lab ID: **H18110515-004AMS** Method: **E300.0**
Analysis Date: **11/28/18 21:49** 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	30.2	1.0	25	4.185	104	90	110				
Sulfate	123	1.0	100	19.54	103	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140238

Date: *03-Jan-19*

Run ID :Run Order: **IC METROHM_181128B: 30** SampType: **Sample Matrix Spike** Lab ID: **H18110515-004AMS** Method: **E300.0**

Analysis Date: **11/28/18 21:49** 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

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A**

Run ID :Run Order: **IC METROHM_181128B: 31** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-004AMSD** Method: **E300.0**

Analysis Date: **11/28/18 22:03** 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	30.1	1.0	25	4.185	**104**	90	110	30.18	**0.3**	20	
Sulfate	123	1.0	100	19.54	**103**	90	110	122.5	**0.1**	20	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A**

Run ID :Run Order: **IC METROHM_181128B: 32** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **11/28/18 22:17** 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	51.5	1.0	50	0	**103**	90	110				
Sulfate	204	1.0	200	0	**102**	90	110				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140240

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181129A: 8** SampType: **Method Blank** Lab ID: **MBLK** Method: **E350.1**
Analysis Date: **11/29/18 11:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	ND	0.02									

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

Run ID :Run Order: **FIA203-HE_181129A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E350.1**
Analysis Date: **11/29/18 11:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	10.5	0.40	10.3	0	102	90	110				

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

Run ID :Run Order: **FIA203-HE_181129A: 10** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E350.1**
Analysis Date: **11/29/18 11:05** 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
Nitrogen, Ammonia as N	0.518	0.050	0.5	0	104	90	110				

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

Run ID :Run Order: **FIA203-HE_181129A: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E350.1**
Analysis Date: **11/29/18 11:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia as N	1.03	0.050	1	0	103	90	110				

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

Run ID :Run Order: **FIA203-HE_181129A: 13** SampType: **Sample Matrix Spike** Lab ID: **H18110520-001BMS** Method: **E350.1**
Analysis Date: **11/29/18 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	0.874	0.050	1	0	87	80	120				

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140240

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181129A: 14** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110520-001BMSD** Method: **E350.1**

Analysis Date: **11/29/18 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	0.866	0.050	1	0	**87**	80	120	0.8743	**0.9**	10	

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

Run ID :Run Order: **FIA203-HE_181129A: 27** SampType: **Sample Matrix Spike** Lab ID: **H18110510-002CMS** Method: **E350.1**

Analysis Date: **11/29/18 11:26** 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, Ammonia as N	18.3	0.44	10	8.474	**98**	80	120				

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

Run ID :Run Order: **FIA203-HE_181129A: 28** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110510-002CMSD** Method: **E350.1**

Analysis Date: **11/29/18 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
Nitrogen, Ammonia as N	18.0	0.44	10	8.474	**95**	80	120	18.3	**1.6**	10	

Associated samples: **H18110515-013D, H18110515-015D, H18110515-016D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140242

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181129A: 26** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **11/29/18 11:00** 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	0.0624	0.0050	0.06	0	104	90	110				
Cadmium	0.0310	0.0010	0.03	0	103	90	110				
Copper	0.0625	0.010	0.06	0	104	90	110				
Lead	0.0621	0.010	0.06	0	104	90	110				
Zinc	0.0630	0.010	0.06	0	105	90	110				

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

Run ID :Run Order: **ICPMS205-H_181129A: 27** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **11/29/18 11:02** 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	9.36E-05	0.0050		0							
Cadmium	0.000182	0.0010		0							
Copper	0.000182	0.010		0							
Lead	9.87E-05	0.010		0							
Zinc	0.000541	0.010		0							

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

Run ID :Run Order: **ICPMS205-H_181129A: 28** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **11/29/18 11:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0115	0.0050	0.01	0	115	70	130				
Cadmium	0.0111	0.0010	0.01	0	111	70	130				
Copper	0.0217	0.010	0.02	0	109	70	130				
Lead	8.23E-05	0.010		0		0	0				
Zinc	0.0110	0.010	0.01	0	110	70	130				

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140242

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181129A: 33** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**

Analysis Date: **11/29/18 11:18** 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	ND	4E-05									
Cadmium	ND	3E-05									
Copper	ND	0.0001									
Lead	ND	3E-05									
Zinc	ND	0.0003									

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

Run ID :Run Order: **ICPMS205-H_181129A: 34** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**

Analysis Date: **11/29/18 11:20** 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	0.0511	0.0050	0.05	0	102	85	115				
Cadmium	0.0512	0.0010	0.05	0	102	85	115				
Copper	0.0520	0.010	0.05	0	104	85	115				
Lead	0.0503	0.010	0.05	0	101	85	115				
Zinc	0.0521	0.010	0.05	0	104	85	115				

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

Run ID :Run Order: **ICPMS205-H_181129A: 67** SampType: **Sample Matrix Spike** Lab ID: **H18110515-001BMS** Method: **E200.8**

Analysis Date: **11/29/18 12:24** 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	0.0586	0.0010	0.05	0.005268	107	70	130				
Cadmium	0.0532	0.0010	0.05	0	106	70	130				
Copper	0.0547	0.0050	0.05	0.002576	104	70	130				
Lead	0.0537	0.0010	0.05	0.0000849	107	70	130				
Zinc	0.0607	0.010	0.05	0.00902	103	70	130				

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140242

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181129A: 68** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-001BMSD** Method: **E200.8**

Analysis Date: **11/29/18 12:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0571	0.0010	0.05	0.005268	104	70	130	0.05861	2.5	20	
Cadmium	0.0515	0.0010	0.05	0	103	70	130	0.05322	3.3	20	
Copper	0.0532	0.0050	0.05	0.002576	101	70	130	0.05466	2.8	20	
Lead	0.0525	0.0010	0.05	0.0000849	105	70	130	0.05373	2.4	20	
Zinc	0.0600	0.010	0.05	0.00902	102	70	130	0.06073	1.2	20	

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

Run ID :Run Order: **ICPMS205-H_181129A: 81** SampType: **Sample Matrix Spike** Lab ID: **H18110515-011BMS** Method: **E200.8**

Analysis Date: **11/29/18 12:52** 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	0.0010	0.05	0.007932	106	70	130				
Cadmium	0.0526	0.0010	0.05	0.00006278	105	70	130				
Copper	0.0549	0.0050	0.05	0.003704	102	70	130				
Lead	0.0525	0.0010	0.05	0.0001078	105	70	130				
Zinc	0.0593	0.010	0.05	0.007523	104	70	130				

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

Run ID :Run Order: **ICPMS205-H_181129A: 82** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-011BMSD** Method: **E200.8**

Analysis Date: **11/29/18 12:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0602	0.0010	0.05	0.007932	105	70	130	0.0607	0.8	20	
Cadmium	0.0517	0.0010	0.05	0.00006278	103	70	130	0.05259	1.7	20	
Copper	0.0547	0.0050	0.05	0.003704	102	70	130	0.05494	0.4	20	
Lead	0.0521	0.0010	0.05	0.0001078	104	70	130	0.05248	0.8	20	
Zinc	0.0590	0.010	0.05	0.007523	103	70	130	0.05931	0.5	20	

Associated samples: **H18110515-001B, H18110515-002B, H18110515-003B, H18110515-004B, H18110515-005B, H18110515-006B, H18110515-007B, H18110515-008B, H18110515-009B, H18110515-010B, H18110515-011B, H18110515-012B, H18110515-013B, H18110515-014B, H18110515-015B, H18110515-016B, H18110515-017B**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140277

Date: *03-Jan-19*

Run ID :Run Order: **IC METROHM_181129A: 2** SampType: **Method Blank** Lab ID: **ICB** Method: **E300.0**

Analysis Date: **11/29/18 09:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.009									
Sulfate	ND	0.01									

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **IC METROHM_181129A: 3** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E300.0**

Analysis Date: **11/29/18 09:32** 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	101	1.0	100	0	**101**	90	110				
Sulfate	396	1.0	400	0	**99**	90	110				

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **IC METROHM_181129A: 4** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E300.0**

Analysis Date: **11/29/18 09:46** 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	24.4	1.0	25	0	**98**	90	110				
Sulfate	99.4	1.0	100	0	**99**	90	110				

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **IC METROHM_181129A: 5** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **11/29/18 10:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50.5	1.0	50	0	**101**	90	110				
Sulfate	201	1.0	200	0	**100**	90	110				

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140277

Date: *03-Jan-19*

Run ID :Run Order: **IC METROHM_181129A: 17** SampType: **Sample Matrix Spike** Lab ID: **H18110515-014AMS** Method: **E300.0**

Analysis Date: **11/29/18 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	33.1	1.0	25	7.339	103	90	110				
Sulfate	253	1.0	100	153.3	100	90	110				

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **IC METROHM_181129A: 18** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-014AMSD** Method: **E300.0**

Analysis Date: **11/29/18 13:17** 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	32.9	1.0	25	7.339	102	90	110	33.1	0.5	20	
Sulfate	254	1.0	100	153.3	101	90	110	253.3	0.4	20	

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **IC METROHM_181129A: 19** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E300.0**

Analysis Date: **11/29/18 13:31** 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	50.6	1.0	50	0	101	90	110				
Sulfate	204	1.0	200	0	102	90	110				

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **IC METROHM_181129A: 24** SampType: **Sample Matrix Spike** Lab ID: **H18110515-017AMS** Method: **E300.0**

Analysis Date: **11/29/18 14:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	28.9	1.0	25	3.124	103	90	110				
Sulfate	136	1.0	100	34.68	102	90	110				

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140277

Date: *03-Jan-19*

Run ID :Run Order: **IC METROHM_181129A: 25** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-017AMSD** Method: **E300.0**

Analysis Date: **11/29/18 15:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	28.9	1.0	25	3.124	**103**	90	110	28.89	**0.0**	20	
Sulfate	137	1.0	100	34.68	**102**	90	110	136.3	**0.3**	20	

Associated samples: **H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140284

Date: *03-Jan-19*

Run ID :Run Order: **ICP2-HE_181130A: 6** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **11/30/18 08:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	40.8	1.0	40	0	102	95	105				
Magnesium	40.8	1.0	40	0	102	95	105				
Potassium	41.6	1.0	40	0	104	95	105				
Sodium	41.7	1.0	40	0	104	95	105				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 13** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.7**

Analysis Date: **11/30/18 09:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	40.2	1.0	40	0	100	95	105				
Magnesium	40.5	1.0	40	0	101	95	105				
Potassium	40.1	1.0	40	0	100	95	105				
Sodium	39.8	1.0	40	0	100	95	105				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 14** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV-1** Method: **E200.7**

Analysis Date: **11/30/18 09:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.7	1.0	25	0	103	95	105				
Magnesium	25.6	1.0	25	0	102	95	105				
Potassium	26.1	1.0	25	0	105	95	105				
Sodium	25.9	1.0	25	0	104	95	105				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 17** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **11/30/18 09:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	475	1.0	500	0	95	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140284

Date: *03-Jan-19*

Run ID :Run Order: **ICP2-HE_181130A: 17** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.7**

Analysis Date: **11/30/18 09:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	535	1.0	500	0	107	80	120				
Potassium	-0.0364	1.0		0		0	0				
Sodium	0.0180	1.0		0		0	0				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 18** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.7**

Analysis Date: **11/30/18 09:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	476	1.0	500	0	95	80	120				
Magnesium	535	1.0	500	0	107	80	120				
Potassium	20.7	1.0	20	0	103	80	120				
Sodium	20.7	1.0	20	0	104	80	120				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 50** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **11/30/18 11:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.6	1.0	25	0	102	90	110				
Magnesium	25.5	1.0	25	0	102	90	110				
Potassium	26.3	1.0	25	0	105	90	110				
Sodium	26.4	1.0	25	0	105	90	110				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 62** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **11/30/18 12:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.2	1.0	25	0	97	90	110				
Magnesium	24.2	1.0	25	0	97	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140284

Date: *03-Jan-19*

Run ID :Run Order: **ICP2-HE_181130A: 62** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **11/30/18 12:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	26.1	1.0	25	0	104	90	110				
Sodium	26.3	1.0	25	0	105	90	110				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 81** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **11/30/18 13:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.1	1.0	25	0	104	90	110				
Magnesium	25.9	1.0	25	0	104	90	110				
Potassium	25.2	1.0	25	0	101	90	110				
Sodium	25.2	1.0	25	0	101	90	110				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 93** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **11/30/18 14:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.4	1.0	25	0	105	90	110				
Magnesium	25.9	1.0	25	0	104	90	110				
Potassium	25.3	1.0	25	0	101	90	110				
Sodium	25.2	1.0	25	0	101	90	110				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICP2-HE_181130A: 105** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **11/30/18 15:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.0	1.0	25	0	104	90	110				
Magnesium	25.8	1.0	25	0	103	90	110				
Potassium	25.3	1.0	25	0	101	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140284

Date: *03-Jan-19*

Run ID :Run Order: **ICP2-HE_181130A: 105** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E200.7**

Analysis Date: **11/30/18 15:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	25.3	1.0	25	0	101	90	110				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140313

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181130B: 26** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**

Analysis Date: **11/30/18 11:44** 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	0.0601	0.0050	0.06	0	100	90	110				
Cadmium	0.0306	0.0010	0.03	0	102	90	110				
Copper	0.0612	0.010	0.06	0	102	90	110				
Lead	0.0613	0.010	0.06	0	102	90	110				
Zinc	0.0618	0.010	0.06	0	103	90	110				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICPMS205-H_181130B: 27** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**

Analysis Date: **11/30/18 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.10E-05	0.0050		0							
Cadmium	0.000175	0.0010		0							
Copper	0.000188	0.010		0							
Lead	9.26E-05	0.010		0							
Zinc	0.000512	0.010		0							

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

Run ID :Run Order: **ICPMS205-H_181130B: 28** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**

Analysis Date: **11/30/18 11:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0116	0.0050	0.01	0	116	70	130				
Cadmium	0.0115	0.0010	0.01	0	115	70	130				
Copper	0.0224	0.010	0.02	0	112	70	130				
Lead	7.16E-05	0.010		0		0	0				
Zinc	0.0114	0.010	0.01	0	114	70	130				

Associated samples: **H18110515-001C, H18110515-002C, H18110515-003C, H18110515-004C, H18110515-005C, H18110515-006C, H18110515-007C, H18110515-008C, H18110515-009C, H18110515-010C, H18110515-011C, H18110515-012C, H18110515-013C, H18110515-014C, H18110515-015C, H18110515-016C, H18110515-017C**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140358

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181204A: 160** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **12/04/18 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
Zinc	0.0630	0.010	0.06	0	105	90	110				

Associated samples: **H18110515-002B**

Run ID :Run Order: **ICPMS205-H_181204A: 161** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **12/04/18 16:11** 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
Zinc	0.000427	0.010		0							

Associated samples: **H18110515-002B**

Run ID :Run Order: **ICPMS205-H_181204A: 162** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/04/18 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
Zinc	0.0110	0.010	0.01	0	110	70	130				

Associated samples: **H18110515-002B**

Run ID :Run Order: **ICPMS205-H_181204A: 167** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**
Analysis Date: **12/04/18 16:22** 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
Zinc	ND	0.0003									

Associated samples: **H18110515-002B**

Run ID :Run Order: **ICPMS205-H_181204A: 168** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**
Analysis Date: **12/04/18 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
Zinc	0.0521	0.010	0.05	0	104	85	115				

Associated samples: **H18110515-002B**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140358

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_181204A: 182** SampType: **Sample Matrix Spike** Lab ID: **H18110515-002BMS** Method: **E200.8**

Analysis Date: **12/04/18 16:51** 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
Zinc	0.0579	0.010	0.05	0.00776	**100**	70	130				

Associated samples: **H18110515-002B**

Run ID :Run Order: **ICPMS205-H_181204A: 183** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-002BMSD** Method: **E200.8**

Analysis Date: **12/04/18 16:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0609	0.010	0.05	0.00776	**106**	70	130	0.05793	**5.0**	20	

Associated samples: **H18110515-002B**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140387

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181204B: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E353.2**
Analysis Date: **12/04/18 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	0.980	0.010	1	0	98	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 10** SampType: **Method Blank** Lab ID: **MBLK** Method: **E353.2**
Analysis Date: **12/04/18 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	ND	0.009									

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E353.2**
Analysis Date: **12/04/18 15:56** 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	1.00	0.011	1	0	100	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 24** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **12/04/18 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
Nitrogen, Nitrate+Nitrite as N	0.500	0.010	0.5	0	100	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 28** SampType: **Sample Matrix Spike** Lab ID: **H18110513-001BMS** Method: **E353.2**
Analysis Date: **12/04/18 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, Nitrate+Nitrite as N	6.48	0.055	5	1.548	99	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140387

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181204B: 28** SampType: **Sample Matrix Spike** Lab ID: **H18110513-001BMS** Method: **E353.2**
Analysis Date: **12/04/18 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

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 29** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110513-001BMSD** Method: **E353.2**
Analysis Date: **12/04/18 16:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	6.43	0.055	5	1.548	98	90	110	6.484	0.8	10	

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 38** SampType: **Continuing Calibration Verification Standar** Lab ID: **CCV** Method: **E353.2**
Analysis Date: **12/04/18 16:28** 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	0.496	0.010	0.5	0	99	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 42** SampType: **Sample Matrix Spike** Lab ID: **H18110515-008DMS** Method: **E353.2**
Analysis Date: **12/04/18 16:33** 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
Nitrogen, Nitrate+Nitrite as N	1.16	0.011	1	0.1403	102	90	110				

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

Run ID :Run Order: **FIA203-HE_181204B: 43** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-008DMSD** Method: **E353.2**
Analysis Date: **12/04/18 16:34** 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, Nitrate+Nitrite as N	1.12	0.011	1	0.1403	98	90	110	1.157	3.3	10	

Associated samples: **H18110515-001D, H18110515-002D, H18110515-003D, H18110515-004D, H18110515-005D, H18110515-006D, H18110515-007D, H18110515-008D, H18110515-009D, H18110515-010D, H18110515-011D, H18110515-012D, H18110515-013D, H18110515-014D, H18110515-015D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R140415

Date: *03-Jan-19*

Run ID :Run Order: **FIA203-HE_181205A: 9** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E353.2**
Analysis Date: **12/05/18 16:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.953	0.010	1	0	95	90	110				

Associated samples: **H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA203-HE_181205A: 10** SampType: **Method Blank** Lab ID: **MBLK** Method: **E353.2**
Analysis Date: **12/05/18 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	ND	0.009									

Associated samples: **H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA203-HE_181205A: 11** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E353.2**
Analysis Date: **12/05/18 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	0.961	0.011	1	0	96	90	110				

Associated samples: **H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA203-HE_181205A: 13** SampType: **Sample Matrix Spike** Lab ID: **H18110515-016DMS** Method: **E353.2**
Analysis Date: **12/05/18 16:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate+Nitrite as N	0.972	0.011	1	0	97	90	110				

Associated samples: **H18110515-016D, H18110515-017D**

Run ID :Run Order: **FIA203-HE_181205A: 14** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18110515-016DMSD** Method: **E353.2**
Analysis Date: **12/05/18 16:14** 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	0.994	0.011	1	0	99	90	110	0.9721	2.2	10	

Associated samples: **H18110515-016D, H18110515-017D**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R141051

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_190102A: 10** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **01/02/19 14:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0599	0.010	0.06	0	100	90	110				

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 11** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **01/02/19 14:52** 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
Copper	9.48E-05	0.010		0							

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 12** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**
Analysis Date: **01/02/19 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
Copper	0.0224	0.010	0.02	0	112	70	130				

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 26** SampType: **Initial Calibration Verification Standard** Lab ID: **ICV** Method: **E200.8**
Analysis Date: **01/02/19 15:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0595	0.010	0.06	0	99	90	110				

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 27** SampType: **Interference Check Sample A** Lab ID: **ICSA** Method: **E200.8**
Analysis Date: **01/02/19 15:31** 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
Copper	6.16E-05	0.010		0							

Associated samples: **H18110515-004B**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R141051

Date: *03-Jan-19*

Run ID :Run Order: **ICPMS205-H_190102A: 28** SampType: **Interference Check Sample AB** Lab ID: **ICSAB** Method: **E200.8**
Analysis Date: **01/02/19 15:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0217	0.010	0.02	0	**108**	70	130				

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 33** SampType: **Method Blank** Lab ID: **LRB** Method: **E200.8**
Analysis Date: **01/02/19 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
Copper	ND	0.0001									

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 86** SampType: **Laboratory Fortified Blank** Lab ID: **LFB** Method: **E200.8**
Analysis Date: **01/02/19 17:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0475	0.010	0.05	0	**95**	85	115				

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 93** SampType: **Sample Matrix Spike** Lab ID: **H18120480-001BMS** Method: **E200.8**
Analysis Date: **01/02/19 17:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0489	0.0050	0.05	0.0002878	**97**	70	130				

Associated samples: **H18110515-004B**

Run ID :Run Order: **ICPMS205-H_190102A: 94** SampType: **Sample Matrix Spike Duplicate** Lab ID: **H18120480-001BMSD** Method: **E200.8**
Analysis Date: **01/02/19 17:41** 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
Copper	0.0481	0.0050	0.05	0.0002878	**96**	70	130	0.04892	**1.6**	20	

Associated samples: **H18110515-004B**

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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS181128A

Date: *03-Jan-19*

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 1** SampType: **Laboratory Control Sample** Lab ID: **LCS-2_181128A** Method: **A2540 D**

Analysis Date: **11/28/18 13:17** 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	102	10	100	0	102	80	120				

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 2** SampType: **Method Blank** Lab ID: **MB-1_181128A** Method: **A2540 D**

Analysis Date: **11/28/18 13:17** 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	ND	0.3									

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 2** SampType: **Sample Duplicate** Lab ID: **H18110517-001ADUP** Method: **A2540 D**

Analysis Date: **11/28/18 13:25** 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
Solids, Total Suspended TSS @ 105 C	3.60	10		0				3.6		5	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 2** SampType: **Method Blank** Lab ID: **MB-25_181128A** Method: **A2540 D**

Analysis Date: **11/28/18 13:25** 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
Solids, Total Suspended TSS @ 105 C	ND	0.3									

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-26_181128A** Method: **A2540 D**

Analysis Date: **11/28/18 13:25** 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
Solids, Total Suspended TSS @ 105 C	98.0	10	100	0	98	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: H18110515
Project: CFROU Monitoring

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: TSS181128A

Date: *03-Jan-19*

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 2** SampType: **Laboratory Control Sample** Lab ID: **LCS-26_181128A** Method: **A2540 D**

Analysis Date: **11/28/18 13:25** 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

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 2** SampType: **Sample Duplicate** Lab ID: **H18110517-002ADUP** Method: **A2540 D**

Analysis Date: **11/28/18 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
Solids, Total Suspended TSS @ 105 C	126	20		0				122	3.2	5	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

Run ID :Run Order: **ACCU-124 (14410200)_181128A: 2** SampType: **Sample Duplicate** Lab ID: **H18110510-002BDUP** Method: **A2540 D**

Analysis Date: **11/28/18 14:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	10.0	10		0				10	0.0	5	

Associated samples: **H18110515-001A, H18110515-002A, H18110515-003A, H18110515-004A, H18110515-005A, H18110515-006A, H18110515-007A, H18110515-008A, H18110515-009A, H18110515-010A, H18110515-011A, H18110515-012A, H18110515-013A, H18110515-014A, H18110515-015A, H18110515-016A, H18110515-017A**

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

BROOKS APPLIED LABS
18804 North Creek Parkway, Ste 100, Bothell, WA 98011 • USA • T: 206 632 6206 F: 206 632 6017 • info@brooksapplied.com

December 28, 2018

Energy Laboratories, Inc.
ATTN: Jonathan Dee Hager
PO Box 5688
Helena, MT 59604
jhager@energylab.com

RE: Project ENL-HL1201

Dear Mr. Jonathan Hager,

On November 29, 2018, Brooks Applied Labs (BAL) received five (5) water samples. The samples were logged-in for the analyses of methyl mercury (MeHg) according to the chain-of-custody form. All samples were received and stored according to BAL SOPs and EPA methodology.

Water samples were pre-preserved with 6N hydrochloric acid and were distilled via EPA Method 1630.

The results were method blank corrected as described in the calculations section of the relevant BAL SOP(s) and were evaluated using reporting limits adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

The method blank B183294-BLK3 had an elevated Hg(II) peak likely caused by contamination. Any sample results that had a similar Hg(II) peak were re-distilled and re-analyzed in batch B183449.

The method blank B183449-BLK1 initially had an elevated concentration of 0.059 ng/L. It was re-analyzed within the sequence and had a concentration of 0.015 ng/L, meeting acceptance criteria. Any sample results that were within 10x the initial analysis and greater than the MRL were qualified **J-1** for potential high bias. Only sample *H18110515-018B* (1848030-04) required qualification.

All data was reported without further qualification (aside from concentration qualifiers) and all associated quality control sample results met the acceptance criteria.

BAL, an accredited laboratory, certifies that the reported results of all analyses for which BAL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Lydia Greaves

Lydia Greaves
Client Services Manager
lydia@brooksapplied.com

Report Information

Laboratory Accreditation

BAL 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. BAL 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.brooksapplied.com/resources/certificates-permits/>. 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

AR	as received	**MS**	matrix spike
BAL	Brooks Applied Labs	**MSD**	matrix spike duplicate
BLK	method blank	**ND**	non-detect
BS	blank spike	**NR**	non-reportable
CAL	calibration standard	**N/C**	not calculated
CCB	continuing calibration blank	**PS**	post preparation spike
CCV	continuing calibration verification	**REC**	percent recovery
COC	chain of custody record	**RPD**	relative percent difference
D	dissolved fraction	**SCV**	secondary calibration verification
DUP	duplicate	**SOP**	standard operating procedure
IBL	instrument blank	**SRM**	standard reference material
ICV	initial calibration verification	**T**	total fraction
MDL	method detection limit	**TR**	total recoverable fraction
MRL	method reporting limit		

Definition of Data Qualifiers

(Effective 9/23/09)

E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Please see narrative for explanation.
J Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
J-1 Estimated value. A full explanation is presented in the narrative.
M Duplicate precision (RPD) was not within acceptance criteria. Please see narrative for explanation.
N Spike recovery was not within acceptance criteria. Please see narrative for explanation.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X 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 Applied 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 BAL.

Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
H18110515-002E	1848030-01	Water	Sample	11/26/2018	11/29/2018
H18110515-003E	1848030-02	Water	Sample	11/26/2018	11/29/2018
H18110515-004E	1848030-03	Water	Sample	11/26/2018	11/29/2018
H18110515-018B	1848030-04	Water	Sample	11/26/2018	11/29/2018
H18110515-019A	1848030-05	Water	Sample	11/26/2018	11/29/2018

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
MeHg	Water	EPA 1630	12/17/2018	12/18/2018	B183294	1801715
MeHg	Water	EPA 1630	12/20/2018	12/21/2018	B183449	1801738

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
H18110515-002E										
1848030-01	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B183449	1801738
H18110515-003E										
1848030-02	MeHg	Water	TR	1.05		0.023	0.049	ng/L	B183294	1801715
H18110515-004E										
1848030-03	MeHg	Water	TR	0.787		0.023	0.050	ng/L	B183294	1801715
H18110515-018B										
1848030-04	MeHg	Water	TR	0.186	J-1	0.023	0.050	ng/L	B183449	1801738
H18110515-019A										
1848030-05	MeHg	Water	TR	≤ 0.023	U	0.023	0.050	ng/L	B183294	1801715

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Accuracy & Precision Summary

Batch: B183294
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B183294-BS1	**Blank Spike, (1848031)**								
	MeHg		1.000	1.142	ng/L	114%	67-133		
B183294-MS2	**Matrix Spike (1848031-01)**								
	MeHg	2.493	4.000	7.008	ng/L	113%	65-135		
B183294-MSD2	**Matrix Spike Duplicate (1848031-01)**								
	MeHg	2.493	4.000	6.846	ng/L	109%	65-135	2%	35

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Accuracy & Precision Summary

Batch: B183449
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits		RPD & Limits	
B183449-BS1	**Blank Spike, (1848031)**								
	MeHg		1.000	1.111	ng/L	111%	67-133		
B183449-MS1	**Matrix Spike (1850007-01)**								
	MeHg	0.432	1.000	1.613	ng/L	118%	65-135		
B183449-MSD1	**Matrix Spike Duplicate (1850007-01)**								
	MeHg	0.432	1.000	1.713	ng/L	128%	65-135	6%	35

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Method Blanks & Reporting Limits

Batch: B183294
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B183294-BLK1	0.007	ng/L
B183294-BLK2	0.009	ng/L
B183294-BLK4	0.010	ng/L

Average: 0.009 **Standard Deviation:** 0.002 **MDL:** 0.023
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.050

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Method Blanks & Reporting Limits

Batch: B183449
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B183449-BLK1	0.015	ng/L
B183449-BLK2	0.016	ng/L
B183449-BLK3	0.011	ng/L
B183449-BLK4	0.005	ng/L

Average: 0.012 **Standard Deviation:** 0.005 **MDL:** 0.023
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.050

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Sample Containers

Lab ID: 1848030-01
Sample: H18110515-002E
Report Matrix: Water
Sample Type: Sample
Collected: 11/26/2018
Received: 11/29/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle - Hg-Sp	250nL	18-0155	2mL 6N HCl (PP)	1842048	<2	Cooler - 1848030

Lab ID: 1848030-02
Sample: H18110515-003E
Report Matrix: Water
Sample Type: Sample
Collected: 11/26/2018
Received: 11/29/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle - Hg-Sp	250nL	18-0155	2mL 6N HCl (PP)	1842048	<2	Cooler - 1848030

Lab ID: 1848030-03
Sample: H18110515-004E
Report Matrix: Water
Sample Type: Sample
Collected: 11/26/2018
Received: 11/29/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle - Hg-Sp	250nL	18-0155	2mL 6N HCl (PP)	1842048	<2	Cooler - 1848030

Lab ID: 1848030-04
Sample: H18110515-018B
Report Matrix: Water
Sample Type: Sample
Collected: 11/26/2018
Received: 11/29/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle - Hg-Sp	250nL	18-0155	2mL 6N HCl (PP)	1842048	<2	Cooler - 1848030

Lab ID: 1848030-05
Sample: H18110515-019A
Report Matrix: Water
Sample Type: Sample
Collected: 11/26/2018
Received: 11/29/2018

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	FLPE - 250mL Bottle - Hg-Sp	250nL	18-0155	2mL 6N HCl (PP)	1842048	<2	Cooler - 1848030

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Project ID: ENL-HL1201
PM: Lydia Greaves

Client PM: Jonathan Dee Hager
Client Project: H1811515

Shipping Containers

Cooler - 1848030

Received: November 29, 2018 11:00
Tracking No: 1Z37EW970154003348 via UPS
Coolant Type: Ice
Temperature: 3.6 °C

Description: Cooler
Damaged in transit? No
Returned to client? No
Comments: IR#18

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

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Chain of Custody & Analytical Request Record

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BAL Report 1848030

Account Information *(Billing information)*

Company/Name	Energy Laboratories
Contact	Wanda Johnson
Phone	(406) 442-0711
Mailing Address	3161 East Lyndale
City, State, Zip	Helena, MT 59601
Email	wjohnson@energylab.com
Receive Invoice	☐Hard Copy ■Email
Receive Report	☐Hard Copy ■Email
Purchase Order	13318
Quote	
Bottle Order	

Report Information *(if different than Account Information)*

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	H1811515
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

URANIUM MINING CLIENTS MUST Indicate sample type.
☐ NOT Source or Byproduct Material
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

Matrix Codes

A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Analysis Requested

	Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Methyl Mercury	See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
1	H18110515-002E	11/26/18	1:00 pm	1	W	X			
2	H18110515-003E	11/26/18	1:30 pm	1	W	X			
3	H18110515-004E	11/26/18	1:30 pm	1	W	X			
4	H18110515-018B	11/26/18	11:30 am	1	W	X			
5	H18110515-019A	11/26/18	8:45 am	1	W	X			
6									
7									
8									
9									
10									

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	JESSICA SMITH	11-28-18 12:38		Alyssa Rehwaldt	11/29/18	1100
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

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 subcontracted data will be clearly notated on your analytical report.

Work Order Receipt Checklist

MT DEQ-Federal Superfund

H18110515

Login completed by: Jessica C. Smith
Date Received: 11/28/2018
Reviewed by: BL2000\rtooke
Received by: RAT
Reviewed Date: 11/29/2018
Carrier name: Hand Del

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

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:

Cooler 1 was received at 0.6 °C, Cooler 2 at 0.0 °C, Cooler 3 at 0.6 °C, and Cooler 4 at 0.3 °C. On Ice. The temperature blank in Coolers 2 and 4 were frozen, so the temperature was taken from a client sample. JCS 11/28/18

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Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	28920

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Joe Naughton
Phone	214-4478
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 0.6 TB
C2 0.8 from sample
C3 0.6 TB
C4 0.3 from sample

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	T.Traxler, J. Naughton
Sampler Phone	214-4478
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk., Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
																	H18110515
C3	1 CFR-116A	11/26/18	0845	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	2 Field Blank #1 FC-CFR	11/26/18	1300	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	3 FC-CFR	11/26/18	1330	5	W	✓	✓	✓	✓		✓	✓	✓				
C3	4 FC-CFR Duplicate	11/26/18	1330	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	5 LBR-CFR-02	11/26/18	1545	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	6 CFR-34	11/26/18	1715	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	7 CFR-27H	11/27/18	0830	5	W	✓	✓	✓	✓		✓	✓	✓				
C4	8 CFR-11F	11/27/18	0930	5	W	✓	✓	✓	✓		✓	✓	✓				
C2	9 CFR-07D	11/27/18	1015	5	W	✓	✓	✓	✓		✓	✓	✓				
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Mark Traxler	11/28/18 8:48	Mark Traxler			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Rebecca Tonk	Date/Time 11/28/18 848	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand	596, 110 208, 124	Y N C B	Y N	5.0 °C	N	Y N	CC Cash Check_____	$	

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Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	▣Hard Copy ▣Email
Receive Report	☐Hard Copy ▣Email
Purchase Order	
Quote	1085
Bottle Order	28920

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Joe Naughton
Phone	214-4478
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	joe.naughton@respec.com
Receive Report	☐Hard Copy ▣Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight

C1 0.6 TOB
C2 0.8 from sample
C3 0.6 TOB
C4 0.3 from sample

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	T. Traxler, J. Naughton
Sampler Phone	214-4478
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

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Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	TR As, Cd, Cu Pb, Zn	Diss As, Cd, Cu, Pb, Zn	TPN	NO3+2, TP	NH3	TSS	Tot. Alk. ,Sulfate, Chloride	Hardness (TR Ca & Mg)		See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
	1 Field Blank #2 CFR-03A	11/27/18	1100	5	W	✓	✓	✓	✓		✓	✓	✓				H181105 15
C2	2 CFR-03A	11/27/18	1115	5	W	✓	✓	✓	✓		✓	✓	✓				
C2	3 WSC-SBC	11/27/18	1200	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C2	4 SS-25	11/27/18	1245	5	W	✓	✓	✓	✓		✓	✓	✓				
C1	5 MWB-SBC	11/27/18	1345	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C1	6 SBC-P2	11/27/18	1430	5	W	✓	✓	✓	✓	✓	✓	✓	✓				
C1	7 SBC-P2 Duplicate	11/27/18	1430	5	W	✓	✓	✓	✓		✓	✓	✓				
C1	8 MCWC-MWB	11/27/18	1600	5	W	✓	✓	✓	✓		✓	✓	✓				
C1	9																
	10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Mark Traxler	11/28/18 8:48	Mark Traxler			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print) Rebecca Toke	Date/Time 11/28/18 8:48	Signature Rebecca Toke

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp °C	Temp Blank	On Ice	Payment Type	Amount $	Receipt Number (cash/check only)
hand	596, 110 208, 124	Y (N) C B	Y N	see com	(Y) N 2 oz	(Y) N	CC Cash Check_____		

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 subcontracted data will be clearly notated on your analytical report.

ENERGY LAB
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

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Account Information (Billing information)

Company/Name	MTDEQ (RESPEC)
Contact	Ben Quinones (Joe Naughton)
Phone	(406) 841-5709
Mailing Address	P.O.Box 200901
City, State, Zip	Helena, MT 59620-0901
Email	bequinones@ mt.gov; joe.naughton@respec.com
Receive Invoice	☒Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	
Quote	1085
Bottle Order	28920

Report Information (if different than Account Information)

Company/Name	RESPEC
Contact	Joe Naughton
Phone	214-4478
Mailing Address	820 N. Montana Ave. Suite A
City, State, Zip	Helena, MT 59601
Email	joe.naughton@respec.com
Receive Report	☐Hard Copy ☒Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other

Comments

All dissolved samples field filtered
sieve sediment for <0.063 mm fraction only, analyze for total metals as dry weight
C1 0.6 TB
C2 0.8 from sample
C3 0.6 TB
C4 0.3 from sample

Project Information

Project Name, PWSID, Permit, etc.	CFROU Monitoring
Sampler Name	T. Traxler, J. Naughton
Sampler Phone	214-4478
Sample Origin State	Montana
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W- Water
S - Soils/ Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	Total Mercury, low level	Methyl Mercury (contract)	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
C3	1 CFR-84F	11/26/18	1130	1	W	✓	✓			
C3	2 Field Blank #1 FC-CFR	11/26/18	1300	1	W	✓	✓			H181105 15
C3	3 FC-CFR	11/26/18	1330	1	W	✓	✓			
C3	4 FC-CFR Duplicate	11/26/18	1330	1	W	✓	✓			
	5									
	6									
	7									
	8									
	9									
	10									

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Mark Traxler	11/28/18 8:48	Mark Traxler			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
				Rebecca Towle	11/28/18 8:48	Rebecca Towle

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals	Intact	Receipt Temp	Temp Blank	On Ice	Payment Type	Amount	Receipt Number (cash/check only)
hand	546, 110, 208, 124	Y N C B	Y N	5.6 °C Com	Y N 2 Gal	Y N	CC Cash Check	$	

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 subcontracted data will be clearly notated on your analytical report.

APPENDIX C

SURFACE WATER DATA

Table C-1. First quarter surface water results for the Clark Fork River Operable Unit, 2018.

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Alkalinity, total	Total	120	mg/l		0.7	4
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Bicarbonate	Total	150	mg/l		0.7	4
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Chloride	Total	24	mg/l		0.003	1
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Sulfate	Total	88	mg/l		0.01	1
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Total Nitrogen, mixed forms	Unfiltered	0.38	mg/l		0.01	0.05
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Total suspended solids	NA	5	mg/l	D	0.3	2
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Arsenic	Dissolved	0.008	mg/l		0.00002	0.001
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Cadmium	Dissolved	0.00007	mg/l		0.00002	0.00003
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Copper	Dissolved	0.005	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Lead	Dissolved	0.00013	mg/l	J	0.00001	0.0003
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Zinc	Dissolved	0.015	mg/l		0.0001	0.008
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Arsenic	Total Recv	0.009	mg/l		0.00002	0.001
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Cadmium	Total Recv	0.00011	mg/l		0.00002	0.00003
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Calcium	Total Recv	59	mg/l		0.01	1
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Copper	Total Recv	0.009	mg/l		0.0003	0.001
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Lead	Total Recv	0.0009	mg/l		0.00003	0.0003
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Magnesium	Total Recv	13	mg/l		0.09	1
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Potassium	Total Recv	4	mg/l		0.05	1
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Sodium	Total Recv	20	mg/l		0.02	1
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Zinc	Total Recv	0.022	mg/l		0.002	0.008
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Nitrate + Nitrite	Unfiltered	0.18	mg/l		0.007	0.02
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Total Phosphorus, mixed forms	Unfiltered	0.02	mg/l		0.0006	0.003
CFR-03A	S-ROUTINE	20-Mar-18	9:30	Hardness, Ca, Mg	NA	203	mg/l		1	1
CFR-03A	F-MSR/OBS	20-Mar-18	9:30	Temperature, water	NA	3.2	deg C			
CFR-03A	F-MSR/OBS	20-Mar-18	9:30	pH	NA	7.98	None			
CFR-03A	F-MSR/OBS	20-Mar-18	9:30	Dissolved oxygen (DO)	NA	12.3	mg/l			
CFR-03A	F-MSR/OBS	20-Mar-18	9:30	Dissolved oxygen saturation	NA	109	%			
CFR-03A	F-MSR/OBS	20-Mar-18	9:30	Specific conductance	NA	494.8	uS/cm			
CFR-03A	F-MSR/OBS	20-Mar-18	9:30	Turbidity	NA	2.68	NTU			
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Alkalinity, total	Total	140	mg/l		0.7	4
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Bicarbonate	Total	170	mg/l		0.7	4
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Chloride	Total	19	mg/l		0.003	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Sulfate	Total	100	mg/l		0.01	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Total Nitrogen, mixed forms	Unfiltered	0.45	mg/l		0.01	0.05
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Total suspended solids	NA	12	mg/l		0.3	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Arsenic	Dissolved	0.009	mg/l		0.00002	0.001
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Cadmium	Dissolved	0.00005	mg/l		0.00002	0.00003
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Copper	Dissolved	0.005	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Lead	Dissolved	0.00013	mg/l	J	0.00001	0.0003
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Zinc	Dissolved	0.014	mg/l		0.0001	0.008
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Arsenic	Total Recv	0.012	mg/l		0.00002	0.001
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Cadmium	Total Recv	0.00016	mg/l		0.00002	0.00003
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Calcium	Total Recv	66	mg/l		0.01	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Copper	Total Recv	0.021	mg/l		0.0003	0.001
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Lead	Total Recv	0.0023	mg/l		0.00003	0.0003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Magnesium	Total Recv	15	mg/l		0.09	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Potassium	Total Recv	4	mg/l		0.05	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Sodium	Total Recv	18	mg/l		0.02	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Zinc	Total Recv	0.028	mg/l		0.002	0.008
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Nitrate + Nitrite	Unfiltered	0.23	mg/l		0.007	0.02
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Total Phosphorus, mixed forms	Unfiltered	0.027	mg/l		0.0006	0.003
CFR-07D	S-ROUTINE	20-Mar-18	8:30	Hardness, Ca, Mg	NA	226	mg/l		1	1
CFR-07D	F-MSR/OBS	20-Mar-18	8:30	Temperature, water	NA	3.1	deg C			
CFR-07D	F-MSR/OBS	20-Mar-18	8:30	pH	NA	7.96	None			
CFR-07D	F-MSR/OBS	20-Mar-18	8:30	Dissolved oxygen (DO)	NA	11.6	mg/l			
CFR-07D	F-MSR/OBS	20-Mar-18	8:30	Dissolved oxygen saturation	NA	103	%			
CFR-07D	F-MSR/OBS	20-Mar-18	8:30	Specific conductance	NA	521.7	uS/cm			
CFR-07D	F-MSR/OBS	20-Mar-18	8:30	Turbidity	NA	4.42	NTU			
CFR-07D	F-MSR/OBS	20-Mar-18	8:30	Flow	NA	223.23	ft3/sec			
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Alkalinity, total	Total	120	mg/l		0.7	4
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Bicarbonate	Total	150	mg/l		0.7	4
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Chloride	Total	7	mg/l		0.003	1
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Sulfate	Total	50	mg/l		0.01	1
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Total Nitrogen, mixed forms	Unfiltered	0.45	mg/l		0.01	0.05
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Total suspended solids	NA	28	mg/l		0.3	1
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Arsenic	Dissolved	0.007	mg/l		0.00002	0.001
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Cadmium	Dissolved	0.00003	mg/l		0.00002	0.00003
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Copper	Dissolved	0.007	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Lead	Dissolved	0.00013	mg/l	J	0.00001	0.0003
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Zinc	Dissolved	0.0079	mg/l	J	0.0001	0.008
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Arsenic	Total Recv	0.009	mg/l		0.00002	0.001
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Cadmium	Total Recv	0.00014	mg/l		0.00002	0.00003
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Calcium	Total Recv	47	mg/l		0.01	1
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Copper	Total Recv	0.024	mg/l		0.0003	0.001
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Lead	Total Recv	0.0034	mg/l		0.00003	0.0003
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Magnesium	Total Recv	12	mg/l		0.09	1
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Potassium	Total Recv	4	mg/l		0.05	1
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Sodium	Total Recv	11	mg/l		0.02	1
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Zinc	Total Recv	0.033	mg/l		0.002	0.008
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Nitrate + Nitrite	Unfiltered	0.09	mg/l		0.007	0.02
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Total Phosphorus, mixed forms	Unfiltered	0.07	mg/l		0.0006	0.003
CFR-116A	S-ROUTINE	19-Mar-18	9:00	Hardness, Ca, Mg	NA	165	mg/l		1	1
CFR-116A	F-MSR/OBS	19-Mar-18	9:00	Temperature, water	NA	4.7	deg C			
CFR-116A	F-MSR/OBS	19-Mar-18	9:00	pH	NA	7.86	None			
CFR-116A	F-MSR/OBS	19-Mar-18	9:00	Dissolved oxygen (DO)	NA	10.9	mg/l			
CFR-116A	F-MSR/OBS	19-Mar-18	9:00	Dissolved oxygen saturation	NA	95	%			
CFR-116A	F-MSR/OBS	19-Mar-18	9:00	Specific conductance	NA	367.2	uS/cm			
CFR-116A	F-MSR/OBS	19-Mar-18	9:00	Turbidity	NA	12.5	NTU			
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Alkalinity, total	Total	140	mg/l		0.7	4
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Bicarbonate	Total	170	mg/l		0.7	4
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Chloride	Total	20	mg/l		0.003	1
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Sulfate	Total	99	mg/l		0.01	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Total Nitrogen, mixed forms	Unfiltered	0.41	mg/l		0.01	0.05
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Total suspended solids	NA	19	mg/l		0.3	1
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Arsenic	Dissolved	0.011	mg/l		0.00002	0.001
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Cadmium	Dissolved	0.00005	mg/l		0.00002	0.00003
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Copper	Dissolved	0.006	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Lead	Dissolved	0.00017	mg/l	J	0.00001	0.0003
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Zinc	Dissolved	0.008	mg/l		0.0001	0.008
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Arsenic	Total Recv	0.014	mg/l		0.00002	0.001
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Cadmium	Total Recv	0.00016	mg/l		0.00002	0.00003
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Calcium	Total Recv	67	mg/l		0.01	1
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Copper	Total Recv	0.027	mg/l		0.0003	0.001
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Lead	Total Recv	0.0033	mg/l		0.00003	0.0003
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Magnesium	Total Recv	15	mg/l		0.09	1
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Potassium	Total Recv	4	mg/l		0.05	1
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Sodium	Total Recv	19	mg/l		0.02	1
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Zinc	Total Recv	0.028	mg/l		0.002	0.008
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Nitrate + Nitrite	Unfiltered	0.14	mg/l		0.007	0.02
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Total Phosphorus, mixed forms	Unfiltered	0.032	mg/l		0.0006	0.003
CFR-11F	S-ROUTINE	19-Mar-18	17:45	Hardness, Ca, Mg	NA	232	mg/l		1	1
CFR-11F	F-MSR/OBS	19-Mar-18	17:45	Temperature, water	NA	6.7	deg C			
CFR-11F	F-MSR/OBS	19-Mar-18	17:45	pH	NA	8.3	None			
CFR-11F	F-MSR/OBS	19-Mar-18	17:45	Dissolved oxygen (DO)	NA	12	mg/l			
CFR-11F	F-MSR/OBS	19-Mar-18	17:45	Dissolved oxygen saturation	NA	116	%			
CFR-11F	F-MSR/OBS	19-Mar-18	17:45	Specific conductance	NA	518.4	uS/cm			
CFR-11F	F-MSR/OBS	19-Mar-18	17:45	Turbidity	NA	7.23	NTU			
CFR-11F	F-MSR/OBS	19-Mar-18	17:45	Flow	NA	244.46	ft3/sec			
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Alkalinity, total	Total	140	mg/l		0.7	4
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Bicarbonate	Total	170	mg/l		0.7	4
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Chloride	Total	17	mg/l		0.003	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Sulfate	Total	84	mg/l		0.01	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Total Nitrogen, mixed forms	Unfiltered	0.5	mg/l		0.01	0.05
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Total suspended solids	NA	31	mg/l		0.3	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Arsenic	Dissolved	0.01	mg/l		0.00002	0.001
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Cadmium	Dissolved	0.00006	mg/l		0.00002	0.00003
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Copper	Dissolved	0.008	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Lead	Dissolved	0.00019	mg/l	J	0.00001	0.0003
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Zinc	Dissolved	0.01	mg/l		0.0001	0.008
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Arsenic	Total Recv	0.015	mg/l		0.00002	0.001
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Cadmium	Total Recv	0.00022	mg/l		0.00002	0.00003
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Calcium	Total Recv	63	mg/l		0.01	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Copper	Total Recv	0.045	mg/l		0.0003	0.001
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Lead	Total Recv	0.0067	mg/l		0.00003	0.0003
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Magnesium	Total Recv	14	mg/l		0.09	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Potassium	Total Recv	4	mg/l		0.05	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Sodium	Total Recv	18	mg/l		0.02	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Zinc	Total Recv	0.042	mg/l		0.002	0.008
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Nitrate + Nitrite	Unfiltered	0.2	mg/l		0.007	0.02

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Total Phosphorus, mixed forms	Unfiltered	0.048	mg/l		0.0006	0.003
CFR-27H	S-ROUTINE	19-Mar-18	16:45	Hardness, Ca, Mg	NA	215	mg/l		1	1
CFR-27H	F-MSR/OBS	19-Mar-18	16:45	Temperature, water	NA	6.3	deg C			
CFR-27H	F-MSR/OBS	19-Mar-18	16:45	pH	NA	8.17	None			
CFR-27H	F-MSR/OBS	19-Mar-18	16:45	Dissolved oxygen (DO)	NA	12	mg/l			
CFR-27H	F-MSR/OBS	19-Mar-18	16:45	Dissolved oxygen saturation	NA	115	%			
CFR-27H	F-MSR/OBS	19-Mar-18	16:45	Specific conductance	NA	481.5	uS/cm			
CFR-27H	F-MSR/OBS	19-Mar-18	16:45	Turbidity	NA	10.9	NTU			
CFR-34	S-ROUTINE	19-Mar-18	15:30	Alkalinity, total	Total	140	mg/l		0.7	4
CFR-34	S-ROUTINE	19-Mar-18	15:30	Bicarbonate	Total	180	mg/l		0.7	4
CFR-34	S-ROUTINE	19-Mar-18	15:30	Chloride	Total	17	mg/l		0.003	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	Sulfate	Total	80	mg/l		0.01	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	Total Nitrogen, mixed forms	Unfiltered	0.51	mg/l		0.01	0.05
CFR-34	S-ROUTINE	19-Mar-18	15:30	Total suspended solids	NA	31	mg/l		0.3	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	Arsenic	Dissolved	0.01	mg/l		0.00002	0.001
CFR-34	S-ROUTINE	19-Mar-18	15:30	Cadmium	Dissolved	0.00015	mg/l		0.00002	0.00003
CFR-34	S-ROUTINE	19-Mar-18	15:30	Copper	Dissolved	0.009	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	19-Mar-18	15:30	Lead	Dissolved	0.0002	mg/l	J	0.00001	0.0003
CFR-34	S-ROUTINE	19-Mar-18	15:30	Zinc	Dissolved	0.01	mg/l		0.0001	0.008
CFR-34	S-ROUTINE	19-Mar-18	15:30	Arsenic	Total Recv	0.016	mg/l		0.00002	0.001
CFR-34	S-ROUTINE	19-Mar-18	15:30	Cadmium	Total Recv	0.00023	mg/l		0.00002	0.00003
CFR-34	S-ROUTINE	19-Mar-18	15:30	Calcium	Total Recv	65	mg/l		0.01	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	Copper	Total Recv	0.054	mg/l		0.0003	0.001
CFR-34	S-ROUTINE	19-Mar-18	15:30	Lead	Total Recv	0.0073	mg/l		0.00003	0.0003
CFR-34	S-ROUTINE	19-Mar-18	15:30	Magnesium	Total Recv	15	mg/l		0.09	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	Potassium	Total Recv	4	mg/l		0.05	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	Sodium	Total Recv	19	mg/l		0.02	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	Zinc	Total Recv	0.048	mg/l		0.002	0.008
CFR-34	S-ROUTINE	19-Mar-18	15:30	Nitrate + Nitrite	Unfiltered	0.19	mg/l		0.007	0.02
CFR-34	S-ROUTINE	19-Mar-18	15:30	Total Phosphorus, mixed forms	Unfiltered	0.066	mg/l		0.0006	0.003
CFR-34	S-ROUTINE	19-Mar-18	15:30	Hardness, Ca, Mg	NA	222	mg/l		1	1
CFR-34	F-MSR/OBS	19-Mar-18	15:30	Temperature, water	NA	6.2	deg C			
CFR-34	F-MSR/OBS	19-Mar-18	15:30	pH	NA	8.15	None			
CFR-34	F-MSR/OBS	19-Mar-18	15:30	Dissolved oxygen (DO)	NA	12.6	mg/l			
CFR-34	F-MSR/OBS	19-Mar-18	15:30	Dissolved oxygen saturation	NA	120	%			
CFR-34	F-MSR/OBS	19-Mar-18	15:30	Specific conductance	NA	398.2	uS/cm			
CFR-34	F-MSR/OBS	19-Mar-18	15:30	Turbidity	NA	13	NTU			
CFR-84F	S-ROUTINE	19-Mar-18	11:00	Mercury	Total Recv	0.0000294	mg/l		0.0000006	0.000005
CFR-84F	S-ROUTINE	19-Mar-18	11:00	Methylmercury(1+)	Total Recv	0.402	ng/l		0.023	0.05
CFR-84F	F-MSR/OBS	19-Mar-18	11:00	Temperature, water	NA	5.1	deg C			
CFR-84F	F-MSR/OBS	19-Mar-18	11:00	pH	NA	7.89	None			
CFR-84F	F-MSR/OBS	19-Mar-18	11:00	Dissolved oxygen (DO)	NA	11.8	mg/l			
CFR-84F	F-MSR/OBS	19-Mar-18	11:00	Dissolved oxygen saturation	NA	106	%			
CFR-84F	F-MSR/OBS	19-Mar-18	11:00	Specific conductance	NA	450.5	uS/cm			
CFR-84F	F-MSR/OBS	19-Mar-18	11:00	Turbidity	NA	16.3	NTU			
FC-CFR	QC-FB	19-Mar-18	12:00	Alkalinity, total	Total	2	mg/l	J	0.7	4
FC-CFR	QC-FB	19-Mar-18	12:00	Bicarbonate	Total	2	mg/l	J	0.7	4

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FB	19-Mar-18	12:00	Chloride	Total	0.006	mg/l	J	0.003	1
FC-CFR	QC-FB	19-Mar-18	12:00	Sulfate	Total	<0.01	mg/l		0.01	1
FC-CFR	QC-FB	19-Mar-18	12:00	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
FC-CFR	QC-FB	19-Mar-18	12:00	Total suspended solids	NA	<0.3	mg/l		0.3	1
FC-CFR	QC-FB	19-Mar-18	12:00	Arsenic	Dissolved	<0.00002	mg/l		0.00002	0.001
FC-CFR	QC-FB	19-Mar-18	12:00	Cadmium	Dissolved	<0.00002	mg/l		0.00002	0.00003
FC-CFR	QC-FB	19-Mar-18	12:00	Copper	Dissolved	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	19-Mar-18	12:00	Lead	Dissolved	<0.00001	mg/l		0.00001	0.0003
FC-CFR	QC-FB	19-Mar-18	12:00	Zinc	Dissolved	0.0071	mg/l	J	0.0001	0.008
FC-CFR	QC-FB	19-Mar-18	12:00	Arsenic	Total Recv	0.00002	mg/l	J	0.00002	0.001
FC-CFR	QC-FB	19-Mar-18	12:00	Cadmium	Total Recv	<0.00002	mg/l		0.00002	0.00003
FC-CFR	QC-FB	19-Mar-18	12:00	Calcium	Total Recv	0.47	mg/l	J	0.01	1
FC-CFR	QC-FB	19-Mar-18	12:00	Copper	Total Recv	<0.0003	mg/l		0.0003	0.001
FC-CFR	QC-FB	19-Mar-18	12:00	Lead	Total Recv	0.00006	mg/l	J	0.00003	0.0003
FC-CFR	QC-FB	19-Mar-18	12:00	Magnesium	Total Recv	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	19-Mar-18	12:00	Potassium	Total Recv	<0.05	mg/l		0.05	1
FC-CFR	QC-FB	19-Mar-18	12:00	Sodium	Total Recv	<0.02	mg/l		0.02	1
FC-CFR	QC-FB	19-Mar-18	12:00	Zinc	Total Recv	<0.002	mg/l		0.002	0.008
FC-CFR	QC-FB	19-Mar-18	12:00	Mercury	Total Recv	<0.0000006	mg/l		0.0000006	0.000005
FC-CFR	QC-FB	19-Mar-18	12:00	Nitrate + Nitrite	Unfiltered	<0.007	mg/l		0.007	0.02
FC-CFR	QC-FB	19-Mar-18	12:00	Total Phosphorus, mixed forms	Unfiltered	<0.0006	mg/l		0.0006	0.003
FC-CFR	QC-FB	19-Mar-18	12:00	Hardness, Ca, Mg	NA	1	mg/l		1	1
FC-CFR	QC-FB	19-Mar-18	12:00	Methylmercury(1+)	Total Recv	<0.023	ng/l		0.023	0.05
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Alkalinity, total	Total	140	mg/l		0.7	4
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Bicarbonate	Total	160	mg/l		0.7	4
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Chloride	Total	4	mg/l		0.003	1
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Sulfate	Total	16	mg/l		0.01	1
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Total Nitrogen, mixed forms	Unfiltered	0.39	mg/l		0.01	0.05
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Total suspended solids	NA	11	mg/l		0.3	1
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Arsenic	Dissolved	0.006	mg/l		0.00002	0.001
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Cadmium	Dissolved	<0.00002	mg/l		0.00002	0.00003
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Copper	Dissolved	0.001	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Lead	Dissolved	0.00019	mg/l	J	0.00001	0.0003
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Zinc	Dissolved	0.0056	mg/l	J	0.0001	0.008
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Arsenic	Total Recv	0.007	mg/l		0.00002	0.001
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Cadmium	Total Recv	0.00003	mg/l	J	0.00002	0.00003
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Calcium	Total Recv	39	mg/l		0.01	1
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Copper	Total Recv	0.002	mg/l		0.0003	0.001
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Lead	Total Recv	0.0023	mg/l		0.00003	0.0003
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Magnesium	Total Recv	12	mg/l		0.09	1
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Potassium	Total Recv	4	mg/l		0.05	1
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Sodium	Total Recv	8	mg/l		0.02	1
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Zinc	Total Recv	0.009	mg/l		0.002	0.008
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Mercury	Total Recv	0.000107	mg/l	J	0.0000006	0.000005
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Nitrate + Nitrite	Unfiltered	0.07	mg/l		0.007	0.02
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Total Phosphorus, mixed forms	Unfiltered	0.064	mg/l		0.0006	0.003
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Hardness, Ca, Mg	NA	146	mg/l		1	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	S-ROUTINE	19-Mar-18	12:15	Methylmercury(1+)	Total Recv	0.759	ng/l		0.058	0.172
FC-CFR	QC-FD	19-Mar-18	12:15	Alkalinity, total	Total	140	mg/l		0.7	4
FC-CFR	QC-FD	19-Mar-18	12:15	Bicarbonate	Total	160	mg/l		0.7	4
FC-CFR	QC-FD	19-Mar-18	12:15	Chloride	Total	4	mg/l		0.003	1
FC-CFR	QC-FD	19-Mar-18	12:15	Sulfate	Total	16	mg/l		0.01	1
FC-CFR	QC-FD	19-Mar-18	12:15	Total Nitrogen, mixed forms	Unfiltered	0.39	mg/l		0.01	0.05
FC-CFR	QC-FD	19-Mar-18	12:15	Total suspended solids	NA	11	mg/l		0.3	1
FC-CFR	QC-FD	19-Mar-18	12:15	Arsenic	Dissolved	0.006	mg/l		0.00002	0.001
FC-CFR	QC-FD	19-Mar-18	12:15	Cadmium	Dissolved	<0.00002	mg/l		0.00002	0.00003
FC-CFR	QC-FD	19-Mar-18	12:15	Copper	Dissolved	0.00092	mg/l	J	0.00004	0.001
FC-CFR	QC-FD	19-Mar-18	12:15	Lead	Dissolved	0.00017	mg/l	J	0.00001	0.0003
FC-CFR	QC-FD	19-Mar-18	12:15	Zinc	Dissolved	0.0047	mg/l	J	0.0001	0.008
FC-CFR	QC-FD	19-Mar-18	12:15	Arsenic	Total Recv	0.007	mg/l		0.00002	0.001
FC-CFR	QC-FD	19-Mar-18	12:15	Cadmium	Total Recv	0.00003	mg/l	J	0.00002	0.00003
FC-CFR	QC-FD	19-Mar-18	12:15	Calcium	Total Recv	39	mg/l		0.01	1
FC-CFR	QC-FD	19-Mar-18	12:15	Copper	Total Recv	0.002	mg/l		0.0003	0.001
FC-CFR	QC-FD	19-Mar-18	12:15	Lead	Total Recv	0.0023	mg/l		0.00003	0.0003
FC-CFR	QC-FD	19-Mar-18	12:15	Magnesium	Total Recv	12	mg/l		0.09	1
FC-CFR	QC-FD	19-Mar-18	12:15	Potassium	Total Recv	4	mg/l		0.05	1
FC-CFR	QC-FD	19-Mar-18	12:15	Sodium	Total Recv	8	mg/l		0.02	1
FC-CFR	QC-FD	19-Mar-18	12:15	Zinc	Total Recv	0.009	mg/l		0.002	0.008
FC-CFR	QC-FD	19-Mar-18	12:15	Mercury	Total Recv	0.0000785	mg/l		0.0000006	0.000005
FC-CFR	QC-FD	19-Mar-18	12:15	Nitrate + Nitrite	Unfiltered	0.07	mg/l		0.007	0.02
FC-CFR	QC-FD	19-Mar-18	12:15	Total Phosphorus, mixed forms	Unfiltered	0.062	mg/l		0.0006	0.003
FC-CFR	QC-FD	19-Mar-18	12:15	Hardness, Ca, Mg	NA	148	mg/l		1	1
FC-CFR	QC-FD	19-Mar-18	12:15	Methylmercury(1+)	Total Recv	0.819	ng/l		0.058	0.174
FC-CFR	QC-FB	20-Mar-18	10:15	Hardness, Ca, Mg	NA	1	mg/l		1	1
FC-CFR	F-MSR/OBS	19-Mar-18	12:15	Temperature, water	NA	3.7	deg C			
FC-CFR	F-MSR/OBS	19-Mar-18	12:15	pH	NA	8.37	None			
FC-CFR	F-MSR/OBS	19-Mar-18	12:15	Dissolved oxygen (DO)	NA	14	mg/l			
FC-CFR	F-MSR/OBS	19-Mar-18	12:15	Dissolved oxygen saturation	NA	122	%			
FC-CFR	F-MSR/OBS	19-Mar-18	12:15	Specific conductance	NA	310.2	uS/cm			
FC-CFR	F-MSR/OBS	19-Mar-18	12:15	Turbidity	NA	7.82	NTU			
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Alkalinity, total	Total	120	mg/l		0.7	4
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Bicarbonate	Total	140	mg/l		0.7	4
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Chloride	Total	4	mg/l		0.003	1
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Sulfate	Total	18	mg/l		0.01	1
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Total Nitrogen, mixed forms	Unfiltered	0.15	mg/l		0.01	0.05
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Total suspended solids	NA	5	mg/l		0.3	1
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Arsenic	Dissolved	0.004	mg/l		0.00002	0.001
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Cadmium	Dissolved	<0.00002	mg/l		0.00002	0.00003
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Copper	Dissolved	0.00074	mg/l	J	0.00004	0.001
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Lead	Dissolved	0.00002	mg/l	J	0.00001	0.0003
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Zinc	Dissolved	0.0037	mg/l	J	0.0001	0.008
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Arsenic	Total Recv	0.004	mg/l		0.00002	0.001
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Cadmium	Total Recv	<0.00002	mg/l		0.00002	0.00003
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Calcium	Total Recv	37	mg/l		0.01	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Copper	Total Recv	0.0008	mg/l	J	0.0003	0.001
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Lead	Total Recv	0.00018	mg/l	J	0.00003	0.0003
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Magnesium	Total Recv	8	mg/l		0.09	1
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Potassium	Total Recv	2	mg/l		0.05	1
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Sodium	Total Recv	7	mg/l		0.02	1
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Zinc	Total Recv	0.002	mg/l	J	0.002	0.008
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Nitrate + Nitrite	Unfiltered	0.011	mg/l	J	0.007	0.02
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Total Phosphorus, mixed forms	Unfiltered	0.02	mg/l		0.0006	0.003
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	Hardness, Ca, Mg	NA	128	mg/l		1	1
LBR-CFR-02	F-MSR/OBS	19-Mar-18	14:00	Temperature, water	NA	5.7	deg C			
LBR-CFR-02	F-MSR/OBS	19-Mar-18	14:00	pH	NA	8.04	None			
LBR-CFR-02	F-MSR/OBS	19-Mar-18	14:00	Dissolved oxygen (DO)	NA	11.6	mg/l			
LBR-CFR-02	F-MSR/OBS	19-Mar-18	14:00	Dissolved oxygen saturation	NA	109	%			
LBR-CFR-02	F-MSR/OBS	19-Mar-18	14:00	Specific conductance	NA	271.9	uS/cm			
LBR-CFR-02	F-MSR/OBS	19-Mar-18	14:00	Turbidity	NA	2.94	NTU			
LBR-CFR-02	F-MSR/OBS	19-Mar-18	14:00	Flow	NA	97	ft3/sec			
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Alkalinity, total	Total	98	mg/l		0.7	4
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Bicarbonate	Total	120	mg/l		0.7	4
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Chloride	Total	2	mg/l		0.003	1
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Sulfate	Total	32	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Total Nitrogen, mixed forms	Unfiltered	0.18	mg/l		0.01	0.05
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Total suspended solids	NA	5	mg/l		0.3	1
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Arsenic	Dissolved	0.018	mg/l		0.00002	0.001
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Cadmium	Dissolved	0.00003	mg/l	J	0.00002	0.00003
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Copper	Dissolved	0.002	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Lead	Dissolved	0.00027	mg/l	J	0.00001	0.0003
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Zinc	Dissolved	0.0066	mg/l	J	0.0001	0.008
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Arsenic	Total Recv	0.021	mg/l		0.00002	0.001
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Cadmium	Total Recv	0.00007	mg/l		0.00002	0.00003
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Calcium	Total Recv	34	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Copper	Total Recv	0.005	mg/l		0.0003	0.001
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Lead	Total Recv	0.0014	mg/l		0.00003	0.0003
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Magnesium	Total Recv	8	mg/l		0.09	1
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Potassium	Total Recv	1	mg/l		0.05	1
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Sodium	Total Recv	10	mg/l		0.02	1
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Zinc	Total Recv	0.01	mg/l		0.002	0.008
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Nitrate + Nitrite	Unfiltered	0.04	mg/l		0.007	0.02
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Total Phosphorus, mixed forms	Unfiltered	0.021	mg/l		0.0006	0.003
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	Hardness, Ca, Mg	NA	119	mg/l		1	1
MCWC-MWB	F-MSR/OBS	20-Mar-18	13:30	Temperature, water	NA	4.1	deg C			
MCWC-MWB	F-MSR/OBS	20-Mar-18	13:30	pH	NA	7.95	None			
MCWC-MWB	F-MSR/OBS	20-Mar-18	13:30	Dissolved oxygen (DO)	NA	12.2	mg/l			
MCWC-MWB	F-MSR/OBS	20-Mar-18	13:30	Dissolved oxygen saturation	NA	111	%			
MCWC-MWB	F-MSR/OBS	20-Mar-18	13:30	Specific conductance	NA	269.8	uS/cm			
MCWC-MWB	F-MSR/OBS	20-Mar-18	13:30	Turbidity	NA	3.1	NTU			
MCWC-MWB	F-MSR/OBS	20-Mar-18	13:30	Flow	NA	19.48	ft3/sec			
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Lead	Dissolved	0.00015	mg/l	J	0.00001	0.0003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Zinc	Dissolved	0.004	mg/l	J	0.0001	0.008
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Arsenic	Total Recv	0.019	mg/l		0.00002	0.001
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Cadmium	Total Recv	0.00005	mg/l		0.00002	0.00003
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Calcium	Total Recv	65	mg/l		0.01	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Copper	Total Recv	0.004	mg/l		0.0003	0.001
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Lead	Total Recv	0.0009	mg/l		0.00003	0.0003
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Magnesium	Total Recv	15	mg/l		0.09	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Potassium	Total Recv	2	mg/l		0.05	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Sodium	Total Recv	12	mg/l		0.02	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Zinc	Total Recv	0.007	mg/l	J	0.002	0.008
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Nitrate + Nitrite	Unfiltered	<0.007	mg/l		0.007	0.02
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Total Phosphorus, mixed forms	Unfiltered	0.019	mg/l		0.0006	0.003
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Alkalinity, total	Total	110	mg/l		0.7	4
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Bicarbonate	Total	130	mg/l		0.7	4
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Chloride	Total	6	mg/l		0.003	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Sulfate	Total	123	mg/l		0.01	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Total Nitrogen, mixed forms	Unfiltered	0.18	mg/l		0.01	0.05
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Total suspended solids	NA	5	mg/l		0.3	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Arsenic	Dissolved	0.017	mg/l		0.00002	0.001
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Cadmium	Dissolved	<0.00002	mg/l		0.00002	0.00003
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Copper	Dissolved	0.002	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	Hardness, Ca, Mg	NA	222	mg/l		1	1
MWB-SBC	F-MSR/OBS	20-Mar-18	12:15	Temperature, water	NA	4.2	deg C			
MWB-SBC	F-MSR/OBS	20-Mar-18	12:15	pH	NA	8.34	None			
MWB-SBC	F-MSR/OBS	20-Mar-18	12:15	Dissolved oxygen (DO)	NA	13.7	mg/l			
MWB-SBC	F-MSR/OBS	20-Mar-18	12:15	Dissolved oxygen saturation	NA	125	%			
MWB-SBC	F-MSR/OBS	20-Mar-18	12:15	Specific conductance	NA	470	uS/cm			
MWB-SBC	F-MSR/OBS	20-Mar-18	12:15	Turbidity	NA	3.09	NTU			
MWB-SBC	F-MSR/OBS	20-Mar-18	12:15	Flow	NA	25.32	ft3/sec			
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Alkalinity, total	Total	120	mg/l		0.7	4
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Bicarbonate	Total	150	mg/l		0.7	4
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Chloride	Total	40	mg/l		0.003	1
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Sulfate	Total	100	mg/l		0.01	1
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Total Nitrogen, mixed forms	Unfiltered	0.7	mg/l		0.01	0.05
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Total suspended solids	NA	2	mg/l		0.3	1
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Arsenic	Dissolved	0.009	mg/l		0.00002	0.001
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Cadmium	Dissolved	0.00017	mg/l		0.00002	0.00003
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Copper	Dissolved	0.008	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Lead	Dissolved	0.0006	mg/l		0.00001	0.0003
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Zinc	Dissolved	0.036	mg/l		0.0001	0.008
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Arsenic	Total Recv	0.008	mg/l		0.00002	0.001
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Cadmium	Total Recv	0.00013	mg/l		0.00002	0.00003
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Calcium	Total Recv	61	mg/l		0.01	1
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Copper	Total Recv	0.007	mg/l		0.0003	0.001
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Lead	Total Recv	0.0003	mg/l		0.00003	0.0003
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Magnesium	Total Recv	14	mg/l		0.09	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Potassium	Total Recv	5	mg/l		0.05	1
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Sodium	Total Recv	28	mg/l		0.02	1
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Zinc	Total Recv	0.029	mg/l		0.002	0.008
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Nitrate + Nitrite	Unfiltered	0.34	mg/l		0.007	0.02
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Total Phosphorus, mixed forms	Unfiltered	0.033	mg/l		0.0006	0.003
SBC-P2	S-ROUTINE	20-Mar-18	12:00	Hardness, Ca, Mg	NA	209	mg/l		1	1
SBC-P2	F-MSR/OBS	20-Mar-18	12:00	Temperature, water	NA	4.6	deg C			
SBC-P2	F-MSR/OBS	20-Mar-18	12:00	pH	NA	8.12	None			
SBC-P2	F-MSR/OBS	20-Mar-18	12:00	Dissolved oxygen (DO)	NA	12.2	mg/l			
SBC-P2	F-MSR/OBS	20-Mar-18	12:00	Dissolved oxygen saturation	NA	113	%			
SBC-P2	F-MSR/OBS	20-Mar-18	12:00	Specific conductance	NA	568.3	uS/cm			
SBC-P2	F-MSR/OBS	20-Mar-18	12:00	Turbidity	NA	1.91	NTU			
SS-25	S-ROUTINE	20-Mar-18	11:30	Alkalinity, total	Total	120	mg/l		0.7	4
SS-25	S-ROUTINE	20-Mar-18	11:30	Bicarbonate	Total	140	mg/l		0.7	4
SS-25	S-ROUTINE	20-Mar-18	11:30	Chloride	Total	32	mg/l		0.003	1
SS-25	S-ROUTINE	20-Mar-18	11:30	Sulfate	Total	105	mg/l		0.01	1
SS-25	S-ROUTINE	20-Mar-18	11:30	Total Nitrogen, mixed forms	Unfiltered	0.55	mg/l		0.01	0.05
SS-25	S-ROUTINE	20-Mar-18	11:30	Total suspended solids	NA	3	mg/l		0.3	1
SS-25	S-ROUTINE	20-Mar-18	11:30	Arsenic	Dissolved	0.01	mg/l		0.00002	0.001
SS-25	S-ROUTINE	20-Mar-18	11:30	Cadmium	Dissolved	0.0001	mg/l		0.00002	0.00003
SS-25	S-ROUTINE	20-Mar-18	11:30	Copper	Dissolved	0.005	mg/l		0.00004	0.001
SS-25	S-ROUTINE	20-Mar-18	11:30	Lead	Dissolved	0.00016	mg/l	J	0.00001	0.0003
SS-25	S-ROUTINE	20-Mar-18	11:30	Zinc	Dissolved	0.021	mg/l		0.0001	0.008
SS-25	S-ROUTINE	20-Mar-18	11:30	Arsenic	Total Recv	0.011	mg/l		0.00002	0.001
SS-25	S-ROUTINE	20-Mar-18	11:30	Cadmium	Total Recv	0.00015	mg/l		0.00002	0.00003
SS-25	S-ROUTINE	20-Mar-18	11:30	Calcium	Total Recv	63	mg/l		0.01	1
SS-25	S-ROUTINE	20-Mar-18	11:30	Copper	Total Recv	0.007	mg/l		0.0003	0.001
SS-25	S-ROUTINE	20-Mar-18	11:30	Lead	Total Recv	0.0007	mg/l		0.00003	0.0003
SS-25	S-ROUTINE	20-Mar-18	11:30	Magnesium	Total Recv	14	mg/l		0.09	1
SS-25	S-ROUTINE	20-Mar-18	11:30	Potassium	Total Recv	5	mg/l		0.05	1
SS-25	S-ROUTINE	20-Mar-18	11:30	Sodium	Total Recv	25	mg/l		0.02	1
SS-25	S-ROUTINE	20-Mar-18	11:30	Zinc	Total Recv	0.028	mg/l		0.002	0.008
SS-25	S-ROUTINE	20-Mar-18	11:30	Nitrate + Nitrite	Unfiltered	0.25	mg/l		0.007	0.02
SS-25	S-ROUTINE	20-Mar-18	11:30	Total Phosphorus, mixed forms	Unfiltered	0.028	mg/l		0.0006	0.003
SS-25	S-ROUTINE	20-Mar-18	11:30	Hardness, Ca, Mg	NA	217	mg/l		1	1
SS-25	F-MSR/OBS	20-Mar-18	11:30	Temperature, water	NA	4.2	deg C			
SS-25	F-MSR/OBS	20-Mar-18	11:30	pH	NA	8.21	None			
SS-25	F-MSR/OBS	20-Mar-18	11:30	Dissolved oxygen (DO)	NA	13.2	mg/l			
SS-25	F-MSR/OBS	20-Mar-18	11:30	Dissolved oxygen saturation	NA	121	%			
SS-25	F-MSR/OBS	20-Mar-18	11:30	Specific conductance	NA	540.3	uS/cm			
SS-25	F-MSR/OBS	20-Mar-18	11:30	Turbidity	NA	2.3	NTU			
WSC-SBC	QC-FB	20-Mar-18	10:15	Alkalinity, total	Total	2	mg/l	J	0.7	4
WSC-SBC	QC-FB	20-Mar-18	10:15	Bicarbonate	Total	2	mg/l	J	0.7	4
WSC-SBC	QC-FB	20-Mar-18	10:15	Chloride	Total	0.007	mg/l	J	0.003	1
WSC-SBC	QC-FB	20-Mar-18	10:15	Sulfate	Total	<0.01	mg/l		0.01	1
WSC-SBC	QC-FB	20-Mar-18	10:15	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
WSC-SBC	QC-FB	20-Mar-18	10:15	Total suspended solids	NA	<0.3	mg/l		0.3	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
WSC-SBC	QC-FB	20-Mar-18	10:15	Arsenic	Dissolved	<0.00002	mg/l		0.00002	0.001
WSC-SBC	QC-FB	20-Mar-18	10:15	Cadmium	Dissolved	<0.00002	mg/l		0.00002	0.00003
WSC-SBC	QC-FB	20-Mar-18	10:15	Copper	Dissolved	<0.00004	mg/l		0.00004	0.001
WSC-SBC	QC-FB	20-Mar-18	10:15	Lead	Dissolved	<0.00001	mg/l		0.00001	0.0003
WSC-SBC	QC-FB	20-Mar-18	10:15	Zinc	Dissolved	0.0068	mg/l	J	0.0001	0.008
WSC-SBC	QC-FB	20-Mar-18	10:15	Arsenic	Total Recv	<0.00002	mg/l		0.00002	0.001
WSC-SBC	QC-FB	20-Mar-18	10:15	Cadmium	Total Recv	<0.00002	mg/l		0.00002	0.00003
WSC-SBC	QC-FB	20-Mar-18	10:15	Calcium	Total Recv	0.54	mg/l	J	0.01	1
WSC-SBC	QC-FB	20-Mar-18	10:15	Copper	Total Recv	<0.0003	mg/l		0.0003	0.001
WSC-SBC	QC-FB	20-Mar-18	10:15	Lead	Total Recv	<0.00003	mg/l		0.00003	0.0003
WSC-SBC	QC-FB	20-Mar-18	10:15	Magnesium	Total Recv	0.024	mg/l	J	0.009	1
WSC-SBC	QC-FB	20-Mar-18	10:15	Potassium	Total Recv	<0.05	mg/l		0.05	1
WSC-SBC	QC-FB	20-Mar-18	10:15	Sodium	Total Recv	<0.02	mg/l		0.02	1
WSC-SBC	QC-FB	20-Mar-18	10:15	Zinc	Total Recv	<0.002	mg/l		0.002	0.008
WSC-SBC	QC-FB	20-Mar-18	10:15	Nitrate + Nitrite	Unfiltered	<0.007	mg/l		0.007	0.02
WSC-SBC	QC-FB	20-Mar-18	10:15	Total Phosphorus, mixed forms	Unfiltered	0.0027	mg/l	J	0.0006	0.003
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Alkalinity, total	Total	130	mg/l		0.7	4
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Bicarbonate	Total	160	mg/l		0.7	4
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Chloride	Total	2	mg/l		0.003	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Sulfate	Total	39	mg/l		0.01	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Total Nitrogen, mixed forms	Unfiltered	0.12	mg/l		0.01	0.05
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Total suspended solids	NA	2	mg/l		0.3	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Arsenic	Dissolved	0.004	mg/l		0.00002	0.001
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Cadmium	Dissolved	<0.00002	mg/l		0.00002	0.00003
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Copper	Dissolved	0.002	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Lead	Dissolved	0.00003	mg/l	J	0.00001	0.0003
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Zinc	Dissolved	0.0033	mg/l	J	0.0001	0.008
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Arsenic	Total Recv	0.004	mg/l		0.00002	0.001
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Cadmium	Total Recv	0.00004	mg/l		0.00002	0.00003
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Calcium	Total Recv	51	mg/l		0.01	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Copper	Total Recv	0.004	mg/l		0.0003	0.001
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Lead	Total Recv	0.0002	mg/l	J	0.00003	0.0003
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Magnesium	Total Recv	11	mg/l		0.09	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Potassium	Total Recv	1	mg/l		0.05	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Sodium	Total Recv	4	mg/l		0.02	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Zinc	Total Recv	0.003	mg/l	J	0.002	0.008
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Nitrate + Nitrite	Unfiltered	0.06	mg/l		0.007	0.02
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Total Phosphorus, mixed forms	Unfiltered	0.0015	mg/l	J	0.0006	0.003
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	Hardness, Ca, Mg	NA	172	mg/l		1	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Alkalinity, total	Total	130	mg/l		0.7	4
WSC-SBC	QC-FD	20-Mar-18	10:30	Bicarbonate	Total	160	mg/l		0.7	4
WSC-SBC	QC-FD	20-Mar-18	10:30	Chloride	Total	2	mg/l		0.003	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Sulfate	Total	39	mg/l		0.01	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Total Nitrogen, mixed forms	Unfiltered	0.12	mg/l		0.01	0.05
WSC-SBC	QC-FD	20-Mar-18	10:30	Total suspended solids	NA	2	mg/l		0.3	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Arsenic	Dissolved	0.004	mg/l		0.00002	0.001
WSC-SBC	QC-FD	20-Mar-18	10:30	Cadmium	Dissolved	0.00002	mg/l	J	0.00002	0.00003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
WSC-SBC	QC-FD	20-Mar-18	10:30	Copper	Dissolved	0.002	mg/l		0.00004	0.001
WSC-SBC	QC-FD	20-Mar-18	10:30	Lead	Dissolved	0.00002	mg/l	J	0.00001	0.0003
WSC-SBC	QC-FD	20-Mar-18	10:30	Zinc	Dissolved	0.0036	mg/l	J	0.0001	0.008
WSC-SBC	QC-FD	20-Mar-18	10:30	Arsenic	Total Recv	0.004	mg/l		0.00002	0.001
WSC-SBC	QC-FD	20-Mar-18	10:30	Cadmium	Total Recv	0.00004	mg/l		0.00002	0.00003
WSC-SBC	QC-FD	20-Mar-18	10:30	Calcium	Total Recv	51	mg/l		0.01	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Copper	Total Recv	0.003	mg/l		0.0003	0.001
WSC-SBC	QC-FD	20-Mar-18	10:30	Lead	Total Recv	0.00022	mg/l	J	0.00003	0.0003
WSC-SBC	QC-FD	20-Mar-18	10:30	Magnesium	Total Recv	11	mg/l		0.09	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Potassium	Total Recv	1	mg/l		0.05	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Sodium	Total Recv	4	mg/l		0.02	1
WSC-SBC	QC-FD	20-Mar-18	10:30	Zinc	Total Recv	0.003	mg/l	J	0.002	0.008
WSC-SBC	QC-FD	20-Mar-18	10:30	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
WSC-SBC	QC-FD	20-Mar-18	10:30	Nitrate + Nitrite	Unfiltered	0.06	mg/l		0.007	0.02
WSC-SBC	QC-FD	20-Mar-18	10:30	Total Phosphorus, mixed forms	Unfiltered	0.005	mg/l		0.0006	0.003
WSC-SBC	QC-FD	20-Mar-18	10:30	Hardness, Ca, Mg	NA	170	mg/l		1	1
WSC-SBC	F-MSR/OBS	20-Mar-18	10:30	Temperature, water	NA	2.9	deg C			
WSC-SBC	F-MSR/OBS	20-Mar-18	10:30	pH	NA	8.06	None			
WSC-SBC	F-MSR/OBS	20-Mar-18	10:30	Dissolved oxygen (DO)	NA	12.3	mg/l			
WSC-SBC	F-MSR/OBS	20-Mar-18	10:30	Dissolved oxygen saturation	NA	109	%			
WSC-SBC	F-MSR/OBS	20-Mar-18	10:30	Specific conductance	NA	340.9	uS/cm			
WSC-SBC	F-MSR/OBS	20-Mar-18	10:30	Turbidity	NA	1.42	NTU			

Table C-2. Second quarter surface water results for the Clark Fork River Operable Unit, 2018.

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-03A	F-MSR/OBS	10-May-18	9:00	pH	NA	8.05	None			
CFR-03A	F-MSR/OBS	10-May-18	9:00	Temperature, water	NA	11	deg C			
CFR-03A	F-MSR/OBS	10-May-18	9:00	Dissolved oxygen (DO)	NA	10	mg/l			
CFR-03A	F-MSR/OBS	10-May-18	9:00	Dissolved oxygen saturation	NA	108	%			
CFR-03A	F-MSR/OBS	10-May-18	9:00	Specific conductance	NA	280.5	uS/cm			
CFR-03A	F-MSR/OBS	10-May-18	9:00	Turbidity	NA	14.8	NTU			
CFR-03A	F-MSR/OBS	5-Jun-18	9:15	pH	NA	8.06	None			
CFR-03A	F-MSR/OBS	5-Jun-18	9:15	Temperature, water	NA	12.5	deg C			
CFR-03A	F-MSR/OBS	5-Jun-18	9:15	Dissolved oxygen (DO)	NA	11.4	mg/l			
CFR-03A	F-MSR/OBS	5-Jun-18	9:15	Dissolved oxygen saturation	NA	127	%			
CFR-03A	F-MSR/OBS	5-Jun-18	9:15	Specific conductance	NA	215.3	uS/cm			
CFR-03A	F-MSR/OBS	5-Jun-18	9:15	Turbidity	NA	5.6	NTU			
CFR-03A	F-MSR/OBS	6-Jul-18	9:30	pH	NA	8.1	None			
CFR-03A	F-MSR/OBS	6-Jul-18	9:30	Temperature, water	NA	13.8	deg C			
CFR-03A	F-MSR/OBS	6-Jul-18	9:30	Dissolved oxygen (DO)	NA	11.1	mg/l			
CFR-03A	F-MSR/OBS	6-Jul-18	9:30	Dissolved oxygen saturation	NA	127	%			
CFR-03A	F-MSR/OBS	6-Jul-18	9:30	Specific conductance	NA	249.3	uS/cm			
CFR-03A	F-MSR/OBS	6-Jul-18	9:30	Turbidity	NA	4.3	NTU			
CFR-07D	F-MSR/OBS	10-May-18	8:00	pH	NA	7.93	None			
CFR-07D	F-MSR/OBS	10-May-18	8:00	Temperature, water	NA	11.2	deg C			
CFR-07D	F-MSR/OBS	10-May-18	8:00	Dissolved oxygen (DO)	NA	9.7	mg/l			
CFR-07D	F-MSR/OBS	10-May-18	8:00	Dissolved oxygen saturation	NA	106	%			
CFR-07D	F-MSR/OBS	10-May-18	8:00	Specific conductance	NA	316.2	uS/cm			
CFR-07D	F-MSR/OBS	10-May-18	8:00	Turbidity	NA	19.8	NTU			
CFR-07D	F-MSR/OBS	5-Jun-18	8:00	pH	NA	7.81	None			
CFR-07D	F-MSR/OBS	5-Jun-18	8:00	Temperature, water	NA	12.7	deg C			
CFR-07D	F-MSR/OBS	5-Jun-18	8:00	Dissolved oxygen (DO)	NA	10	mg/l			
CFR-07D	F-MSR/OBS	5-Jun-18	8:00	Dissolved oxygen saturation	NA	112	%			
CFR-07D	F-MSR/OBS	5-Jun-18	8:00	Specific conductance	NA	280.1	uS/cm			
CFR-07D	F-MSR/OBS	5-Jun-18	8:00	Turbidity	NA	6.7	NTU			
CFR-07D	F-MSR/OBS	6-Jul-18	8:00	pH	NA	7.97	None			
CFR-07D	F-MSR/OBS	6-Jul-18	8:00	Temperature, water	NA	14.5	deg C			
CFR-07D	F-MSR/OBS	6-Jul-18	8:00	Dissolved oxygen (DO)	NA	10.1	mg/l			
CFR-07D	F-MSR/OBS	6-Jul-18	8:00	Dissolved oxygen saturation	NA	116	%			
CFR-07D	F-MSR/OBS	6-Jul-18	8:00	Specific conductance	NA	296.7	uS/cm			
CFR-07D	F-MSR/OBS	6-Jul-18	8:00	Turbidity	NA	5.6	NTU			
CFR-116A	F-MSR/OBS	9-May-18	9:45	pH	NA	7.52	None			
CFR-116A	F-MSR/OBS	9-May-18	9:45	Temperature, water	NA	10.8	deg C			
CFR-116A	F-MSR/OBS	9-May-18	9:45	Dissolved oxygen (DO)	NA	14.4	mg/l			
CFR-116A	F-MSR/OBS	9-May-18	9:45	Dissolved oxygen saturation	NA	145	%			
CFR-116A	F-MSR/OBS	9-May-18	9:45	Specific conductance	NA	160.2	uS/cm			
CFR-116A	F-MSR/OBS	9-May-18	9:45	Turbidity	NA	75.4	NTU			
CFR-116A	F-MSR/OBS	4-Jun-18	9:30	pH	NA	7.8	None			
CFR-116A	F-MSR/OBS	4-Jun-18	9:30	Temperature, water	NA	13.8	deg C			
CFR-116A	F-MSR/OBS	4-Jun-18	9:30	Dissolved oxygen (DO)	NA	9.1	mg/l			
CFR-116A	F-MSR/OBS	4-Jun-18	9:30	Dissolved oxygen saturation	NA	99	%			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-116A	F-MSR/OBS	4-Jun-18	9:30	Specific conductance	NA	211.4	uS/cm			
CFR-116A	F-MSR/OBS	4-Jun-18	9:30	Turbidity	NA	24	NTU			
CFR-116A	F-MSR/OBS	5-Jul-18	8:45	pH	NA	7.66	None			
CFR-116A	F-MSR/OBS	5-Jul-18	8:45	Temperature, water	NA	13.2	deg C			
CFR-116A	F-MSR/OBS	5-Jul-18	8:45	Dissolved oxygen (DO)	NA	11	mg/l			
CFR-116A	F-MSR/OBS	5-Jul-18	8:45	Dissolved oxygen saturation	NA	118	%			
CFR-116A	F-MSR/OBS	5-Jul-18	8:45	Specific conductance	NA	246.3	uS/cm			
CFR-116A	F-MSR/OBS	5-Jul-18	8:45	Turbidity	NA	12.2	NTU			
CFR-11F	F-MSR/OBS	9-May-18	18:00	pH	NA	8.04	None			
CFR-11F	F-MSR/OBS	9-May-18	18:00	Temperature, water	NA	14.4	deg C			
CFR-11F	F-MSR/OBS	9-May-18	18:00	Dissolved oxygen (DO)	NA	9.9	mg/l			
CFR-11F	F-MSR/OBS	9-May-18	18:00	Dissolved oxygen saturation	NA	116	%			
CFR-11F	F-MSR/OBS	9-May-18	18:00	Specific conductance	NA	316	uS/cm			
CFR-11F	F-MSR/OBS	9-May-18	18:00	Turbidity	NA	24.8	NTU			
CFR-11F	F-MSR/OBS	4-Jun-18	17:45	pH	NA	8.17	None			
CFR-11F	F-MSR/OBS	4-Jun-18	17:45	Temperature, water	NA	17.5	deg C			
CFR-11F	F-MSR/OBS	4-Jun-18	17:45	Dissolved oxygen (DO)	NA	10.5	mg/l			
CFR-11F	F-MSR/OBS	4-Jun-18	17:45	Dissolved oxygen saturation	NA	131	%			
CFR-11F	F-MSR/OBS	4-Jun-18	17:45	Specific conductance	NA	296.4	uS/cm			
CFR-11F	F-MSR/OBS	4-Jun-18	17:45	Turbidity	NA	7.6	NTU			
CFR-11F	F-MSR/OBS	5-Jul-18	17:15	pH	NA	8.23	None			
CFR-11F	F-MSR/OBS	5-Jul-18	17:15	Temperature, water	NA	17.8	deg C			
CFR-11F	F-MSR/OBS	5-Jul-18	17:15	Dissolved oxygen (DO)	NA	12.2	mg/l			
CFR-11F	F-MSR/OBS	5-Jul-18	17:15	Dissolved oxygen saturation	NA	152	%			
CFR-11F	F-MSR/OBS	5-Jul-18	17:15	Specific conductance	NA	298.7	uS/cm			
CFR-11F	F-MSR/OBS	5-Jul-18	17:15	Turbidity	NA	5.1	NTU			
CFR-27H	F-MSR/OBS	9-May-18	16:45	pH	NA	7.83	None			
CFR-27H	F-MSR/OBS	9-May-18	16:45	Temperature, water	NA	14.8	deg C			
CFR-27H	F-MSR/OBS	9-May-18	16:45	Dissolved oxygen (DO)	NA	9.4	mg/l			
CFR-27H	F-MSR/OBS	9-May-18	16:45	Dissolved oxygen saturation	NA	110	%			
CFR-27H	F-MSR/OBS	9-May-18	16:45	Specific conductance	NA	298.4	uS/cm			
CFR-27H	F-MSR/OBS	9-May-18	16:45	Turbidity	NA	51	NTU			
CFR-27H	F-MSR/OBS	4-Jun-18	16:30	pH	NA	7.77	None			
CFR-27H	F-MSR/OBS	4-Jun-18	16:30	Temperature, water	NA	16.6	deg C			
CFR-27H	F-MSR/OBS	4-Jun-18	16:30	Dissolved oxygen (DO)	NA	9.8	mg/l			
CFR-27H	F-MSR/OBS	4-Jun-18	16:30	Dissolved oxygen saturation	NA	120	%			
CFR-27H	F-MSR/OBS	4-Jun-18	16:30	Specific conductance	NA	276.4	uS/cm			
CFR-27H	F-MSR/OBS	4-Jun-18	16:30	Turbidity	NA	16	NTU			
CFR-27H	F-MSR/OBS	5-Jul-18	16:00	pH	NA	7.85	None			
CFR-27H	F-MSR/OBS	5-Jul-18	16:00	Temperature, water	NA	17.5	deg C			
CFR-27H	F-MSR/OBS	5-Jul-18	16:00	Dissolved oxygen (DO)	NA	11.6	mg/l			
CFR-27H	F-MSR/OBS	5-Jul-18	16:00	Dissolved oxygen saturation	NA	142	%			
CFR-27H	F-MSR/OBS	5-Jul-18	16:00	Specific conductance	NA	294.5	uS/cm			
CFR-27H	F-MSR/OBS	5-Jul-18	16:00	Turbidity	NA	9.8	NTU			
CFR-34	F-MSR/OBS	9-May-18	15:30	pH	NA	7.84	None			
CFR-34	F-MSR/OBS	9-May-18	15:30	Temperature, water	NA	13.7	deg C			
CFR-34	F-MSR/OBS	9-May-18	15:30	Dissolved oxygen (DO)	NA	9.6	mg/l			
CFR-34	F-MSR/OBS	9-May-18	15:30	Dissolved oxygen saturation	NA	109	%			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-34	F-MSR/OBS	9-May-18	15:30	Specific conductance	NA	286.1	uS/cm			
CFR-34	F-MSR/OBS	9-May-18	15:30	Turbidity	NA	55.6	NTU			
CFR-34	F-MSR/OBS	4-Jun-18	15:30	pH	NA	7.74	None			
CFR-34	F-MSR/OBS	4-Jun-18	15:30	Temperature, water	NA	16.6	deg C			
CFR-34	F-MSR/OBS	4-Jun-18	15:30	Dissolved oxygen (DO)	NA	10.1	mg/l			
CFR-34	F-MSR/OBS	4-Jun-18	15:30	Dissolved oxygen saturation	NA	123	%			
CFR-34	F-MSR/OBS	4-Jun-18	15:30	Specific conductance	NA	292.6	uS/cm			
CFR-34	F-MSR/OBS	4-Jun-18	15:30	Turbidity	NA	20.4	NTU			
CFR-34	F-MSR/OBS	5-Jul-18	14:45	pH	NA	7.81	None			
CFR-34	F-MSR/OBS	5-Jul-18	14:45	Temperature, water	NA	16.7	deg C			
CFR-34	F-MSR/OBS	5-Jul-18	14:45	Dissolved oxygen (DO)	NA	11	mg/l			
CFR-34	F-MSR/OBS	5-Jul-18	14:45	Dissolved oxygen saturation	NA	132	%			
CFR-34	F-MSR/OBS	5-Jul-18	14:45	Specific conductance	NA	308.1	uS/cm			
CFR-34	F-MSR/OBS	5-Jul-18	14:45	Turbidity	NA	11.1	NTU			
CFR-84F	F-MSR/OBS	9-May-18	11:00	pH	NA	7.64	None			
CFR-84F	F-MSR/OBS	9-May-18	11:00	Temperature, water	NA	11.5	deg C			
CFR-84F	F-MSR/OBS	9-May-18	11:00	Dissolved oxygen (DO)	NA	10.5	mg/l			
CFR-84F	F-MSR/OBS	9-May-18	11:00	Dissolved oxygen saturation	NA	110	%			
CFR-84F	F-MSR/OBS	9-May-18	11:00	Specific conductance	NA	239.5	uS/cm			
CFR-84F	F-MSR/OBS	9-May-18	11:00	Turbidity	NA	67	NTU			
CFR-84F	F-MSR/OBS	4-Jun-18	11:00	pH	NA	7.71	None			
CFR-84F	F-MSR/OBS	4-Jun-18	11:00	Temperature, water	NA	15.3	deg C			
CFR-84F	F-MSR/OBS	4-Jun-18	11:00	Dissolved oxygen (DO)	NA	10.1	mg/l			
CFR-84F	F-MSR/OBS	4-Jun-18	11:00	Dissolved oxygen saturation	NA	116	%			
CFR-84F	F-MSR/OBS	4-Jun-18	11:00	Specific conductance	NA	289.4	uS/cm			
CFR-84F	F-MSR/OBS	4-Jun-18	11:00	Turbidity	NA	28.9	NTU			
CFR-84F	F-MSR/OBS	5-Jul-18	10:15	pH	NA	7.67	None			
CFR-84F	F-MSR/OBS	5-Jul-18	10:15	Temperature, water	NA	13.6	deg C			
CFR-84F	F-MSR/OBS	5-Jul-18	10:15	Dissolved oxygen (DO)	NA	11	mg/l			
CFR-84F	F-MSR/OBS	5-Jul-18	10:15	Dissolved oxygen saturation	NA	121	%			
CFR-84F	F-MSR/OBS	5-Jul-18	10:15	Specific conductance	NA	314.7	uS/cm			
CFR-84F	F-MSR/OBS	5-Jul-18	10:15	Turbidity	NA	14.6	NTU			
FC-CFR	F-MSR/OBS	9-May-18	12:30	pH	NA	7.69	None			
FC-CFR	F-MSR/OBS	9-May-18	12:30	Temperature, water	NA	10.6	deg C			
FC-CFR	F-MSR/OBS	9-May-18	12:30	Dissolved oxygen (DO)	NA	11.6	mg/l			
FC-CFR	F-MSR/OBS	9-May-18	12:30	Dissolved oxygen saturation	NA	120	%			
FC-CFR	F-MSR/OBS	9-May-18	12:30	Specific conductance	NA	146.4	uS/cm			
FC-CFR	F-MSR/OBS	9-May-18	12:30	Turbidity	NA	30.9	NTU			
FC-CFR	F-MSR/OBS	4-Jun-18	12:30	pH	NA	7.87	None			
FC-CFR	F-MSR/OBS	4-Jun-18	12:30	Temperature, water	NA	13.4	deg C			
FC-CFR	F-MSR/OBS	4-Jun-18	12:30	Dissolved oxygen (DO)	NA	11.8	mg/l			
FC-CFR	F-MSR/OBS	4-Jun-18	12:30	Dissolved oxygen saturation	NA	132	%			
FC-CFR	F-MSR/OBS	4-Jun-18	12:30	Specific conductance	NA	174.5	uS/cm			
FC-CFR	F-MSR/OBS	4-Jun-18	12:30	Turbidity	NA	16.9	NTU			
FC-CFR	F-MSR/OBS	5-Jul-18	12:00	pH	NA	7.98	None			
FC-CFR	F-MSR/OBS	5-Jul-18	12:00	Temperature, water	NA	13.5	deg C			
FC-CFR	F-MSR/OBS	5-Jul-18	12:00	Dissolved oxygen (DO)	NA	11.8	mg/l			
FC-CFR	F-MSR/OBS	5-Jul-18	12:00	Dissolved oxygen saturation	NA	130	%			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	F-MSR/OBS	5-Jul-18	12:00	Specific conductance	NA	245	uS/cm			
FC-CFR	F-MSR/OBS	5-Jul-18	12:00	Turbidity	NA	9.6	NTU			
LBR-CFR-02	F-MSR/OBS	9-May-18	14:30	pH	NA	7.53	None			
LBR-CFR-02	F-MSR/OBS	9-May-18	14:30	Temperature, water	NA	10.8	deg C			
LBR-CFR-02	F-MSR/OBS	9-May-18	14:30	Dissolved oxygen (DO)	NA	10.4	mg/l			
LBR-CFR-02	F-MSR/OBS	9-May-18	14:30	Dissolved oxygen saturation	NA	111	%			
LBR-CFR-02	F-MSR/OBS	9-May-18	14:30	Specific conductance	NA	130.3	uS/cm			
LBR-CFR-02	F-MSR/OBS	9-May-18	14:30	Turbidity	NA	50.7	NTU			
LBR-CFR-02	F-MSR/OBS	4-Jun-18	14:30	pH	NA	7.63	None			
LBR-CFR-02	F-MSR/OBS	4-Jun-18	14:30	Temperature, water	NA	15.1	deg C			
LBR-CFR-02	F-MSR/OBS	4-Jun-18	14:30	Dissolved oxygen (DO)	NA	10.4	mg/l			
LBR-CFR-02	F-MSR/OBS	4-Jun-18	14:30	Dissolved oxygen saturation	NA	122	%			
LBR-CFR-02	F-MSR/OBS	4-Jun-18	14:30	Specific conductance	NA	189.4	uS/cm			
LBR-CFR-02	F-MSR/OBS	4-Jun-18	14:30	Turbidity	NA	6.2	NTU			
LBR-CFR-02	F-MSR/OBS	5-Jul-18	13:30	pH	NA	7.6	None			
LBR-CFR-02	F-MSR/OBS	5-Jul-18	13:30	Temperature, water	NA	15	deg C			
LBR-CFR-02	F-MSR/OBS	5-Jul-18	13:30	Dissolved oxygen (DO)	NA	11.3	mg/l			
LBR-CFR-02	F-MSR/OBS	5-Jul-18	13:30	Dissolved oxygen saturation	NA	131	%			
LBR-CFR-02	F-MSR/OBS	5-Jul-18	13:30	Specific conductance	NA	220.1	uS/cm			
LBR-CFR-02	F-MSR/OBS	5-Jul-18	13:30	Turbidity	NA	2.6	NTU			
MCWC-MWB	F-MSR/OBS	10-May-18	12:45	pH	NA	7.44	None			
MCWC-MWB	F-MSR/OBS	10-May-18	12:45	Temperature, water	NA	10.5	deg C			
MCWC-MWB	F-MSR/OBS	10-May-18	12:45	Dissolved oxygen (DO)	NA	10.9	mg/l			
MCWC-MWB	F-MSR/OBS	10-May-18	12:45	Dissolved oxygen saturation	NA	117	%			
MCWC-MWB	F-MSR/OBS	10-May-18	12:45	Specific conductance	NA	118.4	uS/cm			
MCWC-MWB	F-MSR/OBS	10-May-18	12:45	Turbidity	NA	20.8	NTU			
MCWC-MWB	F-MSR/OBS	5-Jun-18	13:30	pH	NA	7.54	None			
MCWC-MWB	F-MSR/OBS	5-Jun-18	13:30	Temperature, water	NA	12.5	deg C			
MCWC-MWB	F-MSR/OBS	5-Jun-18	13:30	Dissolved oxygen (DO)	NA	10.9	mg/l			
MCWC-MWB	F-MSR/OBS	5-Jun-18	13:30	Dissolved oxygen saturation	NA	122	%			
MCWC-MWB	F-MSR/OBS	5-Jun-18	13:30	Specific conductance	NA	109	uS/cm			
MCWC-MWB	F-MSR/OBS	5-Jun-18	13:30	Turbidity	NA	5.3	NTU			
MCWC-MWB	F-MSR/OBS	6-Jul-18	13:30	pH	NA	7.73	None			
MCWC-MWB	F-MSR/OBS	6-Jul-18	13:30	Temperature, water	NA	15.1	deg C			
MCWC-MWB	F-MSR/OBS	6-Jul-18	13:30	Dissolved oxygen (DO)	NA	9.3	mg/l			
MCWC-MWB	F-MSR/OBS	6-Jul-18	13:30	Dissolved oxygen saturation	NA	110	%			
MCWC-MWB	F-MSR/OBS	6-Jul-18	13:30	Specific conductance	NA	153.2	uS/cm			
MCWC-MWB	F-MSR/OBS	6-Jul-18	13:30	Turbidity	NA	3.3	NTU			
MWB-SBC	F-MSR/OBS	10-May-18	11:40	pH	NA	7.65	None			
MWB-SBC	F-MSR/OBS	10-May-18	11:40	Temperature, water	NA	11.1	deg C			
MWB-SBC	F-MSR/OBS	10-May-18	11:40	Dissolved oxygen (DO)	NA	9.7	mg/l			
MWB-SBC	F-MSR/OBS	10-May-18	11:40	Dissolved oxygen saturation	NA	106	%			
MWB-SBC	F-MSR/OBS	10-May-18	11:40	Specific conductance	NA	207.7	uS/cm			
MWB-SBC	F-MSR/OBS	10-May-18	11:40	Turbidity	NA	15	NTU			
MWB-SBC	F-MSR/OBS	5-Jun-18	12:30	pH	NA	7.68	None			
MWB-SBC	F-MSR/OBS	5-Jun-18	12:30	Temperature, water	NA	12.1	deg C			
MWB-SBC	F-MSR/OBS	5-Jun-18	12:30	Dissolved oxygen (DO)	NA	11.4	mg/l			
MWB-SBC	F-MSR/OBS	5-Jun-18	12:30	Dissolved oxygen saturation	NA	127	%			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MWB-SBC	F-MSR/OBS	5-Jun-18	12:30	Specific conductance	NA	150.3	uS/cm			
MWB-SBC	F-MSR/OBS	5-Jun-18	12:30	Turbidity	NA	5.6	NTU			
MWB-SBC	F-MSR/OBS	6-Jul-18	12:00	pH	NA	7.96	None			
MWB-SBC	F-MSR/OBS	6-Jul-18	12:00	Temperature, water	NA	13.9	deg C			
MWB-SBC	F-MSR/OBS	6-Jul-18	12:00	Dissolved oxygen (DO)	NA	9.8	mg/l			
MWB-SBC	F-MSR/OBS	6-Jul-18	12:00	Dissolved oxygen saturation	NA	112	%			
MWB-SBC	F-MSR/OBS	6-Jul-18	12:00	Specific conductance	NA	223.6	uS/cm			
MWB-SBC	F-MSR/OBS	6-Jul-18	12:00	Turbidity	NA	3.3	NTU			
SBC-P2	F-MSR/OBS	5-Jun-18	12:15	pH	NA	8.6	None			
SBC-P2	F-MSR/OBS	5-Jun-18	12:15	Temperature, water	NA	17.5	deg C			
SBC-P2	F-MSR/OBS	5-Jun-18	12:15	Dissolved oxygen (DO)	NA	9	mg/l			
SBC-P2	F-MSR/OBS	5-Jun-18	12:15	Dissolved oxygen saturation	NA	112	%			
SBC-P2	F-MSR/OBS	5-Jun-18	12:15	Specific conductance	NA	286.3	uS/cm			
SBC-P2	F-MSR/OBS	5-Jun-18	12:15	Turbidity	NA	2.7	NTU			
SBC-P2	F-MSR/OBS	6-Jul-18	12:30	pH	NA	8.87	None			
SBC-P2	F-MSR/OBS	6-Jul-18	12:30	Temperature, water	NA	19.7	deg C			
SBC-P2	F-MSR/OBS	6-Jul-18	12:30	Dissolved oxygen (DO)	NA	8.5	mg/l			
SBC-P2	F-MSR/OBS	6-Jul-18	12:30	Dissolved oxygen saturation	NA	111	%			
SBC-P2	F-MSR/OBS	6-Jul-18	12:30	Specific conductance	NA	303.1	uS/cm			
SBC-P2	F-MSR/OBS	6-Jul-18	12:30	Turbidity	NA	2.4	NTU			
SS-25	F-MSR/OBS	10-May-18	11:00	pH	NA	8.12	None			
SS-25	F-MSR/OBS	10-May-18	11:00	Temperature, water	NA	12.4	deg C			
SS-25	F-MSR/OBS	10-May-18	11:00	Dissolved oxygen (DO)	NA	9.8	mg/l			
SS-25	F-MSR/OBS	10-May-18	11:00	Dissolved oxygen saturation	NA	109	%			
SS-25	F-MSR/OBS	10-May-18	11:00	Specific conductance	NA	287.7	uS/cm			
SS-25	F-MSR/OBS	10-May-18	11:00	Turbidity	NA	11.5	NTU			
SS-25	F-MSR/OBS	5-Jun-18	11:30	pH	NA	8.3	None			
SS-25	F-MSR/OBS	5-Jun-18	11:30	Temperature, water	NA	14.7	deg C			
SS-25	F-MSR/OBS	5-Jun-18	11:30	Dissolved oxygen (DO)	NA	10	mg/l			
SS-25	F-MSR/OBS	5-Jun-18	11:30	Dissolved oxygen saturation	NA	117	%			
SS-25	F-MSR/OBS	5-Jun-18	11:30	Specific conductance	NA	223.9	uS/cm			
SS-25	F-MSR/OBS	5-Jun-18	11:30	Turbidity	NA	3.8	NTU			
SS-25	F-MSR/OBS	6-Jul-18	11:15	pH	NA	8.5	None			
SS-25	F-MSR/OBS	6-Jul-18	11:15	Temperature, water	NA	16.2	deg C			
SS-25	F-MSR/OBS	6-Jul-18	11:15	Dissolved oxygen (DO)	NA	9.1	mg/l			
SS-25	F-MSR/OBS	6-Jul-18	11:15	Dissolved oxygen saturation	NA	110	%			
SS-25	F-MSR/OBS	6-Jul-18	11:15	Specific conductance	NA	266.2	uS/cm			
SS-25	F-MSR/OBS	6-Jul-18	11:15	Turbidity	NA	3.2	NTU			
WSC-SBC	F-MSR/OBS	10-May-18	10:00	pH	NA	7.89	None			
WSC-SBC	F-MSR/OBS	10-May-18	10:00	Temperature, water	NA	6.6	deg C			
WSC-SBC	F-MSR/OBS	10-May-18	10:00	Dissolved oxygen (DO)	NA	11.5	mg/l			
WSC-SBC	F-MSR/OBS	10-May-18	10:00	Dissolved oxygen saturation	NA	112	%			
WSC-SBC	F-MSR/OBS	10-May-18	10:00	Specific conductance	NA	196.3	uS/cm			
WSC-SBC	F-MSR/OBS	10-May-18	10:00	Turbidity	NA	29.4	NTU			
WSC-SBC	F-MSR/OBS	5-Jun-18	10:15	pH	NA	7.73	None			
WSC-SBC	F-MSR/OBS	5-Jun-18	10:15	Temperature, water	NA	8.2	deg C			
WSC-SBC	F-MSR/OBS	5-Jun-18	10:15	Dissolved oxygen (DO)	NA	11.3	mg/l			
WSC-SBC	F-MSR/OBS	5-Jun-18	10:15	Dissolved oxygen saturation	NA	114	%			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
WSC-SBC	F-MSR/OBS	5-Jun-18	10:15	Specific conductance	NA	166.1	uS/cm			
WSC-SBC	F-MSR/OBS	5-Jun-18	10:15	Turbidity	NA	8.5	NTU			
CFR-03A	QC-FB	5-Jun-18	9:00	Alkalinity, total	Total	<2	mg/l		2	4
CFR-03A	QC-FB	5-Jun-18	9:00	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
CFR-03A	QC-FB	5-Jun-18	9:00	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
CFR-03A	QC-FB	5-Jun-18	9:00	Bicarbonate	Total	<2	mg/l		2	4
CFR-03A	QC-FB	5-Jun-18	9:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
CFR-03A	QC-FB	5-Jun-18	9:00	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
CFR-03A	QC-FB	5-Jun-18	9:00	Calcium	Total Recv	<0.09	mg/l		0.09	1
CFR-03A	QC-FB	5-Jun-18	9:00	Chloride	Total	<0.009	mg/l		0.009	1
CFR-03A	QC-FB	5-Jun-18	9:00	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
CFR-03A	QC-FB	5-Jun-18	9:00	Copper	Total Recv	0.0004	mg/l	J	0.0002	0.001
CFR-03A	QC-FB	5-Jun-18	9:00	Hardness, Ca, Mg	NA	<1	mg/l		1	1
CFR-03A	QC-FB	5-Jun-18	9:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-03A	QC-FB	5-Jun-18	9:00	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
CFR-03A	QC-FB	5-Jun-18	9:00	Magnesium	Total Recv	<0.009	mg/l		0.009	1
CFR-03A	QC-FB	5-Jun-18	9:00	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
CFR-03A	QC-FB	5-Jun-18	9:00	Potassium	Total Recv	<0.06	mg/l		0.06	1
CFR-03A	QC-FB	5-Jun-18	9:00	Sodium	Total Recv	<0.03	mg/l		0.03	1
CFR-03A	QC-FB	5-Jun-18	9:00	Sulfate	Total	<0.01	mg/l		0.01	1
CFR-03A	QC-FB	5-Jun-18	9:00	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
CFR-03A	QC-FB	5-Jun-18	9:00	Total Phosphorus, mixed forms	Unfiltered	<0.0006	mg/l		0.0006	0.003
CFR-03A	QC-FB	5-Jun-18	9:00	Total suspended solids	NA	<0.3	mg/l		0.3	1
CFR-03A	QC-FB	5-Jun-18	9:00	Zinc	Dissolved	0.011	mg/l		0.0003	0.008
CFR-03A	QC-FB	5-Jun-18	9:00	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
CFR-03A	QC-FB	6-Jul-18	9:00	Alkalinity, total	Total	<2	mg/l		2	4
CFR-03A	QC-FB	6-Jul-18	9:00	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
CFR-03A	QC-FB	6-Jul-18	9:00	Arsenic	Total Recv	0.00005	mg/l	J	0.00004	0.001
CFR-03A	QC-FB	6-Jul-18	9:00	Bicarbonate	Total	<2	mg/l		2	4
CFR-03A	QC-FB	6-Jul-18	9:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
CFR-03A	QC-FB	6-Jul-18	9:00	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
CFR-03A	QC-FB	6-Jul-18	9:00	Calcium	Total Recv	<0.09	mg/l		0.09	1
CFR-03A	QC-FB	6-Jul-18	9:00	Chloride	Total	<0.009	mg/l		0.009	1
CFR-03A	QC-FB	6-Jul-18	9:00	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
CFR-03A	QC-FB	6-Jul-18	9:00	Copper	Total Recv	0.0002	mg/l	J	0.0002	0.001
CFR-03A	QC-FB	6-Jul-18	9:00	Hardness, Ca, Mg	NA	<1	mg/l		1	1
CFR-03A	QC-FB	6-Jul-18	9:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-03A	QC-FB	6-Jul-18	9:00	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
CFR-03A	QC-FB	6-Jul-18	9:00	Magnesium	Total Recv	<0.009	mg/l		0.009	1
CFR-03A	QC-FB	6-Jul-18	9:00	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
CFR-03A	QC-FB	6-Jul-18	9:00	Potassium	Total Recv	<0.06	mg/l		0.06	1
CFR-03A	QC-FB	6-Jul-18	9:00	Sodium	Total Recv	<0.03	mg/l		0.03	1
CFR-03A	QC-FB	6-Jul-18	9:00	Sulfate	Total	<0.01	mg/l		0.01	1
CFR-03A	QC-FB	6-Jul-18	9:00	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
CFR-03A	QC-FB	6-Jul-18	9:00	Total Phosphorus, mixed forms	Unfiltered	<0.0006	mg/l		0.0006	0.003
CFR-03A	QC-FB	6-Jul-18	9:00	Total suspended solids	NA	<0.3	mg/l		0.3	1
CFR-03A	QC-FB	6-Jul-18	9:00	Zinc	Dissolved	0.019	mg/l		0.0003	0.008
CFR-03A	QC-FB	6-Jul-18	9:00	Zinc	Total Recv	0.001	mg/l	J	0.001	0.008

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FB	9-May-18	12:00	Alkalinity, total	Total	<2	mg/l		2	4
FC-CFR	QC-FB	9-May-18	12:00	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	9-May-18	12:00	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	9-May-18	12:00	Bicarbonate	Total	<2	mg/l		2	4
FC-CFR	QC-FB	9-May-18	12:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	9-May-18	12:00	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	9-May-18	12:00	Calcium	Total Recv	<0.01	mg/l		0.01	1
FC-CFR	QC-FB	9-May-18	12:00	Chloride	Total	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	9-May-18	12:00	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	QC-FB	9-May-18	12:00	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
FC-CFR	QC-FB	9-May-18	12:00	Hardness, Ca, Mg	NA	<1	mg/l		1	1
FC-CFR	QC-FB	9-May-18	12:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	QC-FB	9-May-18	12:00	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
FC-CFR	QC-FB	9-May-18	12:00	Magnesium	Total Recv	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	9-May-18	12:00	Methylmercury(1+)	Total Recv	<0.023	ng/l		0.023	0.05
FC-CFR	QC-FB	9-May-18	12:00	Mercury	Total Recv	<0.000001	mg/l		0.000001	0.000005
FC-CFR	QC-FB	9-May-18	12:00	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
FC-CFR	QC-FB	9-May-18	12:00	Potassium	Total Recv	<0.05	mg/l		0.05	1
FC-CFR	QC-FB	9-May-18	12:00	Sodium	Total Recv	<0.02	mg/l		0.02	1
FC-CFR	QC-FB	9-May-18	12:00	Sulfate	Total	<0.01	mg/l		0.01	1
FC-CFR	QC-FB	9-May-18	12:00	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
FC-CFR	QC-FB	9-May-18	12:00	Total Phosphorus, mixed forms	Unfiltered	<0.0006	mg/l		0.0006	0.003
FC-CFR	QC-FB	9-May-18	12:00	Total suspended solids	NA	<0.3	mg/l		0.3	1
FC-CFR	QC-FB	9-May-18	12:00	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	QC-FB	9-May-18	12:00	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
FC-CFR	QC-FB	4-Jun-18	12:15	Alkalinity, total	Total	2	mg/l	J	2	4
FC-CFR	QC-FB	4-Jun-18	12:15	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	4-Jun-18	12:15	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	4-Jun-18	12:15	Bicarbonate	Total	2	mg/l	J	2	4
FC-CFR	QC-FB	4-Jun-18	12:15	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	4-Jun-18	12:15	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	4-Jun-18	12:15	Calcium	Total Recv	<0.09	mg/l		0.09	1
FC-CFR	QC-FB	4-Jun-18	12:15	Chloride	Total	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	4-Jun-18	12:15	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	QC-FB	4-Jun-18	12:15	Copper	Total Recv	0.0002	mg/l	J	0.0002	0.001
FC-CFR	QC-FB	4-Jun-18	12:15	Hardness, Ca, Mg	NA	<1	mg/l		1	1
FC-CFR	QC-FB	4-Jun-18	12:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	QC-FB	4-Jun-18	12:15	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
FC-CFR	QC-FB	4-Jun-18	12:15	Magnesium	Total Recv	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	4-Jun-18	12:15	Methylmercury(1+)	Total Recv	<0.023	ng/l		0.023	0.05
FC-CFR	QC-FB	4-Jun-18	12:15	Mercury	Total Recv	0.000002	mg/l	J	0.000001	0.000005
FC-CFR	QC-FB	4-Jun-18	12:15	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
FC-CFR	QC-FB	4-Jun-18	12:15	Potassium	Total Recv	<0.06	mg/l		0.06	1
FC-CFR	QC-FB	4-Jun-18	12:15	Sodium	Total Recv	<0.03	mg/l		0.03	1
FC-CFR	QC-FB	4-Jun-18	12:15	Sulfate	Total	<0.01	mg/l		0.01	1
FC-CFR	QC-FB	4-Jun-18	12:15	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
FC-CFR	QC-FB	4-Jun-18	12:15	Total Phosphorus, mixed forms	Unfiltered	<0.0006	mg/l		0.0006	0.003
FC-CFR	QC-FB	4-Jun-18	12:15	Total suspended solids	NA	<0.3	mg/l		0.3	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FB	4-Jun-18	12:15	Zinc	Dissolved	0.0078	mg/l	J	0.0003	0.008
FC-CFR	QC-FB	4-Jun-18	12:15	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
FC-CFR	QC-FB	5-Jul-18	11:45	Alkalinity, total	Total	2	mg/l	J	2	4
FC-CFR	QC-FB	5-Jul-18	11:45	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	5-Jul-18	11:45	Arsenic	Total Recv	0.00006	mg/l	J	0.00004	0.001
FC-CFR	QC-FB	5-Jul-18	11:45	Bicarbonate	Total	2	mg/l	J	2	4
FC-CFR	QC-FB	5-Jul-18	11:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	5-Jul-18	11:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	5-Jul-18	11:45	Calcium	Total Recv	<0.09	mg/l		0.09	1
FC-CFR	QC-FB	5-Jul-18	11:45	Chloride	Total	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	5-Jul-18	11:45	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	QC-FB	5-Jul-18	11:45	Copper	Total Recv	0.0003	mg/l	J	0.0002	0.001
FC-CFR	QC-FB	5-Jul-18	11:45	Hardness, Ca, Mg	NA	<1	mg/l		1	1
FC-CFR	QC-FB	5-Jul-18	11:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	QC-FB	5-Jul-18	11:45	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
FC-CFR	QC-FB	5-Jul-18	11:45	Magnesium	Total Recv	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	5-Jul-18	11:45	Methylmercury(1+)	Total Recv	0.04	ng/l	J	0.023	0.05
FC-CFR	QC-FB	5-Jul-18	11:45	Mercury	Total Recv	<0.000002	mg/l		0.000002	0.000005
FC-CFR	QC-FB	5-Jul-18	11:45	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
FC-CFR	QC-FB	5-Jul-18	11:45	Potassium	Total Recv	<0.06	mg/l		0.06	1
FC-CFR	QC-FB	5-Jul-18	11:45	Sodium	Total Recv	<0.03	mg/l		0.03	1
FC-CFR	QC-FB	5-Jul-18	11:45	Sulfate	Total	<0.01	mg/l		0.01	1
FC-CFR	QC-FB	5-Jul-18	11:45	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
FC-CFR	QC-FB	5-Jul-18	11:45	Total Phosphorus, mixed forms	Unfiltered	<0.0006	mg/l		0.0006	0.003
FC-CFR	QC-FB	5-Jul-18	11:45	Total suspended solids	NA	<0.3	mg/l		0.3	1
FC-CFR	QC-FB	5-Jul-18	11:45	Zinc	Dissolved	0.008	mg/l	J	0.0003	0.008
FC-CFR	QC-FB	5-Jul-18	11:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
MCWC-MWB	QC-FB	10-May-18	12:30	Alkalinity, total	Total	<2	mg/l		2	4
MCWC-MWB	QC-FB	10-May-18	12:30	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
MCWC-MWB	QC-FB	10-May-18	12:30	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
MCWC-MWB	QC-FB	10-May-18	12:30	Bicarbonate	Total	<2	mg/l		2	4
MCWC-MWB	QC-FB	10-May-18	12:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
MCWC-MWB	QC-FB	10-May-18	12:30	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
MCWC-MWB	QC-FB	10-May-18	12:30	Calcium	Total Recv	<0.01	mg/l		0.01	1
MCWC-MWB	QC-FB	10-May-18	12:30	Chloride	Total	<0.009	mg/l		0.009	1
MCWC-MWB	QC-FB	10-May-18	12:30	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
MCWC-MWB	QC-FB	10-May-18	12:30	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
MCWC-MWB	QC-FB	10-May-18	12:30	Hardness, Ca, Mg	NA	<1	mg/l		1	1
MCWC-MWB	QC-FB	10-May-18	12:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
MCWC-MWB	QC-FB	10-May-18	12:30	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
MCWC-MWB	QC-FB	10-May-18	12:30	Magnesium	Total Recv	<0.009	mg/l		0.009	1
MCWC-MWB	QC-FB	10-May-18	12:30	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
MCWC-MWB	QC-FB	10-May-18	12:30	Potassium	Total Recv	<0.05	mg/l		0.05	1
MCWC-MWB	QC-FB	10-May-18	12:30	Sodium	Total Recv	<0.02	mg/l		0.02	1
MCWC-MWB	QC-FB	10-May-18	12:30	Sulfate	Total	<0.01	mg/l		0.01	1
MCWC-MWB	QC-FB	10-May-18	12:30	Total Nitrogen, mixed forms	Unfiltered	<0.01	mg/l		0.01	0.05
MCWC-MWB	QC-FB	10-May-18	12:30	Total Phosphorus, mixed forms	Unfiltered	<0.0006	mg/l		0.0006	0.003
MCWC-MWB	QC-FB	10-May-18	12:30	Total suspended solids	NA	<0.3	mg/l		0.3	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MCWC-MWB	QC-FB	10-May-18	12:30	Zinc	Dissolved	0.009	mg/l		0.0003	0.008
MCWC-MWB	QC-FB	10-May-18	12:30	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
CFR-07D	QC-FD	6-Jul-18	8:00	Alkalinity, total	Total	96	mg/l		2	4
CFR-07D	QC-FD	6-Jul-18	8:00	Arsenic	Dissolved	0.02	mg/l		0.00004	0.001
CFR-07D	QC-FD	6-Jul-18	8:00	Arsenic	Total Recv	0.025	mg/l		0.00004	0.001
CFR-07D	QC-FD	6-Jul-18	8:00	Bicarbonate	Total	120	mg/l		2	4
CFR-07D	QC-FD	6-Jul-18	8:00	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
CFR-07D	QC-FD	6-Jul-18	8:00	Cadmium	Total Recv	0.00015	mg/l		0.00003	0.00003
CFR-07D	QC-FD	6-Jul-18	8:00	Calcium	Total Recv	40	mg/l		0.09	1
CFR-07D	QC-FD	6-Jul-18	8:00	Chloride	Total	4	mg/l		0.009	1
CFR-07D	QC-FD	6-Jul-18	8:00	Copper	Dissolved	0.009	mg/l		0.0001	0.001
CFR-07D	QC-FD	6-Jul-18	8:00	Copper	Total Recv	0.036	mg/l		0.0002	0.001
CFR-07D	QC-FD	6-Jul-18	8:00	Hardness, Ca, Mg	NA	134	mg/l		1	1
CFR-07D	QC-FD	6-Jul-18	8:00	Lead	Dissolved	0.00017	mg/l	J	0.00003	0.0003
CFR-07D	QC-FD	6-Jul-18	8:00	Lead	Total Recv	0.0035	mg/l		0.00004	0.0003
CFR-07D	QC-FD	6-Jul-18	8:00	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-07D	QC-FD	6-Jul-18	8:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-07D	QC-FD	6-Jul-18	8:00	Potassium	Total Recv	2	mg/l		0.06	1
CFR-07D	QC-FD	6-Jul-18	8:00	Sodium	Total Recv	7	mg/l		0.03	1
CFR-07D	QC-FD	6-Jul-18	8:00	Sulfate	Total	43	mg/l		0.01	1
CFR-07D	QC-FD	6-Jul-18	8:00	Total Nitrogen, mixed forms	Unfiltered	0.3	mg/l		0.01	0.05
CFR-07D	QC-FD	6-Jul-18	8:00	Total Phosphorus, mixed forms	Unfiltered	0.054	mg/l		0.0006	0.003
CFR-07D	QC-FD	6-Jul-18	8:00	Total suspended solids	NA	13	mg/l	D	0.3	4
CFR-07D	QC-FD	6-Jul-18	8:00	Zinc	Dissolved	0.008	mg/l		0.0003	0.008
CFR-07D	QC-FD	6-Jul-18	8:00	Zinc	Total Recv	0.024	mg/l		0.001	0.008
FC-CFR	QC-FD	9-May-18	12:30	Alkalinity, total	Total	64	mg/l		2	4
FC-CFR	QC-FD	9-May-18	12:30	Arsenic	Dissolved	0.007	mg/l		0.00004	0.001
FC-CFR	QC-FD	9-May-18	12:30	Arsenic	Total Recv	0.018	mg/l		0.00004	0.001
FC-CFR	QC-FD	9-May-18	12:30	Bicarbonate	Total	78	mg/l		2	4
FC-CFR	QC-FD	9-May-18	12:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FD	9-May-18	12:30	Cadmium	Total Recv	0.00019	mg/l		0.00003	0.00003
FC-CFR	QC-FD	9-May-18	12:30	Calcium	Total Recv	19	mg/l		0.01	1
FC-CFR	QC-FD	9-May-18	12:30	Chloride	Total	2	mg/l		0.009	1
FC-CFR	QC-FD	9-May-18	12:30	Copper	Dissolved	0.003	mg/l		0.0001	0.001
FC-CFR	QC-FD	9-May-18	12:30	Copper	Total Recv	0.01	mg/l		0.0002	0.001
FC-CFR	QC-FD	9-May-18	12:30	Hardness, Ca, Mg	NA	68	mg/l		1	1
FC-CFR	QC-FD	9-May-18	12:30	Lead	Dissolved	0.0005	mg/l		0.00003	0.0003
FC-CFR	QC-FD	9-May-18	12:30	Lead	Total Recv	0.0151	mg/l		0.00004	0.0003
FC-CFR	QC-FD	9-May-18	12:30	Magnesium	Total Recv	5	mg/l		0.09	1
FC-CFR	QC-FD	9-May-18	12:30	Methylmercury(1+)	Total Recv	1.57	ng/l		0.023	0.05
FC-CFR	QC-FD	9-May-18	12:30	Mercury	Total Recv	0.00067	mg/l	D	0.000005	0.00001
FC-CFR	QC-FD	9-May-18	12:30	Nitrate + Nitrite	Unfiltered	0.04	mg/l		0.009	0.02
FC-CFR	QC-FD	9-May-18	12:30	Potassium	Total Recv	2	mg/l		0.05	1
FC-CFR	QC-FD	9-May-18	12:30	Sodium	Total Recv	4	mg/l		0.02	1
FC-CFR	QC-FD	9-May-18	12:30	Sulfate	Total	6	mg/l		0.01	1
FC-CFR	QC-FD	9-May-18	12:30	Total Nitrogen, mixed forms	Unfiltered	0.58	mg/l		0.01	0.05
FC-CFR	QC-FD	9-May-18	12:30	Total Phosphorus, mixed forms	Unfiltered	0.138	mg/l		0.0006	0.003
FC-CFR	QC-FD	9-May-18	12:30	Total suspended solids	NA	65	mg/l	D	0.3	10

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FD	9-May-18	12:30	Zinc	Dissolved	0.009	mg/l		0.0003	0.008
FC-CFR	QC-FD	9-May-18	12:30	Zinc	Total Recv	0.054	mg/l		0.001	0.008
FC-CFR	QC-FD	4-Jun-18	12:30	Alkalinity, total	Total	80	mg/l		2	4
FC-CFR	QC-FD	4-Jun-18	12:30	Arsenic	Dissolved	0.007	mg/l		0.00004	0.001
FC-CFR	QC-FD	4-Jun-18	12:30	Arsenic	Total Recv	0.015	mg/l		0.00004	0.001
FC-CFR	QC-FD	4-Jun-18	12:30	Bicarbonate	Total	97	mg/l		2	4
FC-CFR	QC-FD	4-Jun-18	12:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FD	4-Jun-18	12:30	Cadmium	Total Recv	0.00011	mg/l		0.00003	0.00003
FC-CFR	QC-FD	4-Jun-18	12:30	Calcium	Total Recv	24	mg/l		0.09	1
FC-CFR	QC-FD	4-Jun-18	12:30	Chloride	Total	2	mg/l		0.009	1
FC-CFR	QC-FD	4-Jun-18	12:30	Copper	Dissolved	0.002	mg/l		0.0001	0.001
FC-CFR	QC-FD	4-Jun-18	12:30	Copper	Total Recv	0.006	mg/l		0.0002	0.001
FC-CFR	QC-FD	4-Jun-18	12:30	Hardness, Ca, Mg	NA	84	mg/l		1	1
FC-CFR	QC-FD	4-Jun-18	12:30	Lead	Dissolved	0.0004	mg/l		0.00003	0.0003
FC-CFR	QC-FD	4-Jun-18	12:30	Lead	Total Recv	0.0102	mg/l		0.00004	0.0003
FC-CFR	QC-FD	4-Jun-18	12:30	Magnesium	Total Recv	6	mg/l		0.2	1
FC-CFR	QC-FD	4-Jun-18	12:30	Methylmercury(1+)	Total Recv	1.42	ng/l		0.023	0.05
FC-CFR	QC-FD	4-Jun-18	12:30	Mercury	Total Recv	0.00039	mg/l	D	0.000005	0.00001
FC-CFR	QC-FD	4-Jun-18	12:30	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
FC-CFR	QC-FD	4-Jun-18	12:30	Potassium	Total Recv	2	mg/l		0.06	1
FC-CFR	QC-FD	4-Jun-18	12:30	Sodium	Total Recv	4	mg/l		0.03	1
FC-CFR	QC-FD	4-Jun-18	12:30	Sulfate	Total	6	mg/l		0.01	1
FC-CFR	QC-FD	4-Jun-18	12:30	Total Nitrogen, mixed forms	Unfiltered	0.34	mg/l		0.01	0.05
FC-CFR	QC-FD	4-Jun-18	12:30	Total Phosphorus, mixed forms	Unfiltered	0.078	mg/l		0.0006	0.003
FC-CFR	QC-FD	4-Jun-18	12:30	Total suspended solids	NA	42	mg/l	D	0.3	4
FC-CFR	QC-FD	4-Jun-18	12:30	Zinc	Dissolved	0.0063	mg/l	J	0.0003	0.008
FC-CFR	QC-FD	4-Jun-18	12:30	Zinc	Total Recv	0.034	mg/l		0.001	0.008
FC-CFR	QC-FD	5-Jul-18	12:00	Alkalinity, total	Total	120	mg/l		2	4
FC-CFR	QC-FD	5-Jul-18	12:00	Arsenic	Dissolved	0.009	mg/l		0.00004	0.001
FC-CFR	QC-FD	5-Jul-18	12:00	Arsenic	Total Recv	0.014	mg/l		0.00004	0.001
FC-CFR	QC-FD	5-Jul-18	12:00	Bicarbonate	Total	140	mg/l		2	4
FC-CFR	QC-FD	5-Jul-18	12:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FD	5-Jul-18	12:00	Cadmium	Total Recv	0.00009	mg/l		0.00003	0.00003
FC-CFR	QC-FD	5-Jul-18	12:00	Calcium	Total Recv	35	mg/l		0.09	1
FC-CFR	QC-FD	5-Jul-18	12:00	Chloride	Total	2	mg/l		0.009	1
FC-CFR	QC-FD	5-Jul-18	12:00	Copper	Dissolved	0.001	mg/l		0.0001	0.001
FC-CFR	QC-FD	5-Jul-18	12:00	Copper	Total Recv	0.004	mg/l		0.0002	0.001
FC-CFR	QC-FD	5-Jul-18	12:00	Hardness, Ca, Mg	NA	112	mg/l		1	1
FC-CFR	QC-FD	5-Jul-18	12:00	Lead	Dissolved	0.0002	mg/l	J	0.00003	0.0003
FC-CFR	QC-FD	5-Jul-18	12:00	Lead	Total Recv	0.006	mg/l		0.00004	0.0003
FC-CFR	QC-FD	5-Jul-18	12:00	Magnesium	Total Recv	9	mg/l		0.2	1
FC-CFR	QC-FD	5-Jul-18	12:00	Methylmercury(1+)	Total Recv	1.22	ng/l		0.023	0.049
FC-CFR	QC-FD	5-Jul-18	12:00	Mercury	Total Recv	0.000204	mg/l		0.000002	0.000005
FC-CFR	QC-FD	5-Jul-18	12:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
FC-CFR	QC-FD	5-Jul-18	12:00	Potassium	Total Recv	2	mg/l		0.06	1
FC-CFR	QC-FD	5-Jul-18	12:00	Sodium	Total Recv	5	mg/l		0.03	1
FC-CFR	QC-FD	5-Jul-18	12:00	Sulfate	Total	8	mg/l		0.01	1
FC-CFR	QC-FD	5-Jul-18	12:00	Total Nitrogen, mixed forms	Unfiltered	0.26	mg/l		0.01	0.05

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FD	5-Jul-18	12:00	Total Phosphorus, mixed forms	Unfiltered	0.077	mg/l		0.0006	0.003
FC-CFR	QC-FD	5-Jul-18	12:00	Total suspended solids	NA	22	mg/l	D	0.3	4
FC-CFR	QC-FD	5-Jul-18	12:00	Zinc	Dissolved	0.0044	mg/l	J	0.0003	0.008
FC-CFR	QC-FD	5-Jul-18	12:00	Zinc	Total Recv	0.024	mg/l		0.001	0.008
MWB-SBC	QC-FD	10-May-18	11:40	Alkalinity, total	Total	57	mg/l		2	4
MWB-SBC	QC-FD	10-May-18	11:40	Arsenic	Dissolved	0.04	mg/l		0.00004	0.001
MWB-SBC	QC-FD	10-May-18	11:40	Arsenic	Total Recv	0.046	mg/l		0.00004	0.001
MWB-SBC	QC-FD	10-May-18	11:40	Bicarbonate	Total	69	mg/l		2	4
MWB-SBC	QC-FD	10-May-18	11:40	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
MWB-SBC	QC-FD	10-May-18	11:40	Cadmium	Total Recv	0.00021	mg/l		0.00003	0.00003
MWB-SBC	QC-FD	10-May-18	11:40	Calcium	Total Recv	25	mg/l		0.01	1
MWB-SBC	QC-FD	10-May-18	11:40	Chloride	Total	2	mg/l		0.009	1
MWB-SBC	QC-FD	10-May-18	11:40	Copper	Dissolved	0.009	mg/l		0.0001	0.001
MWB-SBC	QC-FD	10-May-18	11:40	Copper	Total Recv	0.019	mg/l		0.0002	0.001
MWB-SBC	QC-FD	10-May-18	11:40	Hardness, Ca, Mg	NA	84	mg/l		1	1
MWB-SBC	QC-FD	10-May-18	11:40	Lead	Dissolved	0.0003	mg/l		0.00003	0.0003
MWB-SBC	QC-FD	10-May-18	11:40	Lead	Total Recv	0.0039	mg/l		0.00004	0.0003
MWB-SBC	QC-FD	10-May-18	11:40	Magnesium	Total Recv	5	mg/l		0.09	1
MWB-SBC	QC-FD	10-May-18	11:40	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
MWB-SBC	QC-FD	10-May-18	11:40	Potassium	Total Recv	2	mg/l		0.05	1
MWB-SBC	QC-FD	10-May-18	11:40	Sodium	Total Recv	8	mg/l		0.02	1
MWB-SBC	QC-FD	10-May-18	11:40	Sulfate	Total	37	mg/l		0.01	1
MWB-SBC	QC-FD	10-May-18	11:40	Total Nitrogen, mixed forms	Unfiltered	0.49	mg/l		0.01	0.05
MWB-SBC	QC-FD	10-May-18	11:40	Total Phosphorus, mixed forms	Unfiltered	0.091	mg/l		0.0006	0.003
MWB-SBC	QC-FD	10-May-18	11:40	Total suspended solids	NA	25	mg/l	D	0.3	10
MWB-SBC	QC-FD	10-May-18	11:40	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
MWB-SBC	QC-FD	10-May-18	11:40	Zinc	Total Recv	0.021	mg/l		0.001	0.008
SS-25	QC-FD	5-Jun-18	11:30	Alkalinity, total	Total	71	mg/l		2	4
SS-25	QC-FD	5-Jun-18	11:30	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SS-25	QC-FD	5-Jun-18	11:30	Arsenic	Dissolved	0.023	mg/l		0.00004	0.001
SS-25	QC-FD	5-Jun-18	11:30	Arsenic	Total Recv	0.023	mg/l		0.00004	0.001
SS-25	QC-FD	5-Jun-18	11:30	Bicarbonate	Total	86	mg/l		2	4
SS-25	QC-FD	5-Jun-18	11:30	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
SS-25	QC-FD	5-Jun-18	11:30	Cadmium	Total Recv	0.0001	mg/l		0.00003	0.00003
SS-25	QC-FD	5-Jun-18	11:30	Calcium	Total Recv	26	mg/l		0.09	1
SS-25	QC-FD	5-Jun-18	11:30	Chloride	Total	5	mg/l		0.009	1
SS-25	QC-FD	5-Jun-18	11:30	Copper	Dissolved	0.008	mg/l		0.0001	0.001
SS-25	QC-FD	5-Jun-18	11:30	Copper	Total Recv	0.012	mg/l		0.0002	0.001
SS-25	QC-FD	5-Jun-18	11:30	Hardness, Ca, Mg	NA	85	mg/l		1	1
SS-25	QC-FD	5-Jun-18	11:30	Lead	Dissolved	0.00017	mg/l	J	0.00003	0.0003
SS-25	QC-FD	5-Jun-18	11:30	Lead	Total Recv	0.0011	mg/l		0.00004	0.0003
SS-25	QC-FD	5-Jun-18	11:30	Magnesium	Total Recv	5	mg/l		0.2	1
SS-25	QC-FD	5-Jun-18	11:30	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SS-25	QC-FD	5-Jun-18	11:30	Potassium	Total Recv	2	mg/l		0.06	1
SS-25	QC-FD	5-Jun-18	11:30	Sodium	Total Recv	10	mg/l		0.03	1
SS-25	QC-FD	5-Jun-18	11:30	Sulfate	Total	29	mg/l		0.01	1
SS-25	QC-FD	5-Jun-18	11:30	Total Nitrogen, mixed forms	Unfiltered	0.34	mg/l		0.01	0.05
SS-25	QC-FD	5-Jun-18	11:30	Total Phosphorus, mixed forms	Unfiltered	0.072	mg/l		0.0006	0.003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
SS-25	QC-FD	5-Jun-18	11:30	Total suspended solids	NA	6	mg/l	D	0.3	4
SS-25	QC-FD	5-Jun-18	11:30	Zinc	Dissolved	0.01	mg/l		0.0003	0.008
SS-25	QC-FD	5-Jun-18	11:30	Zinc	Total Recv	0.015	mg/l		0.001	0.008
CFR-03A	S-ROUTINE	10-May-18	9:00	Alkalinity, total	Total	82	mg/l		2	4
CFR-03A	S-ROUTINE	10-May-18	9:00	Arsenic	Dissolved	0.019	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	10-May-18	9:00	Arsenic	Total Recv	0.024	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	10-May-18	9:00	Bicarbonate	Total	99	mg/l		2	4
CFR-03A	S-ROUTINE	10-May-18	9:00	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	10-May-18	9:00	Cadmium	Total Recv	0.00024	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	10-May-18	9:00	Calcium	Total Recv	35	mg/l		0.01	1
CFR-03A	S-ROUTINE	10-May-18	9:00	Chloride	Total	9	mg/l		0.009	1
CFR-03A	S-ROUTINE	10-May-18	9:00	Copper	Dissolved	0.009	mg/l		0.0001	0.001
CFR-03A	S-ROUTINE	10-May-18	9:00	Copper	Total Recv	0.04	mg/l		0.0002	0.001
CFR-03A	S-ROUTINE	10-May-18	9:00	Hardness, Ca, Mg	NA	118	mg/l		1	1
CFR-03A	S-ROUTINE	10-May-18	9:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-03A	S-ROUTINE	10-May-18	9:00	Lead	Total Recv	0.0045	mg/l		0.00004	0.0003
CFR-03A	S-ROUTINE	10-May-18	9:00	Magnesium	Total Recv	7	mg/l		0.09	1
CFR-03A	S-ROUTINE	10-May-18	9:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-03A	S-ROUTINE	10-May-18	9:00	Potassium	Total Recv	3	mg/l		0.05	1
CFR-03A	S-ROUTINE	10-May-18	9:00	Sodium	Total Recv	11	mg/l		0.02	1
CFR-03A	S-ROUTINE	10-May-18	9:00	Sulfate	Total	40	mg/l		0.01	1
CFR-03A	S-ROUTINE	10-May-18	9:00	Total Nitrogen, mixed forms	Unfiltered	0.5	mg/l		0.01	0.05
CFR-03A	S-ROUTINE	10-May-18	9:00	Total Phosphorus, mixed forms	Unfiltered	0.081	mg/l		0.0006	0.003
CFR-03A	S-ROUTINE	10-May-18	9:00	Total suspended solids	NA	32	mg/l	D	0.3	10
CFR-03A	S-ROUTINE	10-May-18	9:00	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-03A	S-ROUTINE	10-May-18	9:00	Zinc	Total Recv	0.036	mg/l		0.001	0.008
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Alkalinity, total	Total	74	mg/l		2	4
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Arsenic	Dissolved	0.017	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Arsenic	Total Recv	0.018	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Bicarbonate	Total	89	mg/l		2	4
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Cadmium	Total Recv	0.0001	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Calcium	Total Recv	29	mg/l		0.09	1
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Chloride	Total	4	mg/l		0.009	1
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Copper	Dissolved	0.008	mg/l		0.0001	0.001
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Copper	Total Recv	0.016	mg/l		0.0002	0.001
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Hardness, Ca, Mg	NA	95	mg/l		1	1
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Lead	Dissolved	0.00011	mg/l	J	0.00003	0.0003
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Lead	Total Recv	0.0013	mg/l		0.00004	0.0003
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Magnesium	Total Recv	5	mg/l		0.2	1
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Nitrate + Nitrite	Unfiltered	0.014	mg/l	J	0.009	0.02
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Potassium	Total Recv	2	mg/l		0.06	1
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Sodium	Total Recv	6	mg/l		0.03	1
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Sulfate	Total	26	mg/l		0.01	1
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Total Nitrogen, mixed forms	Unfiltered	0.31	mg/l		0.01	0.05
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Total Phosphorus, mixed forms	Unfiltered	0.061	mg/l		0.0006	0.003
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Total suspended solids	NA	11	mg/l	D	0.3	4
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Zinc	Dissolved	0.009	mg/l	B	0.0003	0.008

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-03A	S-ROUTINE	5-Jun-18	9:15	Zinc	Total Recv	0.017	mg/l		0.001	0.008
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Alkalinity, total	Total	86	mg/l		2	4
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Arsenic	Dissolved	0.016	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Arsenic	Total Recv	0.017	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Bicarbonate	Total	100	mg/l		2	4
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Cadmium	Total Recv	0.0001	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Calcium	Total Recv	33	mg/l		0.09	1
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Chloride	Total	4	mg/l		0.009	1
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Copper	Dissolved	0.006	mg/l		0.0001	0.001
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Copper	Total Recv	0.016	mg/l		0.0002	0.001
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Hardness, Ca, Mg	NA	110	mg/l		1	1
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Lead	Dissolved	0.00011	mg/l	J	0.00003	0.0003
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Lead	Total Recv	0.0014	mg/l		0.00004	0.0003
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Magnesium	Total Recv	6	mg/l		0.2	1
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Nitrate + Nitrite	Unfiltered	0.019	mg/l	J	0.009	0.02
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Potassium	Total Recv	2	mg/l		0.06	1
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Sodium	Total Recv	7	mg/l		0.03	1
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Sulfate	Total	29	mg/l		0.01	1
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Total Nitrogen, mixed forms	Unfiltered	0.25	mg/l		0.01	0.05
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Total Phosphorus, mixed forms	Unfiltered	0.051	mg/l		0.0006	0.003
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Total suspended solids	NA	10	mg/l	D	0.3	2
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Zinc	Dissolved	0.0062	mg/l	J	0.0003	0.008
CFR-03A	S-ROUTINE	6-Jul-18	9:30	Zinc	Total Recv	0.013	mg/l		0.001	0.008
CFR-07D	S-ROUTINE	10-May-18	8:00	Alkalinity, total	Total	91	mg/l		2	4
CFR-07D	S-ROUTINE	10-May-18	8:00	Arsenic	Dissolved	0.019	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	10-May-18	8:00	Arsenic	Total Recv	0.037	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	10-May-18	8:00	Bicarbonate	Total	110	mg/l		2	4
CFR-07D	S-ROUTINE	10-May-18	8:00	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	10-May-18	8:00	Cadmium	Total Recv	0.00045	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	10-May-18	8:00	Calcium	Total Recv	40	mg/l		0.01	1
CFR-07D	S-ROUTINE	10-May-18	8:00	Chloride	Total	8	mg/l		0.009	1
CFR-07D	S-ROUTINE	10-May-18	8:00	Copper	Dissolved	0.013	mg/l		0.0001	0.001
CFR-07D	S-ROUTINE	10-May-18	8:00	Copper	Total Recv	0.122	mg/l		0.0002	0.001
CFR-07D	S-ROUTINE	10-May-18	8:00	Hardness, Ca, Mg	NA	133	mg/l		1	1
CFR-07D	S-ROUTINE	10-May-18	8:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-07D	S-ROUTINE	10-May-18	8:00	Lead	Total Recv	0.015	mg/l		0.00004	0.0003
CFR-07D	S-ROUTINE	10-May-18	8:00	Magnesium	Total Recv	8	mg/l		0.09	1
CFR-07D	S-ROUTINE	10-May-18	8:00	Nitrate + Nitrite	Unfiltered	0.06	mg/l		0.009	0.02
CFR-07D	S-ROUTINE	10-May-18	8:00	Potassium	Total Recv	3	mg/l		0.05	1
CFR-07D	S-ROUTINE	10-May-18	8:00	Sodium	Total Recv	11	mg/l		0.02	1
CFR-07D	S-ROUTINE	10-May-18	8:00	Sulfate	Total	51	mg/l		0.01	1
CFR-07D	S-ROUTINE	10-May-18	8:00	Total Nitrogen, mixed forms	Unfiltered	0.57	mg/l		0.01	0.05
CFR-07D	S-ROUTINE	10-May-18	8:00	Total Phosphorus, mixed forms	Unfiltered	0.113	mg/l		0.0006	0.003
CFR-07D	S-ROUTINE	10-May-18	8:00	Total suspended solids	NA	66	mg/l	D	0.3	10
CFR-07D	S-ROUTINE	10-May-18	8:00	Zinc	Dissolved	0.011	mg/l	B	0.0003	0.008
CFR-07D	S-ROUTINE	10-May-18	8:00	Zinc	Total Recv	0.091	mg/l		0.001	0.008
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Alkalinity, total	Total	84	mg/l		2	4

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Arsenic	Dissolved	0.025	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Arsenic	Total Recv	0.03	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Bicarbonate	Total	100	mg/l		2	4
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Cadmium	Total Recv	0.0002	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Calcium	Total Recv	37	mg/l		0.09	1
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Chloride	Total	4	mg/l		0.009	1
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Copper	Dissolved	0.011	mg/l		0.0001	0.001
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Copper	Total Recv	0.043	mg/l		0.0002	0.001
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Hardness, Ca, Mg	NA	123	mg/l		1	1
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Lead	Dissolved	0.00013	mg/l	J	0.00003	0.0003
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Lead	Total Recv	0.0052	mg/l		0.00004	0.0003
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Magnesium	Total Recv	7	mg/l		0.2	1
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Potassium	Total Recv	2	mg/l		0.06	1
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Sodium	Total Recv	7	mg/l		0.03	1
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Sulfate	Total	45	mg/l		0.01	1
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Total Nitrogen, mixed forms	Unfiltered	0.34	mg/l		0.01	0.05
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Total Phosphorus, mixed forms	Unfiltered	0.062	mg/l		0.0006	0.003
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Total suspended solids	NA	19	mg/l	D	0.3	4
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Zinc	Dissolved	0.011	mg/l	B	0.0003	0.008
CFR-07D	S-ROUTINE	5-Jun-18	8:00	Zinc	Total Recv	0.035	mg/l		0.001	0.008
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Alkalinity, total	Total	96	mg/l		2	4
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Arsenic	Dissolved	0.02	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Arsenic	Total Recv	0.024	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Bicarbonate	Total	120	mg/l		2	4
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Cadmium	Total Recv	0.00015	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Calcium	Total Recv	39	mg/l		0.09	1
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Chloride	Total	4	mg/l		0.009	1
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Copper	Dissolved	0.009	mg/l		0.0001	0.001
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Copper	Total Recv	0.036	mg/l		0.0002	0.001
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Hardness, Ca, Mg	NA	132	mg/l		1	1
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Lead	Dissolved	0.00017	mg/l	J	0.00003	0.0003
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Lead	Total Recv	0.0032	mg/l		0.00004	0.0003
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Potassium	Total Recv	2	mg/l		0.06	1
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Sodium	Total Recv	7	mg/l		0.03	1
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Sulfate	Total	43	mg/l		0.01	1
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Total Nitrogen, mixed forms	Unfiltered	0.3	mg/l		0.01	0.05
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Total Phosphorus, mixed forms	Unfiltered	0.052	mg/l		0.0006	0.003
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Total suspended solids	NA	12	mg/l	D	0.3	4
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Zinc	Dissolved	0.009	mg/l	B	0.0003	0.008
CFR-07D	S-ROUTINE	6-Jul-18	8:00	Zinc	Total Recv	0.023	mg/l		0.001	0.008
CFR-116A	S-ROUTINE	9-May-18	9:45	Alkalinity, total	Total	61	mg/l		2	4
CFR-116A	S-ROUTINE	9-May-18	9:45	Arsenic	Dissolved	0.008	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	9-May-18	9:45	Arsenic	Total Recv	0.018	mg/l		0.00004	0.001

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-116A	S-ROUTINE	9-May-18	9:45	Bicarbonate	Total	73	mg/l		2	4
CFR-116A	S-ROUTINE	9-May-18	9:45	Cadmium	Dissolved	0.00005	mg/l		0.00001	0.00003
CFR-116A	S-ROUTINE	9-May-18	9:45	Cadmium	Total Recv	0.00058	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	9-May-18	9:45	Calcium	Total Recv	21	mg/l		0.01	1
CFR-116A	S-ROUTINE	9-May-18	9:45	Chloride	Total	2	mg/l		0.009	1
CFR-116A	S-ROUTINE	9-May-18	9:45	Copper	Dissolved	0.01	mg/l		0.0001	0.001
CFR-116A	S-ROUTINE	9-May-18	9:45	Copper	Total Recv	0.086	mg/l		0.0002	0.001
CFR-116A	S-ROUTINE	9-May-18	9:45	Hardness, Ca, Mg	NA	76	mg/l		1	1
CFR-116A	S-ROUTINE	9-May-18	9:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-116A	S-ROUTINE	9-May-18	9:45	Lead	Total Recv	0.0137	mg/l		0.00004	0.0003
CFR-116A	S-ROUTINE	9-May-18	9:45	Magnesium	Total Recv	6	mg/l		0.09	1
CFR-116A	S-ROUTINE	9-May-18	9:45	Nitrate + Nitrite	Unfiltered	0.05	mg/l		0.009	0.02
CFR-116A	S-ROUTINE	9-May-18	9:45	Potassium	Total Recv	3	mg/l		0.05	1
CFR-116A	S-ROUTINE	9-May-18	9:45	Sodium	Total Recv	4	mg/l		0.02	1
CFR-116A	S-ROUTINE	9-May-18	9:45	Sulfate	Total	14	mg/l		0.01	1
CFR-116A	S-ROUTINE	9-May-18	9:45	Total Nitrogen, mixed forms	Unfiltered	0.62	mg/l		0.01	0.05
CFR-116A	S-ROUTINE	9-May-18	9:45	Total Phosphorus, mixed forms	Unfiltered	0.218	mg/l		0.0006	0.003
CFR-116A	S-ROUTINE	9-May-18	9:45	Total suspended solids	NA	147	mg/l	D	0.3	10
CFR-116A	S-ROUTINE	9-May-18	9:45	Zinc	Dissolved	0.011	mg/l		0.0003	0.008
CFR-116A	S-ROUTINE	9-May-18	9:45	Zinc	Total Recv	0.152	mg/l		0.001	0.008
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Alkalinity, total	Total	78	mg/l		2	4
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Arsenic	Dissolved	0.014	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Arsenic	Total Recv	0.017	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Bicarbonate	Total	95	mg/l		2	4
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Cadmium	Dissolved	0.00007	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Cadmium	Total Recv	0.00025	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Calcium	Total Recv	28	mg/l		0.09	1
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Chloride	Total	2	mg/l		0.009	1
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Copper	Dissolved	0.014	mg/l		0.0001	0.001
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Copper	Total Recv	0.046	mg/l		0.0002	0.001
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Hardness, Ca, Mg	NA	97	mg/l		1	1
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Lead	Dissolved	0.00016	mg/l	J	0.00003	0.0003
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Lead	Total Recv	0.0058	mg/l		0.00004	0.0003
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Magnesium	Total Recv	7	mg/l		0.2	1
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Potassium	Total Recv	2	mg/l		0.06	1
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Sodium	Total Recv	6	mg/l		0.03	1
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Sulfate	Total	22	mg/l		0.01	1
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Total Nitrogen, mixed forms	Unfiltered	0.34	mg/l		0.01	0.05
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Total Phosphorus, mixed forms	Unfiltered	0.09	mg/l		0.0006	0.003
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Total suspended solids	NA	64	mg/l	D	0.3	4
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Zinc	Dissolved	0.011	mg/l		0.0003	0.008
CFR-116A	S-ROUTINE	4-Jun-18	9:30	Zinc	Total Recv	0.065	mg/l		0.001	0.008
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Alkalinity, total	Total	97	mg/l		2	4
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Arsenic	Dissolved	0.009	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Arsenic	Total Recv	0.012	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Bicarbonate	Total	120	mg/l		2	4
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Cadmium	Total Recv	0.00016	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Calcium	Total Recv	33	mg/l		0.09	1
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Chloride	Total	3	mg/l		0.009	1
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Copper	Dissolved	0.007	mg/l		0.0001	0.001
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Copper	Total Recv	0.026	mg/l		0.0002	0.001
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Hardness, Ca, Mg	NA	115	mg/l		1	1
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Lead	Dissolved	0.00014	mg/l	J	0.00003	0.0003
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Lead	Total Recv	0.0033	mg/l		0.00004	0.0003
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Potassium	Total Recv	2	mg/l		0.06	1
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Sodium	Total Recv	6	mg/l		0.03	1
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Sulfate	Total	22	mg/l		0.01	1
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.3	mg/l		0.01	0.05
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.056	mg/l		0.0006	0.003
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Total suspended solids	NA	27	mg/l	D	0.3	4
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Zinc	Dissolved	0.0078	mg/l	J	0.0003	0.008
CFR-116A	S-ROUTINE	5-Jul-18	8:45	Zinc	Total Recv	0.036	mg/l		0.001	0.008
CFR-11F	S-ROUTINE	9-May-18	18:00	Alkalinity, total	Total	91	mg/l		2	4
CFR-11F	S-ROUTINE	9-May-18	18:00	Arsenic	Dissolved	0.02	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	9-May-18	18:00	Arsenic	Total Recv	0.039	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	9-May-18	18:00	Bicarbonate	Total	110	mg/l		2	4
CFR-11F	S-ROUTINE	9-May-18	18:00	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	9-May-18	18:00	Cadmium	Total Recv	0.00052	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	9-May-18	18:00	Calcium	Total Recv	42	mg/l		0.01	1
CFR-11F	S-ROUTINE	9-May-18	18:00	Chloride	Total	9	mg/l		0.009	1
CFR-11F	S-ROUTINE	9-May-18	18:00	Copper	Dissolved	0.014	mg/l		0.0001	0.001
CFR-11F	S-ROUTINE	9-May-18	18:00	Copper	Total Recv	0.127	mg/l		0.0002	0.001
CFR-11F	S-ROUTINE	9-May-18	18:00	Hardness, Ca, Mg	NA	141	mg/l		1	1
CFR-11F	S-ROUTINE	9-May-18	18:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-11F	S-ROUTINE	9-May-18	18:00	Lead	Total Recv	0.018	mg/l		0.00004	0.0003
CFR-11F	S-ROUTINE	9-May-18	18:00	Magnesium	Total Recv	9	mg/l		0.09	1
CFR-11F	S-ROUTINE	9-May-18	18:00	Nitrate + Nitrite	Unfiltered	0.05	mg/l		0.009	0.02
CFR-11F	S-ROUTINE	9-May-18	18:00	Potassium	Total Recv	4	mg/l		0.05	1
CFR-11F	S-ROUTINE	9-May-18	18:00	Sodium	Total Recv	12	mg/l		0.02	1
CFR-11F	S-ROUTINE	9-May-18	18:00	Sulfate	Total	50	mg/l		0.01	1
CFR-11F	S-ROUTINE	9-May-18	18:00	Total Nitrogen, mixed forms	Unfiltered	0.57	mg/l		0.01	0.05
CFR-11F	S-ROUTINE	9-May-18	18:00	Total Phosphorus, mixed forms	Unfiltered	0.123	mg/l		0.0006	0.003
CFR-11F	S-ROUTINE	9-May-18	18:00	Total suspended solids	NA	66	mg/l	D	0.3	10
CFR-11F	S-ROUTINE	9-May-18	18:00	Zinc	Dissolved	0.008	mg/l		0.0003	0.008
CFR-11F	S-ROUTINE	9-May-18	18:00	Zinc	Total Recv	0.094	mg/l		0.001	0.008
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Alkalinity, total	Total	89	mg/l		2	4
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Arsenic	Dissolved	0.027	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Arsenic	Total Recv	0.032	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Bicarbonate	Total	110	mg/l		2	4
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Cadmium	Total Recv	0.0002	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Calcium	Total Recv	38	mg/l		0.09	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Chloride	Total	4	mg/l		0.009	1
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Copper	Dissolved	0.014	mg/l		0.0001	0.001
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Copper	Total Recv	0.047	mg/l		0.0002	0.001
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Hardness, Ca, Mg	NA	126	mg/l		1	1
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Lead	Dissolved	0.00016	mg/l	J	0.00003	0.0003
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Lead	Total Recv	0.0062	mg/l		0.00004	0.0003
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Nitrate + Nitrite	Unfiltered	0.02	mg/l		0.009	0.02
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Potassium	Total Recv	2	mg/l		0.06	1
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Sodium	Total Recv	7	mg/l		0.03	1
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Sulfate	Total	49	mg/l		0.01	1
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Total Nitrogen, mixed forms	Unfiltered	0.36	mg/l		0.01	0.05
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Total Phosphorus, mixed forms	Unfiltered	0.075	mg/l		0.0006	0.003
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Total suspended solids	NA	25	mg/l	D	0.3	4
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Zinc	Dissolved	0.009	mg/l		0.0003	0.008
CFR-11F	S-ROUTINE	4-Jun-18	17:45	Zinc	Total Recv	0.043	mg/l		0.001	0.008
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Alkalinity, total	Total	99	mg/l		2	4
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Arsenic	Dissolved	0.02	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Arsenic	Total Recv	0.023	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Bicarbonate	Total	120	mg/l		2	4
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Cadmium	Total Recv	0.00015	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Calcium	Total Recv	40	mg/l		0.09	1
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Chloride	Total	4	mg/l		0.009	1
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Copper	Dissolved	0.009	mg/l		0.0001	0.001
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Copper	Total Recv	0.028	mg/l		0.0002	0.001
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Hardness, Ca, Mg	NA	135	mg/l		1	1
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Lead	Dissolved	0.00014	mg/l	J	0.00003	0.0003
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Lead	Total Recv	0.0027	mg/l		0.00004	0.0003
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Nitrate + Nitrite	Unfiltered	0.02	mg/l		0.009	0.02
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Potassium	Total Recv	2	mg/l		0.06	1
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Sodium	Total Recv	8	mg/l		0.03	1
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Sulfate	Total	44	mg/l		0.01	1
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Total Nitrogen, mixed forms	Unfiltered	0.29	mg/l		0.01	0.05
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Total Phosphorus, mixed forms	Unfiltered	0.055	mg/l		0.0006	0.003
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Total suspended solids	NA	12	mg/l	D	0.3	4
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Zinc	Dissolved	0.0058	mg/l	J	0.0003	0.008
CFR-11F	S-ROUTINE	5-Jul-18	17:15	Zinc	Total Recv	0.022	mg/l		0.001	0.008
CFR-27H	S-ROUTINE	9-May-18	16:45	Alkalinity, total	Total	90	mg/l		2	4
CFR-27H	S-ROUTINE	9-May-18	16:45	Arsenic	Dissolved	0.019	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	9-May-18	16:45	Arsenic	Total Recv	0.051	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	9-May-18	16:45	Bicarbonate	Total	110	mg/l		2	4
CFR-27H	S-ROUTINE	9-May-18	16:45	Cadmium	Dissolved	0.00008	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	9-May-18	16:45	Cadmium	Total Recv	0.00081	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	9-May-18	16:45	Calcium	Total Recv	38	mg/l		0.01	1
CFR-27H	S-ROUTINE	9-May-18	16:45	Chloride	Total	7	mg/l		0.009	1
CFR-27H	S-ROUTINE	9-May-18	16:45	Copper	Dissolved	0.022	mg/l		0.0001	0.001

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-27H	S-ROUTINE	9-May-18	16:45	Copper	Total Recv	0.284	mg/l		0.0002	0.001
CFR-27H	S-ROUTINE	9-May-18	16:45	Hardness, Ca, Mg	NA	130	mg/l		1	1
CFR-27H	S-ROUTINE	9-May-18	16:45	Lead	Dissolved	0.0004	mg/l		0.00003	0.0003
CFR-27H	S-ROUTINE	9-May-18	16:45	Lead	Total Recv	0.0329	mg/l		0.00004	0.0003
CFR-27H	S-ROUTINE	9-May-18	16:45	Magnesium	Total Recv	8	mg/l		0.09	1
CFR-27H	S-ROUTINE	9-May-18	16:45	Nitrate + Nitrite	Unfiltered	0.07	mg/l		0.009	0.02
CFR-27H	S-ROUTINE	9-May-18	16:45	Potassium	Total Recv	4	mg/l		0.05	1
CFR-27H	S-ROUTINE	9-May-18	16:45	Sodium	Total Recv	11	mg/l		0.02	1
CFR-27H	S-ROUTINE	9-May-18	16:45	Sulfate	Total	43	mg/l		0.01	1
CFR-27H	S-ROUTINE	9-May-18	16:45	Total Nitrogen, mixed forms	Unfiltered	0.72	mg/l		0.01	0.05
CFR-27H	S-ROUTINE	9-May-18	16:45	Total Phosphorus, mixed forms	Unfiltered	0.208	mg/l		0.0006	0.003
CFR-27H	S-ROUTINE	9-May-18	16:45	Total suspended solids	NA	140	mg/l	D	0.3	10
CFR-27H	S-ROUTINE	9-May-18	16:45	Zinc	Dissolved	0.012	mg/l		0.0003	0.008
CFR-27H	S-ROUTINE	9-May-18	16:45	Zinc	Total Recv	0.179	mg/l		0.001	0.008
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Alkalinity, total	Total	88	mg/l		2	4
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Arsenic	Dissolved	0.026	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Arsenic	Total Recv	0.038	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Bicarbonate	Total	110	mg/l		2	4
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Cadmium	Dissolved	0.00013	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Cadmium	Total Recv	0.00038	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Calcium	Total Recv	37	mg/l		0.09	1
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Chloride	Total	4	mg/l		0.009	1
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Copper	Dissolved	0.025	mg/l		0.0001	0.001
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Copper	Total Recv	0.142	mg/l		0.0002	0.001
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Hardness, Ca, Mg	NA	125	mg/l		1	1
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Lead	Dissolved	0.0004	mg/l		0.00003	0.0003
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Lead	Total Recv	0.0133	mg/l		0.00004	0.0003
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Potassium	Total Recv	2	mg/l		0.06	1
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Sodium	Total Recv	8	mg/l		0.03	1
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Sulfate	Total	42	mg/l		0.01	1
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Total Nitrogen, mixed forms	Unfiltered	0.41	mg/l		0.01	0.05
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Total Phosphorus, mixed forms	Unfiltered	0.101	mg/l		0.0006	0.003
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Total suspended solids	NA	52	mg/l	D	0.3	4
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Zinc	Dissolved	0.024	mg/l		0.0003	0.008
CFR-27H	S-ROUTINE	4-Jun-18	16:30	Zinc	Total Recv	0.084	mg/l		0.001	0.008
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Alkalinity, total	Total	100	mg/l		2	4
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Arsenic	Dissolved	0.018	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Arsenic	Total Recv	0.025	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Bicarbonate	Total	120	mg/l		2	4
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Cadmium	Dissolved	0.00007	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Cadmium	Total Recv	0.00022	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Calcium	Total Recv	39	mg/l		0.09	1
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Chloride	Total	4	mg/l		0.009	1
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Copper	Dissolved	0.013	mg/l		0.0001	0.001
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Copper	Total Recv	0.055	mg/l		0.0002	0.001
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Hardness, Ca, Mg	NA	131	mg/l		1	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Lead	Dissolved	0.00019	mg/l	J	0.00003	0.0003
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Lead	Total Recv	0.0062	mg/l		0.00004	0.0003
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Nitrate + Nitrite	Unfiltered	0.05	mg/l		0.009	0.02
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Potassium	Total Recv	2	mg/l		0.06	1
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Sodium	Total Recv	9	mg/l		0.03	1
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Sulfate	Total	38	mg/l		0.01	1
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Total Nitrogen, mixed forms	Unfiltered	0.34	mg/l		0.01	0.05
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Total Phosphorus, mixed forms	Unfiltered	0.067	mg/l		0.0006	0.003
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Total suspended solids	NA	24	mg/l	D	0.3	4
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Zinc	Dissolved	0.01	mg/l		0.0003	0.008
CFR-27H	S-ROUTINE	5-Jul-18	16:00	Zinc	Total Recv	0.054	mg/l		0.001	0.008
CFR-34	S-ROUTINE	9-May-18	15:30	Alkalinity, total	Total	91	mg/l		2	4
CFR-34	S-ROUTINE	9-May-18	15:30	Arsenic	Dissolved	0.018	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	9-May-18	15:30	Arsenic	Total Recv	0.052	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	9-May-18	15:30	Bicarbonate	Total	110	mg/l		2	4
CFR-34	S-ROUTINE	9-May-18	15:30	Cadmium	Dissolved	0.00008	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	9-May-18	15:30	Cadmium	Total Recv	0.00087	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	9-May-18	15:30	Calcium	Total Recv	38	mg/l		0.01	1
CFR-34	S-ROUTINE	9-May-18	15:30	Chloride	Total	7	mg/l		0.009	1
CFR-34	S-ROUTINE	9-May-18	15:30	Copper	Dissolved	0.021	mg/l		0.0001	0.001
CFR-34	S-ROUTINE	9-May-18	15:30	Copper	Total Recv	0.3	mg/l		0.0002	0.001
CFR-34	S-ROUTINE	9-May-18	15:30	Hardness, Ca, Mg	NA	130	mg/l		1	1
CFR-34	S-ROUTINE	9-May-18	15:30	Lead	Dissolved	0.0004	mg/l		0.00003	0.0003
CFR-34	S-ROUTINE	9-May-18	15:30	Lead	Total Recv	0.0378	mg/l		0.00004	0.0003
CFR-34	S-ROUTINE	9-May-18	15:30	Magnesium	Total Recv	9	mg/l		0.09	1
CFR-34	S-ROUTINE	9-May-18	15:30	Nitrate + Nitrite	Unfiltered	0.09	mg/l		0.009	0.02
CFR-34	S-ROUTINE	9-May-18	15:30	Potassium	Total Recv	4	mg/l		0.05	1
CFR-34	S-ROUTINE	9-May-18	15:30	Sodium	Total Recv	11	mg/l		0.02	1
CFR-34	S-ROUTINE	9-May-18	15:30	Sulfate	Total	39	mg/l		0.01	1
CFR-34	S-ROUTINE	9-May-18	15:30	Total Nitrogen, mixed forms	Unfiltered	0.74	mg/l		0.01	0.05
CFR-34	S-ROUTINE	9-May-18	15:30	Total Phosphorus, mixed forms	Unfiltered	0.228	mg/l		0.0006	0.003
CFR-34	S-ROUTINE	9-May-18	15:30	Total suspended solids	NA	163	mg/l	D	0.3	10
CFR-34	S-ROUTINE	9-May-18	15:30	Zinc	Dissolved	0.012	mg/l		0.0003	0.008
CFR-34	S-ROUTINE	9-May-18	15:30	Zinc	Total Recv	0.199	mg/l		0.001	0.008
CFR-34	S-ROUTINE	4-Jun-18	15:30	Alkalinity, total	Total	97	mg/l		2	4
CFR-34	S-ROUTINE	4-Jun-18	15:30	Arsenic	Dissolved	0.026	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	4-Jun-18	15:30	Arsenic	Total Recv	0.038	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	4-Jun-18	15:30	Bicarbonate	Total	120	mg/l		2	4
CFR-34	S-ROUTINE	4-Jun-18	15:30	Cadmium	Dissolved	0.00013	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	4-Jun-18	15:30	Cadmium	Total Recv	0.00046	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	4-Jun-18	15:30	Calcium	Total Recv	38	mg/l		0.09	1
CFR-34	S-ROUTINE	4-Jun-18	15:30	Chloride	Total	4	mg/l		0.009	1
CFR-34	S-ROUTINE	4-Jun-18	15:30	Copper	Dissolved	0.028	mg/l		0.0001	0.001
CFR-34	S-ROUTINE	4-Jun-18	15:30	Copper	Total Recv	0.12	mg/l		0.0002	0.001
CFR-34	S-ROUTINE	4-Jun-18	15:30	Hardness, Ca, Mg	NA	128	mg/l		1	1
CFR-34	S-ROUTINE	4-Jun-18	15:30	Lead	Dissolved	0.0004	mg/l		0.00003	0.0003
CFR-34	S-ROUTINE	4-Jun-18	15:30	Lead	Total Recv	0.015	mg/l		0.00004	0.0003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-34	S-ROUTINE	4-Jun-18	15:30	Magnesium	Total Recv	8	mg/l		0.2	1
CFR-34	S-ROUTINE	4-Jun-18	15:30	Nitrate + Nitrite	Unfiltered	0.05	mg/l		0.009	0.02
CFR-34	S-ROUTINE	4-Jun-18	15:30	Potassium	Total Recv	3	mg/l		0.06	1
CFR-34	S-ROUTINE	4-Jun-18	15:30	Sodium	Total Recv	8	mg/l		0.03	1
CFR-34	S-ROUTINE	4-Jun-18	15:30	Sulfate	Total	41	mg/l		0.01	1
CFR-34	S-ROUTINE	4-Jun-18	15:30	Total Nitrogen, mixed forms	Unfiltered	0.46	mg/l		0.01	0.05
CFR-34	S-ROUTINE	4-Jun-18	15:30	Total Phosphorus, mixed forms	Unfiltered	0.11	mg/l		0.0006	0.003
CFR-34	S-ROUTINE	4-Jun-18	15:30	Total suspended solids	NA	64	mg/l	D	0.3	4
CFR-34	S-ROUTINE	4-Jun-18	15:30	Zinc	Dissolved	0.021	mg/l		0.0003	0.008
CFR-34	S-ROUTINE	4-Jun-18	15:30	Zinc	Total Recv	0.096	mg/l		0.001	0.008
CFR-34	S-ROUTINE	5-Jul-18	14:45	Alkalinity, total	Total	110	mg/l		2	4
CFR-34	S-ROUTINE	5-Jul-18	14:45	Arsenic	Dissolved	0.018	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	5-Jul-18	14:45	Arsenic	Total Recv	0.025	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	5-Jul-18	14:45	Bicarbonate	Total	130	mg/l		2	4
CFR-34	S-ROUTINE	5-Jul-18	14:45	Cadmium	Dissolved	0.00008	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	5-Jul-18	14:45	Cadmium	Total Recv	0.00027	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	5-Jul-18	14:45	Calcium	Total Recv	40	mg/l		0.09	1
CFR-34	S-ROUTINE	5-Jul-18	14:45	Chloride	Total	4	mg/l		0.009	1
CFR-34	S-ROUTINE	5-Jul-18	14:45	Copper	Dissolved	0.016	mg/l		0.0001	0.001
CFR-34	S-ROUTINE	5-Jul-18	14:45	Copper	Total Recv	0.067	mg/l		0.0002	0.001
CFR-34	S-ROUTINE	5-Jul-18	14:45	Hardness, Ca, Mg	NA	135	mg/l		1	1
CFR-34	S-ROUTINE	5-Jul-18	14:45	Lead	Dissolved	0.00021	mg/l	J	0.00003	0.0003
CFR-34	S-ROUTINE	5-Jul-18	14:45	Lead	Total Recv	0.007	mg/l		0.00004	0.0003
CFR-34	S-ROUTINE	5-Jul-18	14:45	Magnesium	Total Recv	9	mg/l		0.2	1
CFR-34	S-ROUTINE	5-Jul-18	14:45	Nitrate + Nitrite	Unfiltered	0.07	mg/l		0.009	0.02
CFR-34	S-ROUTINE	5-Jul-18	14:45	Potassium	Total Recv	2	mg/l		0.06	1
CFR-34	S-ROUTINE	5-Jul-18	14:45	Sodium	Total Recv	10	mg/l		0.03	1
CFR-34	S-ROUTINE	5-Jul-18	14:45	Sulfate	Total	36	mg/l		0.01	1
CFR-34	S-ROUTINE	5-Jul-18	14:45	Total Nitrogen, mixed forms	Unfiltered	0.37	mg/l		0.01	0.05
CFR-34	S-ROUTINE	5-Jul-18	14:45	Total Phosphorus, mixed forms	Unfiltered	0.077	mg/l		0.0006	0.003
CFR-34	S-ROUTINE	5-Jul-18	14:45	Total suspended solids	NA	29	mg/l	D	0.3	4
CFR-34	S-ROUTINE	5-Jul-18	14:45	Zinc	Dissolved	0.011	mg/l		0.0003	0.008
CFR-34	S-ROUTINE	5-Jul-18	14:45	Zinc	Total Recv	0.05	mg/l		0.001	0.008
CFR-84F	S-ROUTINE	9-May-18	11:00	Methylmercury(1+)	Total Recv	0.88	ng/l	J	0.023	0.05
CFR-84F	S-ROUTINE	9-May-18	11:00	Mercury	Total Recv	0.00018	mg/l	D	0.000005	0.00001
CFR-84F	S-ROUTINE	4-Jun-18	11:30	Methylmercury(1+)	Total Recv	0.51	ng/l		0.023	0.049
CFR-84F	S-ROUTINE	4-Jun-18	11:30	Mercury	Total Recv	0.0000519	mg/l		0.000001	0.000005
CFR-84F	S-ROUTINE	5-Jul-18	10:15	Methylmercury(1+)	Total Recv	0.35	ng/l		0.023	0.049
CFR-84F	S-ROUTINE	5-Jul-18	10:15	Mercury	Total Recv	0.0000684	mg/l	J	0.000002	0.000005
FC-CFR	S-ROUTINE	9-May-18	12:30	Alkalinity, total	Total	66	mg/l		2	4
FC-CFR	S-ROUTINE	9-May-18	12:30	Arsenic	Dissolved	0.007	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	9-May-18	12:30	Arsenic	Total Recv	0.017	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	9-May-18	12:30	Bicarbonate	Total	79	mg/l		2	4
FC-CFR	S-ROUTINE	9-May-18	12:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	9-May-18	12:30	Cadmium	Total Recv	0.00017	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	9-May-18	12:30	Calcium	Total Recv	18	mg/l		0.01	1
FC-CFR	S-ROUTINE	9-May-18	12:30	Chloride	Total	2	mg/l		0.009	1
FC-CFR	S-ROUTINE	9-May-18	12:30	Copper	Dissolved	0.004	mg/l		0.0001	0.001

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	S-ROUTINE	9-May-18	12:30	Copper	Total Recv	0.01	mg/l		0.0002	0.001
FC-CFR	S-ROUTINE	9-May-18	12:30	Hardness, Ca, Mg	NA	67	mg/l		1	1
FC-CFR	S-ROUTINE	9-May-18	12:30	Lead	Dissolved	0.0005	mg/l		0.00003	0.0003
FC-CFR	S-ROUTINE	9-May-18	12:30	Lead	Total Recv	0.0154	mg/l		0.00004	0.0003
FC-CFR	S-ROUTINE	9-May-18	12:30	Magnesium	Total Recv	5	mg/l		0.09	1
FC-CFR	S-ROUTINE	9-May-18	12:30	Methylmercury(1+)	Total Recv	2.09	ng/l	J	0.023	0.05
FC-CFR	S-ROUTINE	9-May-18	12:30	Mercury	Total Recv	0.00064	mg/l	D	0.000005	0.00001
FC-CFR	S-ROUTINE	9-May-18	12:30	Nitrate + Nitrite	Unfiltered	0.04	mg/l		0.009	0.02
FC-CFR	S-ROUTINE	9-May-18	12:30	Potassium	Total Recv	2	mg/l		0.05	1
FC-CFR	S-ROUTINE	9-May-18	12:30	Sodium	Total Recv	4	mg/l		0.02	1
FC-CFR	S-ROUTINE	9-May-18	12:30	Sulfate	Total	6	mg/l		0.01	1
FC-CFR	S-ROUTINE	9-May-18	12:30	Total Nitrogen, mixed forms	Unfiltered	0.7	mg/l		0.01	0.05
FC-CFR	S-ROUTINE	9-May-18	12:30	Total Phosphorus, mixed forms	Unfiltered	0.155	mg/l		0.0006	0.003
FC-CFR	S-ROUTINE	9-May-18	12:30	Total suspended solids	NA	61	mg/l	D	0.3	10
FC-CFR	S-ROUTINE	9-May-18	12:30	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	S-ROUTINE	9-May-18	12:30	Zinc	Total Recv	0.043	mg/l		0.001	0.008
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Alkalinity, total	Total	80	mg/l		2	4
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Arsenic	Dissolved	0.007	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Arsenic	Total Recv	0.014	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Bicarbonate	Total	97	mg/l		2	4
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Cadmium	Total Recv	0.0001	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Calcium	Total Recv	23	mg/l		0.09	1
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Chloride	Total	1	mg/l		0.009	1
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Copper	Dissolved	0.002	mg/l		0.0001	0.001
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Copper	Total Recv	0.005	mg/l		0.0002	0.001
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Hardness, Ca, Mg	NA	81	mg/l		1	1
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Lead	Dissolved	0.0003	mg/l		0.00003	0.0003
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Lead	Total Recv	0.0095	mg/l		0.00004	0.0003
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Magnesium	Total Recv	6	mg/l		0.2	1
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Methylmercury(1+)	Total Recv	1.24	ng/l		0.023	0.049
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Mercury	Total Recv	0.00034	mg/l	D	0.000005	0.00001
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Potassium	Total Recv	2	mg/l		0.06	1
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Sodium	Total Recv	4	mg/l		0.03	1
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Sulfate	Total	6	mg/l		0.01	1
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Total Nitrogen, mixed forms	Unfiltered	0.33	mg/l		0.01	0.05
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Total Phosphorus, mixed forms	Unfiltered	0.074	mg/l		0.0006	0.003
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Total suspended solids	NA	42	mg/l	D	0.3	4
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Zinc	Dissolved	0.0058	mg/l	J	0.0003	0.008
FC-CFR	S-ROUTINE	4-Jun-18	12:30	Zinc	Total Recv	0.033	mg/l		0.001	0.008
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Alkalinity, total	Total	120	mg/l		2	4
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Arsenic	Dissolved	0.009	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Arsenic	Total Recv	0.013	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Bicarbonate	Total	140	mg/l		2	4
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Cadmium	Total Recv	0.00008	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Calcium	Total Recv	33	mg/l		0.09	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Chloride	Total	2	mg/l		0.009	1
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Copper	Dissolved	0.001	mg/l		0.0001	0.001
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Copper	Total Recv	0.004	mg/l		0.0002	0.001
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Hardness, Ca, Mg	NA	118	mg/l		1	1
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Lead	Dissolved	0.00019	mg/l	J	0.00003	0.0003
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Lead	Total Recv	0.0057	mg/l		0.00004	0.0003
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Magnesium	Total Recv	9	mg/l		0.2	1
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Methylmercury(1+)	Total Recv	1.49	ng/l		0.023	0.049
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Mercury	Total Recv	0.000144	mg/l	J	0.000002	0.000005
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Potassium	Total Recv	2	mg/l		0.06	1
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Sodium	Total Recv	5	mg/l		0.03	1
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Sulfate	Total	8	mg/l		0.01	1
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Total Nitrogen, mixed forms	Unfiltered	0.32	mg/l		0.01	0.05
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Total Phosphorus, mixed forms	Unfiltered	0.069	mg/l		0.0006	0.003
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Total suspended solids	NA	25	mg/l	D	0.3	4
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Zinc	Dissolved	0.0046	mg/l	J	0.0003	0.008
FC-CFR	S-ROUTINE	5-Jul-18	12:00	Zinc	Total Recv	0.024	mg/l		0.001	0.008
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Alkalinity, total	Total	57	mg/l		2	4
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Arsenic	Dissolved	0.005	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Arsenic	Total Recv	0.01	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Bicarbonate	Total	69	mg/l		2	4
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Cadmium	Total Recv	0.0001	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Calcium	Total Recv	18	mg/l		0.01	1
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Chloride	Total	1	mg/l		0.009	1
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Copper	Dissolved	0.002	mg/l		0.0001	0.001
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Copper	Total Recv	0.007	mg/l		0.0002	0.001
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Hardness, Ca, Mg	NA	63	mg/l		1	1
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Lead	Total Recv	0.0045	mg/l		0.00004	0.0003
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Magnesium	Total Recv	4	mg/l		0.09	1
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Mercury	Total Recv	0.000015	mg/l		0.000001	0.000005
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Potassium	Total Recv	2	mg/l		0.05	1
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Sodium	Total Recv	3	mg/l		0.02	1
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Sulfate	Total	6	mg/l		0.01	1
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Total Nitrogen, mixed forms	Unfiltered	0.49	mg/l		0.01	0.05
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Total Phosphorus, mixed forms	Unfiltered	0.151	mg/l		0.0006	0.003
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Total suspended solids	NA	71	mg/l	D	0.3	10
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
LBR-CFR-02	S-ROUTINE	9-May-18	14:30	Zinc	Total Recv	0.019	mg/l		0.001	0.008
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Alkalinity, total	Total	89	mg/l		2	4
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Arsenic	Dissolved	0.007	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Arsenic	Total Recv	0.007	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Bicarbonate	Total	110	mg/l		2	4
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Cadmium	Total Recv	0.00003	mg/l	J	0.00003	0.00003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Calcium	Total Recv	25	mg/l		0.09	1
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Chloride	Total	1	mg/l		0.009	1
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Copper	Dissolved	0.001	mg/l		0.0001	0.001
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Copper	Total Recv	0.002	mg/l		0.0002	0.001
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Hardness, Ca, Mg	NA	84	mg/l		1	1
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Lead	Dissolved	0.00004	mg/l	J	0.00003	0.0003
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Lead	Total Recv	0.0009	mg/l		0.00004	0.0003
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Magnesium	Total Recv	6	mg/l		0.2	1
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Nitrate + Nitrite	Unfiltered	0.018	mg/l	J	0.009	0.02
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Potassium	Total Recv	1	mg/l		0.06	1
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Sodium	Total Recv	4	mg/l		0.03	1
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Sulfate	Total	7	mg/l		0.01	1
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Total Nitrogen, mixed forms	Unfiltered	0.34	mg/l		0.01	0.05
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Total Phosphorus, mixed forms	Unfiltered	0.057	mg/l		0.0006	0.003
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Total suspended solids	NA	12	mg/l	D	0.3	4
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Zinc	Dissolved	0.0046	mg/l	J	0.0003	0.008
LBR-CFR-02	S-ROUTINE	4-Jun-18	14:30	Zinc	Total Recv	0.007	mg/l	J	0.001	0.008
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Alkalinity, total	Total	100	mg/l		2	4
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Arsenic	Dissolved	0.006	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Arsenic	Total Recv	0.006	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Bicarbonate	Total	120	mg/l		2	4
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Calcium	Total Recv	30	mg/l		0.09	1
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Chloride	Total	2	mg/l		0.009	1
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Copper	Dissolved	0.001	mg/l		0.0001	0.001
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Copper	Total Recv	0.001	mg/l		0.0002	0.001
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Hardness, Ca, Mg	NA	102	mg/l		1	1
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Lead	Dissolved	0.00004	mg/l	J	0.00003	0.0003
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Lead	Total Recv	0.00028	mg/l	J	0.00004	0.0003
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Magnesium	Total Recv	7	mg/l		0.2	1
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Nitrate + Nitrite	Unfiltered	0.011	mg/l	J	0.009	0.02
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Potassium	Total Recv	2	mg/l		0.06	1
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Sodium	Total Recv	5	mg/l		0.03	1
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Sulfate	Total	8	mg/l		0.01	1
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Total Nitrogen, mixed forms	Unfiltered	0.21	mg/l		0.01	0.05
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Total Phosphorus, mixed forms	Unfiltered	0.033	mg/l		0.0006	0.003
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Total suspended solids	NA	4	mg/l	D	0.3	2
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Zinc	Dissolved	0.0048	mg/l	J	0.0003	0.008
LBR-CFR-02	S-ROUTINE	5-Jul-18	13:30	Zinc	Total Recv	0.004	mg/l	J	0.001	0.008
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Alkalinity, total	Total	45	mg/l		2	4
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Arsenic	Dissolved	0.042	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Arsenic	Total Recv	0.051	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Bicarbonate	Total	54	mg/l		2	4
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Cadmium	Total Recv	0.00035	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Calcium	Total Recv	14	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Chloride	Total	<0.009	mg/l		0.009	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Copper	Dissolved	0.01	mg/l		0.0001	0.001
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Copper	Total Recv	0.03	mg/l		0.0002	0.001
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Hardness, Ca, Mg	NA	49	mg/l		1	1
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Lead	Dissolved	0.0004	mg/l		0.00003	0.0003
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Lead	Total Recv	0.0074	mg/l		0.00004	0.0003
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Magnesium	Total Recv	3	mg/l		0.09	1
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Potassium	Total Recv	2	mg/l		0.05	1
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Sodium	Total Recv	6	mg/l		0.02	1
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Sulfate	Total	10	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Total Nitrogen, mixed forms	Unfiltered	0.52	mg/l		0.01	0.05
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Total Phosphorus, mixed forms	Unfiltered	0.11	mg/l		0.0006	0.003
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Total suspended solids	NA	43	mg/l	D	0.3	10
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Zinc	Dissolved	0.014	mg/l	B	0.0003	0.008
MCWC-MWB	S-ROUTINE	10-May-18	12:45	Zinc	Total Recv	0.04	mg/l		0.001	0.008
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Alkalinity, total	Total	46	mg/l		2	4
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Arsenic	Dissolved	0.027	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Arsenic	Total Recv	0.028	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Bicarbonate	Total	56	mg/l		2	4
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Cadmium	Total Recv	0.00014	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Calcium	Total Recv	14	mg/l		0.09	1
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Chloride	Total	0.55	mg/l	J	0.009	1
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Copper	Dissolved	0.004	mg/l		0.0001	0.001
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Copper	Total Recv	0.009	mg/l		0.0002	0.001
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Hardness, Ca, Mg	NA	45	mg/l		1	1
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Lead	Dissolved	0.00012	mg/l	J	0.00003	0.0003
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Lead	Total Recv	0.0016	mg/l		0.00004	0.0003
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Magnesium	Total Recv	3	mg/l		0.2	1
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Nitrate + Nitrite	Unfiltered	0.017	mg/l	J	0.009	0.02
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Potassium	Total Recv	0.91	mg/l	J	0.06	1
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Sodium	Total Recv	4	mg/l		0.03	1
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Sulfate	Total	6	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Total Nitrogen, mixed forms	Unfiltered	0.22	mg/l		0.01	0.05
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Total Phosphorus, mixed forms	Unfiltered	0.036	mg/l		0.0006	0.003
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Total suspended solids	NA	11	mg/l	D	0.3	4
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Zinc	Dissolved	0.0075	mg/l	J	0.0003	0.008
MCWC-MWB	S-ROUTINE	5-Jun-18	13:30	Zinc	Total Recv	0.012	mg/l		0.001	0.008
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Alkalinity, total	Total	63	mg/l		2	4
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Arsenic	Dissolved	0.032	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Arsenic	Total Recv	0.033	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Bicarbonate	Total	76	mg/l		2	4
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Cadmium	Dissolved	0.00003	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Cadmium	Total Recv	0.00008	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Calcium	Total Recv	19	mg/l		0.09	1
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Chloride	Total	0.71	mg/l	J	0.009	1
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Copper	Dissolved	0.003	mg/l		0.0001	0.001
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Copper	Total Recv	0.006	mg/l		0.0002	0.001

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Hardness, Ca, Mg	NA	64	mg/l		1	1
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Lead	Dissolved	0.00016	mg/l	J	0.00003	0.0003
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Lead	Total Recv	0.001	mg/l		0.00004	0.0003
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Magnesium	Total Recv	4	mg/l		0.2	1
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Nitrate + Nitrite	Unfiltered	0.019	mg/l	J	0.009	0.02
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Potassium	Total Recv	0.84	mg/l	J	0.06	1
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Sodium	Total Recv	6	mg/l		0.03	1
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Sulfate	Total	11	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Total Nitrogen, mixed forms	Unfiltered	0.18	mg/l		0.01	0.05
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Total Phosphorus, mixed forms	Unfiltered	0.038	mg/l		0.0006	0.003
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Total suspended solids	NA	6	mg/l	D	0.3	2
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Zinc	Dissolved	0.0059	mg/l	J	0.0003	0.008
MCWC-MWB	S-ROUTINE	6-Jul-18	13:30	Zinc	Total Recv	0.007	mg/l	J	0.001	0.008
MWB-SBC	S-ROUTINE	10-May-18	11:40	Alkalinity, total	Total	56	mg/l		2	4
MWB-SBC	S-ROUTINE	10-May-18	11:40	Arsenic	Dissolved	0.04	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	10-May-18	11:40	Arsenic	Total Recv	0.045	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	10-May-18	11:40	Bicarbonate	Total	68	mg/l		2	4
MWB-SBC	S-ROUTINE	10-May-18	11:40	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	10-May-18	11:40	Cadmium	Total Recv	0.00019	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	10-May-18	11:40	Calcium	Total Recv	25	mg/l		0.01	1
MWB-SBC	S-ROUTINE	10-May-18	11:40	Chloride	Total	2	mg/l		0.009	1
MWB-SBC	S-ROUTINE	10-May-18	11:40	Copper	Dissolved	0.009	mg/l		0.0001	0.001
MWB-SBC	S-ROUTINE	10-May-18	11:40	Copper	Total Recv	0.019	mg/l		0.0002	0.001
MWB-SBC	S-ROUTINE	10-May-18	11:40	Hardness, Ca, Mg	NA	84	mg/l		1	1
MWB-SBC	S-ROUTINE	10-May-18	11:40	Lead	Dissolved	0.0003	mg/l		0.00003	0.0003
MWB-SBC	S-ROUTINE	10-May-18	11:40	Lead	Total Recv	0.0039	mg/l		0.00004	0.0003
MWB-SBC	S-ROUTINE	10-May-18	11:40	Magnesium	Total Recv	5	mg/l		0.09	1
MWB-SBC	S-ROUTINE	10-May-18	11:40	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
MWB-SBC	S-ROUTINE	10-May-18	11:40	Potassium	Total Recv	2	mg/l		0.05	1
MWB-SBC	S-ROUTINE	10-May-18	11:40	Sodium	Total Recv	8	mg/l		0.02	1
MWB-SBC	S-ROUTINE	10-May-18	11:40	Sulfate	Total	38	mg/l		0.01	1
MWB-SBC	S-ROUTINE	10-May-18	11:40	Total Nitrogen, mixed forms	Unfiltered	0.47	mg/l		0.01	0.05
MWB-SBC	S-ROUTINE	10-May-18	11:40	Total Phosphorus, mixed forms	Unfiltered	0.077	mg/l		0.0006	0.003
MWB-SBC	S-ROUTINE	10-May-18	11:40	Total suspended solids	NA	23	mg/l	D	0.3	10
MWB-SBC	S-ROUTINE	10-May-18	11:40	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
MWB-SBC	S-ROUTINE	10-May-18	11:40	Zinc	Total Recv	0.02	mg/l		0.001	0.008
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Alkalinity, total	Total	53	mg/l		2	4
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Arsenic	Dissolved	0.028	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Arsenic	Total Recv	0.03	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Bicarbonate	Total	64	mg/l		2	4
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Cadmium	Total Recv	0.00011	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Calcium	Total Recv	19	mg/l		0.09	1
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Chloride	Total	0.99	mg/l	J	0.009	1
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Copper	Dissolved	0.004	mg/l		0.0001	0.001
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Copper	Total Recv	0.008	mg/l		0.0002	0.001
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Hardness, Ca, Mg	NA	63	mg/l		1	1
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Lead	Dissolved	0.00013	mg/l	J	0.00003	0.0003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Lead	Total Recv	0.0014	mg/l		0.00004	0.0003
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Magnesium	Total Recv	4	mg/l		0.2	1
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Nitrate + Nitrite	Unfiltered	0.014	mg/l	J	0.009	0.02
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Potassium	Total Recv	1	mg/l		0.06	1
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Sodium	Total Recv	5	mg/l		0.03	1
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Sulfate	Total	18	mg/l		0.01	1
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Total Nitrogen, mixed forms	Unfiltered	0.21	mg/l		0.01	0.05
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Total Phosphorus, mixed forms	Unfiltered	0.036	mg/l		0.0006	0.003
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Total suspended solids	NA	9	mg/l	D	0.3	4
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Zinc	Dissolved	0.007	mg/l	J	0.0003	0.008
MWB-SBC	S-ROUTINE	5-Jun-18	12:30	Zinc	Total Recv	0.011	mg/l		0.001	0.008
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Alkalinity, total	Total	70	mg/l		2	4
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Arsenic	Dissolved	0.031	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Arsenic	Total Recv	0.033	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Bicarbonate	Total	84	mg/l		2	4
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Cadmium	Dissolved	0.00003	mg/l	J	0.00003	0.00003
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Cadmium	Total Recv	0.00008	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Calcium	Total Recv	28	mg/l		0.09	1
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Chloride	Total	2	mg/l		0.009	1
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Copper	Dissolved	0.003	mg/l		0.0001	0.001
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Copper	Total Recv	0.006	mg/l		0.0002	0.001
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Hardness, Ca, Mg	NA	94	mg/l		1	1
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Lead	Dissolved	0.00014	mg/l	J	0.00003	0.0003
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Lead	Total Recv	0.001	mg/l		0.00004	0.0003
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Magnesium	Total Recv	6	mg/l		0.2	1
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Potassium	Total Recv	1	mg/l		0.06	1
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Sodium	Total Recv	7	mg/l		0.03	1
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Sulfate	Total	34	mg/l		0.01	1
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Total Nitrogen, mixed forms	Unfiltered	0.24	mg/l		0.01	0.05
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Total Phosphorus, mixed forms	Unfiltered	0.034	mg/l		0.0006	0.003
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Total suspended solids	NA	5	mg/l	D	0.3	2
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Zinc	Dissolved	0.0054	mg/l	J	0.0003	0.008
MWB-SBC	S-ROUTINE	6-Jul-18	12:00	Zinc	Total Recv	0.007	mg/l	J	0.001	0.008
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Alkalinity, total	Total	87	mg/l		2	4
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Arsenic	Dissolved	0.019	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Arsenic	Total Recv	0.019	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Bicarbonate	Total	98	mg/l		2	4
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Cadmium	Dissolved	0.00008	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Cadmium	Total Recv	0.00014	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Calcium	Total Recv	35	mg/l		0.09	1
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Chloride	Total	10	mg/l		0.009	1
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Copper	Dissolved	0.012	mg/l		0.0001	0.001
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Copper	Total Recv	0.016	mg/l		0.0002	0.001
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Hardness, Ca, Mg	NA	115	mg/l		1	1
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Lead	Dissolved	0.0002	mg/l	J	0.00003	0.0003
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Lead	Total Recv	0.0008	mg/l		0.00004	0.0003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Magnesium	Total Recv	7	mg/l		0.2	1
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Potassium	Total Recv	3	mg/l		0.06	1
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Sodium	Total Recv	13	mg/l		0.03	1
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Sulfate	Total	38	mg/l		0.01	1
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Total Nitrogen, mixed forms	Unfiltered	0.45	mg/l		0.01	0.05
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Total Phosphorus, mixed forms	Unfiltered	0.115	mg/l		0.0006	0.003
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Total suspended solids	NA	2	mg/l	D	0.3	2
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Zinc	Dissolved	0.012	mg/l	B	0.0003	0.008
SBC-P2	S-ROUTINE	5-Jun-18	12:15	Zinc	Total Recv	0.023	mg/l		0.001	0.008
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Alkalinity, total	Total	91	mg/l		2	4
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Arsenic	Dissolved	0.018	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Arsenic	Total Recv	0.018	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Bicarbonate	Total	98	mg/l		2	4
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Cadmium	Dissolved	0.00008	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Cadmium	Total Recv	0.00013	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Calcium	Total Recv	37	mg/l		0.09	1
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Chloride	Total	10	mg/l		0.009	1
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Copper	Dissolved	0.012	mg/l		0.0001	0.001
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Copper	Total Recv	0.014	mg/l		0.0002	0.001
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Hardness, Ca, Mg	NA	124	mg/l		1	1
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Lead	Dissolved	0.00013	mg/l	J	0.00003	0.0003
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Lead	Total Recv	0.0005	mg/l		0.00004	0.0003
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Magnesium	Total Recv	7	mg/l		0.2	1
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Potassium	Total Recv	3	mg/l		0.06	1
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Sodium	Total Recv	14	mg/l		0.03	1
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Sulfate	Total	41	mg/l		0.01	1
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Total Nitrogen, mixed forms	Unfiltered	0.5	mg/l		0.01	0.05
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Total Phosphorus, mixed forms	Unfiltered	0.108	mg/l		0.0006	0.003
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Total suspended solids	NA	4	mg/l	D	0.3	2
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Zinc	Dissolved	0.0061	mg/l	J	0.0003	0.008
SBC-P2	S-ROUTINE	6-Jul-18	12:30	Zinc	Total Recv	0.013	mg/l		0.001	0.008
SS-25	S-ROUTINE	10-May-18	11:00	Alkalinity, total	Total	74	mg/l		2	4
SS-25	S-ROUTINE	10-May-18	11:00	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SS-25	S-ROUTINE	10-May-18	11:00	Arsenic	Dissolved	0.028	mg/l		0.00004	0.001
SS-25	S-ROUTINE	10-May-18	11:00	Arsenic	Total Recv	0.032	mg/l		0.00004	0.001
SS-25	S-ROUTINE	10-May-18	11:00	Bicarbonate	Total	90	mg/l		2	4
SS-25	S-ROUTINE	10-May-18	11:00	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	10-May-18	11:00	Cadmium	Total Recv	0.00022	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	10-May-18	11:00	Calcium	Total Recv	33	mg/l		0.01	1
SS-25	S-ROUTINE	10-May-18	11:00	Chloride	Total	10	mg/l		0.009	1
SS-25	S-ROUTINE	10-May-18	11:00	Copper	Dissolved	0.009	mg/l		0.0001	0.001
SS-25	S-ROUTINE	10-May-18	11:00	Copper	Total Recv	0.018	mg/l		0.0002	0.001
SS-25	S-ROUTINE	10-May-18	11:00	Hardness, Ca, Mg	NA	112	mg/l		1	1
SS-25	S-ROUTINE	10-May-18	11:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
SS-25	S-ROUTINE	10-May-18	11:00	Lead	Total Recv	0.0026	mg/l		0.00004	0.0003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
SS-25	S-ROUTINE	10-May-18	11:00	Magnesium	Total Recv	7	mg/l		0.09	1
SS-25	S-ROUTINE	10-May-18	11:00	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
SS-25	S-ROUTINE	10-May-18	11:00	Potassium	Total Recv	4	mg/l		0.05	1
SS-25	S-ROUTINE	10-May-18	11:00	Sodium	Total Recv	13	mg/l		0.02	1
SS-25	S-ROUTINE	10-May-18	11:00	Sulfate	Total	48	mg/l		0.01	1
SS-25	S-ROUTINE	10-May-18	11:00	Total Nitrogen, mixed forms	Unfiltered	0.51	mg/l		0.01	0.05
SS-25	S-ROUTINE	10-May-18	11:00	Total Phosphorus, mixed forms	Unfiltered	0.081	mg/l		0.0006	0.003
SS-25	S-ROUTINE	10-May-18	11:00	Total suspended solids	NA	16	mg/l	D	0.3	5
SS-25	S-ROUTINE	10-May-18	11:00	Zinc	Dissolved	0.01	mg/l	B	0.0003	0.008
SS-25	S-ROUTINE	10-May-18	11:00	Zinc	Total Recv	0.027	mg/l		0.001	0.008
SS-25	S-ROUTINE	5-Jun-18	11:30	Alkalinity, total	Total	71	mg/l		2	4
SS-25	S-ROUTINE	5-Jun-18	11:30	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SS-25	S-ROUTINE	5-Jun-18	11:30	Arsenic	Dissolved	0.023	mg/l		0.00004	0.001
SS-25	S-ROUTINE	5-Jun-18	11:30	Arsenic	Total Recv	0.023	mg/l		0.00004	0.001
SS-25	S-ROUTINE	5-Jun-18	11:30	Bicarbonate	Total	87	mg/l		2	4
SS-25	S-ROUTINE	5-Jun-18	11:30	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	5-Jun-18	11:30	Cadmium	Total Recv	0.0001	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	5-Jun-18	11:30	Calcium	Total Recv	26	mg/l		0.09	1
SS-25	S-ROUTINE	5-Jun-18	11:30	Chloride	Total	5	mg/l		0.009	1
SS-25	S-ROUTINE	5-Jun-18	11:30	Copper	Dissolved	0.008	mg/l		0.0001	0.001
SS-25	S-ROUTINE	5-Jun-18	11:30	Copper	Total Recv	0.011	mg/l		0.0002	0.001
SS-25	S-ROUTINE	5-Jun-18	11:30	Hardness, Ca, Mg	NA	84	mg/l		1	1
SS-25	S-ROUTINE	5-Jun-18	11:30	Lead	Dissolved	0.00016	mg/l	J	0.00003	0.0003
SS-25	S-ROUTINE	5-Jun-18	11:30	Lead	Total Recv	0.0014	mg/l		0.00004	0.0003
SS-25	S-ROUTINE	5-Jun-18	11:30	Magnesium	Total Recv	5	mg/l		0.2	1
SS-25	S-ROUTINE	5-Jun-18	11:30	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SS-25	S-ROUTINE	5-Jun-18	11:30	Potassium	Total Recv	2	mg/l		0.06	1
SS-25	S-ROUTINE	5-Jun-18	11:30	Sodium	Total Recv	9	mg/l		0.03	1
SS-25	S-ROUTINE	5-Jun-18	11:30	Sulfate	Total	29	mg/l		0.01	1
SS-25	S-ROUTINE	5-Jun-18	11:30	Total Nitrogen, mixed forms	Unfiltered	0.34	mg/l		0.01	0.05
SS-25	S-ROUTINE	5-Jun-18	11:30	Total Phosphorus, mixed forms	Unfiltered	0.08	mg/l		0.0006	0.003
SS-25	S-ROUTINE	5-Jun-18	11:30	Total suspended solids	NA	6	mg/l	D	0.3	4
SS-25	S-ROUTINE	5-Jun-18	11:30	Zinc	Dissolved	0.01	mg/l	B	0.0003	0.008
SS-25	S-ROUTINE	5-Jun-18	11:30	Zinc	Total Recv	0.018	mg/l		0.001	0.008
SS-25	S-ROUTINE	6-Jul-18	11:15	Alkalinity, total	Total	82	mg/l		2	4
SS-25	S-ROUTINE	6-Jul-18	11:15	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SS-25	S-ROUTINE	6-Jul-18	11:15	Arsenic	Dissolved	0.024	mg/l		0.00004	0.001
SS-25	S-ROUTINE	6-Jul-18	11:15	Arsenic	Total Recv	0.025	mg/l		0.00004	0.001
SS-25	S-ROUTINE	6-Jul-18	11:15	Bicarbonate	Total	95	mg/l		2	4
SS-25	S-ROUTINE	6-Jul-18	11:15	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	6-Jul-18	11:15	Cadmium	Total Recv	0.00011	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	6-Jul-18	11:15	Calcium	Total Recv	32	mg/l		0.09	1
SS-25	S-ROUTINE	6-Jul-18	11:15	Chloride	Total	6	mg/l		0.009	1
SS-25	S-ROUTINE	6-Jul-18	11:15	Copper	Dissolved	0.007	mg/l		0.0001	0.001
SS-25	S-ROUTINE	6-Jul-18	11:15	Copper	Total Recv	0.01	mg/l		0.0002	0.001
SS-25	S-ROUTINE	6-Jul-18	11:15	Hardness, Ca, Mg	NA	108	mg/l		1	1
SS-25	S-ROUTINE	6-Jul-18	11:15	Lead	Dissolved	0.00013	mg/l	J	0.00003	0.0003
SS-25	S-ROUTINE	6-Jul-18	11:15	Lead	Total Recv	0.0008	mg/l		0.00004	0.0003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
SS-25	S-ROUTINE	6-Jul-18	11:15	Magnesium	Total Recv	7	mg/l		0.2	1
SS-25	S-ROUTINE	6-Jul-18	11:15	Nitrate + Nitrite	Unfiltered	0.011	mg/l	J	0.009	0.02
SS-25	S-ROUTINE	6-Jul-18	11:15	Potassium	Total Recv	2	mg/l		0.06	1
SS-25	S-ROUTINE	6-Jul-18	11:15	Sodium	Total Recv	11	mg/l		0.03	1
SS-25	S-ROUTINE	6-Jul-18	11:15	Sulfate	Total	38	mg/l		0.01	1
SS-25	S-ROUTINE	6-Jul-18	11:15	Total Nitrogen, mixed forms	Unfiltered	0.36	mg/l		0.01	0.05
SS-25	S-ROUTINE	6-Jul-18	11:15	Total Phosphorus, mixed forms	Unfiltered	0.077	mg/l		0.0006	0.003
SS-25	S-ROUTINE	6-Jul-18	11:15	Total suspended solids	NA	5	mg/l	D	0.3	2
SS-25	S-ROUTINE	6-Jul-18	11:15	Zinc	Dissolved	0.0048	mg/l	J	0.0003	0.008
SS-25	S-ROUTINE	6-Jul-18	11:15	Zinc	Total Recv	0.011	mg/l		0.001	0.008
WSC-SBC	S-ROUTINE	10-May-18	10:00	Alkalinity, total	Total	82	mg/l		2	4
WSC-SBC	S-ROUTINE	10-May-18	10:00	Arsenic	Dissolved	0.005	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	10-May-18	10:00	Arsenic	Total Recv	0.013	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	10-May-18	10:00	Bicarbonate	Total	99	mg/l		2	4
WSC-SBC	S-ROUTINE	10-May-18	10:00	Cadmium	Dissolved	0.00003	mg/l		0.00001	0.00003
WSC-SBC	S-ROUTINE	10-May-18	10:00	Cadmium	Total Recv	0.00024	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	10-May-18	10:00	Calcium	Total Recv	29	mg/l		0.01	1
WSC-SBC	S-ROUTINE	10-May-18	10:00	Chloride	Total	<0.009	mg/l		0.009	1
WSC-SBC	S-ROUTINE	10-May-18	10:00	Copper	Dissolved	0.006	mg/l		0.0001	0.001
WSC-SBC	S-ROUTINE	10-May-18	10:00	Copper	Total Recv	0.068	mg/l		0.0002	0.001
WSC-SBC	S-ROUTINE	10-May-18	10:00	Hardness, Ca, Mg	NA	96	mg/l		1	1
WSC-SBC	S-ROUTINE	10-May-18	10:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
WSC-SBC	S-ROUTINE	10-May-18	10:00	Lead	Total Recv	0.0069	mg/l		0.00004	0.0003
WSC-SBC	S-ROUTINE	10-May-18	10:00	Magnesium	Total Recv	6	mg/l		0.09	1
WSC-SBC	S-ROUTINE	10-May-18	10:00	Nitrate + Nitrite	Unfiltered	0.05	mg/l		0.009	0.02
WSC-SBC	S-ROUTINE	10-May-18	10:00	Potassium	Total Recv	2	mg/l		0.05	1
WSC-SBC	S-ROUTINE	10-May-18	10:00	Sodium	Total Recv	2	mg/l		0.02	1
WSC-SBC	S-ROUTINE	10-May-18	10:00	Sulfate	Total	15	mg/l		0.01	1
WSC-SBC	S-ROUTINE	10-May-18	10:00	Total Nitrogen, mixed forms	Unfiltered	0.47	mg/l		0.01	0.05
WSC-SBC	S-ROUTINE	10-May-18	10:00	Total Phosphorus, mixed forms	Unfiltered	0.09	mg/l		0.0006	0.003
WSC-SBC	S-ROUTINE	10-May-18	10:00	Total suspended solids	NA	67	mg/l	D	0.3	10
WSC-SBC	S-ROUTINE	10-May-18	10:00	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
WSC-SBC	S-ROUTINE	10-May-18	10:00	Zinc	Total Recv	0.035	mg/l		0.001	0.008
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Alkalinity, total	Total	67	mg/l		2	4
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Arsenic	Dissolved	0.008	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Arsenic	Total Recv	0.011	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Bicarbonate	Total	81	mg/l		2	4
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Cadmium	Dissolved	0.00003	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Cadmium	Total Recv	0.00011	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Calcium	Total Recv	23	mg/l		0.09	1
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Chloride	Total	0.54	mg/l	J	0.009	1
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Copper	Dissolved	0.006	mg/l		0.0001	0.001
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Copper	Total Recv	0.026	mg/l		0.0002	0.001
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Hardness, Ca, Mg	NA	74	mg/l		1	1
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Lead	Total Recv	0.0022	mg/l		0.00004	0.0003
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Magnesium	Total Recv	4	mg/l		0.2	1
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Nitrate + Nitrite	Unfiltered	0.04	mg/l		0.009	0.02

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Potassium	Total Recv	1	mg/l		0.06	1
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Sodium	Total Recv	2	mg/l		0.03	1
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Sulfate	Total	14	mg/l		0.01	1
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Total Nitrogen, mixed forms	Unfiltered	0.19	mg/l		0.01	0.05
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Total Phosphorus, mixed forms	Unfiltered	0.026	mg/l		0.0006	0.003
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Total suspended solids	NA	28	mg/l	D	0.3	4
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Zinc	Dissolved	0.0054	mg/l	J	0.0003	0.008
WSC-SBC	S-ROUTINE	5-Jun-18	10:15	Zinc	Total Recv	0.016	mg/l		0.001	0.008
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Alkalinity, total	Total	89	mg/l		2	4
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Arsenic	Dissolved	0.006	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Arsenic	Total Recv	0.008	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Bicarbonate	Total	110	mg/l		2	4
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Cadmium	Total Recv	0.00009	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Calcium	Total Recv	32	mg/l		0.09	1
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Chloride	Total	1	mg/l		0.009	1
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Copper	Dissolved	0.003	mg/l		0.0001	0.001
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Copper	Total Recv	0.019	mg/l		0.0002	0.001
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Hardness, Ca, Mg	NA	103	mg/l		1	1
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Lead	Dissolved	0.00004	mg/l	J	0.00003	0.0003
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Lead	Total Recv	0.0016	mg/l		0.00004	0.0003
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Magnesium	Total Recv	6	mg/l		0.2	1
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Nitrate + Nitrite	Unfiltered	0.04	mg/l		0.009	0.02
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Potassium	Total Recv	1	mg/l		0.06	1
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Sodium	Total Recv	2	mg/l		0.03	1
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Sulfate	Total	17	mg/l		0.01	1
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Total Nitrogen, mixed forms	Unfiltered	0.15	mg/l		0.01	0.05
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Total Phosphorus, mixed forms	Unfiltered	0.018	mg/l		0.0006	0.003
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Total suspended solids	NA	12	mg/l	D	0.3	2
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Zinc	Dissolved	0.005	mg/l	J	0.0003	0.008
WSC-SBC	S-ROUTINE	6-Jul-18	10:30	Zinc	Total Recv	0.01	mg/l		0.001	0.008
WSC-SBC	F-MSR/OBS	6-Jul-18	10:30	pH	NA	7.74	None			
WSC-SBC	F-MSR/OBS	6-Jul-18	10:30	Temperature, water	NA	11.4	deg C			
WSC-SBC	F-MSR/OBS	6-Jul-18	10:30	Dissolved oxygen (DO)	NA	10	mg/l			
WSC-SBC	F-MSR/OBS	6-Jul-18	10:30	Dissolved oxygen saturation	NA	109	%			
WSC-SBC	F-MSR/OBS	6-Jul-18	10:30	Specific conductance	NA	211.3	uS/cm			
WSC-SBC	F-MSR/OBS	6-Jul-18	10:30	Turbidity	NA	4	NTU			

Table C-3. Third quarter surface water results for the Clark Fork River Operable Unit, 2018.

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-116A	F-MSR/OBS	10-Sep-18	8:45	pH	NA	8.05	None			
CFR-116A	F-MSR/OBS	10-Sep-18	8:45	Temperature, water	NA	13.6	deg C			
CFR-116A	F-MSR/OBS	10-Sep-18	8:45	Dissolved oxygen (DO)	NA	8.4	mg/l			
CFR-116A	F-MSR/OBS	10-Sep-18	8:45	Dissolved oxygen saturation	NA	91	%			
CFR-116A	F-MSR/OBS	10-Sep-18	8:45	Specific conductance	NA	308.3	uS/cm			
CFR-116A	F-MSR/OBS	10-Sep-18	8:45	Turbidity	NA	2.3	NTU			
CFR-116A	F-MSR/OBS	10-Sep-18	8:45	Flow	NA	889	ft3/sec			
CFR-11F	F-MSR/OBS	10-Sep-18	17:15	pH	NA	8.97	None			
CFR-11F	F-MSR/OBS	10-Sep-18	17:15	Temperature, water	NA	16.9	deg C			
CFR-11F	F-MSR/OBS	10-Sep-18	17:15	Dissolved oxygen (DO)	NA	10.5	mg/l			
CFR-11F	F-MSR/OBS	10-Sep-18	17:15	Dissolved oxygen saturation	NA	129	%			
CFR-11F	F-MSR/OBS	10-Sep-18	17:15	Specific conductance	NA	371.4	uS/cm			
CFR-11F	F-MSR/OBS	10-Sep-18	17:15	Turbidity	NA	1.4	NTU			
CFR-11F	F-MSR/OBS	10-Sep-18	17:15	Flow	NA	131.49	ft3/sec			
CFR-27H	F-MSR/OBS	10-Sep-18	16:15	pH	NA	8.52	None			
CFR-27H	F-MSR/OBS	10-Sep-18	16:15	Temperature, water	NA	17.2	deg C			
CFR-27H	F-MSR/OBS	10-Sep-18	16:15	Dissolved oxygen (DO)	NA	9.7	mg/l			
CFR-27H	F-MSR/OBS	10-Sep-18	16:15	Dissolved oxygen saturation	NA	119	%			
CFR-27H	F-MSR/OBS	10-Sep-18	16:15	Specific conductance	NA	394.2	uS/cm			
CFR-27H	F-MSR/OBS	10-Sep-18	16:15	Turbidity	NA	2.5	NTU			
CFR-27H	F-MSR/OBS	10-Sep-18	16:15	Flow	NA	193	ft3/sec			
CFR-34	F-MSR/OBS	10-Sep-18	15:00	pH	NA	8.59	None			
CFR-34	F-MSR/OBS	10-Sep-18	15:00	Temperature, water	NA	17.2	deg C			
CFR-34	F-MSR/OBS	10-Sep-18	15:00	Dissolved oxygen (DO)	NA	10.4	mg/l			
CFR-34	F-MSR/OBS	10-Sep-18	15:00	Dissolved oxygen saturation	NA	126	%			
CFR-34	F-MSR/OBS	10-Sep-18	15:00	Specific conductance	NA	404.3	uS/cm			
CFR-34	F-MSR/OBS	10-Sep-18	15:00	Turbidity	NA	2.9	NTU			
CFR-34	F-MSR/OBS	10-Sep-18	15:00	Flow	NA	177.33	ft3/sec			
CFR-84F	F-MSR/OBS	10-Sep-18	10:30	pH	NA	8.16	None			
CFR-84F	F-MSR/OBS	10-Sep-18	10:30	Temperature, water	NA	15.1	deg C			
CFR-84F	F-MSR/OBS	10-Sep-18	10:30	Dissolved oxygen (DO)	NA	9.3	mg/l			
CFR-84F	F-MSR/OBS	10-Sep-18	10:30	Dissolved oxygen saturation	NA	106	%			
CFR-84F	F-MSR/OBS	10-Sep-18	10:30	Specific conductance	NA	429.9	uS/cm			
CFR-84F	F-MSR/OBS	10-Sep-18	10:30	Turbidity	NA	3.2	NTU			
CFR-84F	F-MSR/OBS	10-Sep-18	10:30	Flow	NA	486	ft3/sec			
FC-CFR	F-MSR/OBS	10-Sep-18	11:45	pH	NA	8.41	None			
FC-CFR	F-MSR/OBS	10-Sep-18	11:45	Temperature, water	NA	12.7	deg C			
FC-CFR	F-MSR/OBS	10-Sep-18	11:45	Dissolved oxygen (DO)	NA	9.8	mg/l			
FC-CFR	F-MSR/OBS	10-Sep-18	11:45	Dissolved oxygen saturation	NA	108	%			
FC-CFR	F-MSR/OBS	10-Sep-18	11:45	Specific conductance	NA	345.7	uS/cm			
FC-CFR	F-MSR/OBS	10-Sep-18	11:45	Turbidity	NA	5.8	NTU			
FC-CFR	F-MSR/OBS	10-Sep-18	11:45	Flow	NA	108	ft3/sec			
LBR-CFR-02	F-MSR/OBS	10-Sep-18	13:30	pH	NA	7.95	None			
LBR-CFR-02	F-MSR/OBS	10-Sep-18	13:30	Temperature, water	NA	15.2	deg C			
LBR-CFR-02	F-MSR/OBS	10-Sep-18	13:30	Dissolved oxygen (DO)	NA	8.2	mg/l			
LBR-CFR-02	F-MSR/OBS	10-Sep-18	13:30	Dissolved oxygen saturation	NA	96	%			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
LBR-CFR-02	F-MSR/OBS	10-Sep-18	13:30	Specific conductance	NA	244.9	uS/cm			
LBR-CFR-02	F-MSR/OBS	10-Sep-18	13:30	Turbidity	NA	1.4	NTU			
LBR-CFR-02	F-MSR/OBS	10-Sep-18	13:30	Flow	NA	42.58	ft3/sec			
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Alkalinity, total	Total	130	mg/l		2	4
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Arsenic	Dissolved	0.007	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Arsenic	Total Recv	0.007	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Bicarbonate	Total	160	mg/l		2	4
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Cadmium	Total Recv	0.00004	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Calcium	Total Recv	43	mg/l		0.09	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Chloride	Total	4	mg/l		0.009	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Copper	Dissolved	0.003	mg/l		0.0001	0.001
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Copper	Total Recv	0.006	mg/l		0.0002	0.001
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Hardness, Ca, Mg	NA	155	mg/l		1	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Lead	Total Recv	0.0003	mg/l		0.00004	0.0003
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Magnesium	Total Recv	11	mg/l		0.2	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Potassium	Total Recv	3	mg/l		0.06	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Sodium	Total Recv	9	mg/l		0.03	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Sulfate	Total	45	mg/l		0.01	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.19	mg/l		0.03	0.05
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.014	mg/l		0.0004	0.003
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Total suspended solids	NA	6	mg/l		0.3	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-116A	S-ROUTINE	10-Sep-18	8:45	Zinc	Total Recv	0.008	mg/l		0.001	0.008
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Alkalinity, total	Total	140	mg/l		2	4
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Arsenic	Dissolved	0.016	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Arsenic	Total Recv	0.015	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Bicarbonate	Total	150	mg/l		2	4
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Cadmium	Total Recv	0.00005	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Calcium	Total Recv	58	mg/l		0.09	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Chloride	Total	7	mg/l		0.009	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Copper	Dissolved	0.006	mg/l		0.0001	0.001
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Copper	Total Recv	0.008	mg/l		0.0002	0.001
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Hardness, Ca, Mg	NA	200	mg/l		1	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Lead	Total Recv	0.0005	mg/l		0.00004	0.0003
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Magnesium	Total Recv	14	mg/l		0.2	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Potassium	Total Recv	3	mg/l		0.06	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Sodium	Total Recv	12	mg/l		0.03	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Sulfate	Total	75	mg/l		0.01	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Total Nitrogen, mixed forms	Unfiltered	0.26	mg/l		0.03	0.05
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Total Phosphorus, mixed forms	Unfiltered	0.023	mg/l		0.0004	0.003
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Total suspended solids	NA	3	mg/l		0.3	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-11F	S-ROUTINE	10-Sep-18	17:15	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Alkalinity, total	Total	160	mg/l		2	4
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Arsenic	Dissolved	0.016	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Arsenic	Total Recv	0.016	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Bicarbonate	Total	180	mg/l		2	4
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Cadmium	Total Recv	0.00008	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Calcium	Total Recv	60	mg/l		0.09	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Chloride	Total	8	mg/l		0.009	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Copper	Dissolved	0.009	mg/l		0.0001	0.001
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Copper	Total Recv	0.016	mg/l		0.0002	0.001
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Hardness, Ca, Mg	NA	203	mg/l		1	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Lead	Total Recv	0.0011	mg/l		0.00004	0.0003
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Magnesium	Total Recv	13	mg/l		0.2	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Nitrate + Nitrite	Unfiltered	0.11	mg/l		0.009	0.02
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Potassium	Total Recv	3	mg/l		0.06	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Sodium	Total Recv	14	mg/l		0.03	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Sulfate	Total	71	mg/l		0.01	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Total Nitrogen, mixed forms	Unfiltered	0.37	mg/l		0.03	0.05
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Total Phosphorus, mixed forms	Unfiltered	0.023	mg/l		0.0004	0.003
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Total suspended solids	NA	5	mg/l		0.3	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-27H	S-ROUTINE	10-Sep-18	16:15	Zinc	Total Recv	0.012	mg/l		0.001	0.008
CFR-34	S-ROUTINE	10-Sep-18	8:45	Alkalinity, total	Total	170	mg/l		2	4
CFR-34	S-ROUTINE	10-Sep-18	8:45	Arsenic	Dissolved	0.016	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	10-Sep-18	8:45	Arsenic	Total Recv	0.016	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	10-Sep-18	8:45	Bicarbonate	Total	190	mg/l		2	4
CFR-34	S-ROUTINE	10-Sep-18	8:45	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	10-Sep-18	8:45	Cadmium	Total Recv	0.0002	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	10-Sep-18	8:45	Calcium	Total Recv	62	mg/l		0.09	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Chloride	Total	9	mg/l		0.009	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Copper	Dissolved	0.009	mg/l		0.0001	0.001
CFR-34	S-ROUTINE	10-Sep-18	8:45	Copper	Total Recv	0.018	mg/l		0.0002	0.001
CFR-34	S-ROUTINE	10-Sep-18	8:45	Hardness, Ca, Mg	NA	214	mg/l		1	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-34	S-ROUTINE	10-Sep-18	8:45	Lead	Total Recv	0.0012	mg/l		0.00004	0.0003
CFR-34	S-ROUTINE	10-Sep-18	8:45	Magnesium	Total Recv	14	mg/l		0.2	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	0.1	mg/l		0.009	0.02
CFR-34	S-ROUTINE	10-Sep-18	8:45	Potassium	Total Recv	3	mg/l		0.06	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Sodium	Total Recv	16	mg/l		0.03	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Sulfate	Total	69	mg/l		0.01	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.36	mg/l		0.03	0.05
CFR-34	S-ROUTINE	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.029	mg/l		0.0004	0.003
CFR-34	S-ROUTINE	10-Sep-18	8:45	Total suspended solids	NA	7	mg/l		0.3	1
CFR-34	S-ROUTINE	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-34	S-ROUTINE	10-Sep-18	8:45	Zinc	Total Recv	0.015	mg/l		0.001	0.008
CFR-84F	S-ROUTINE	10-Sep-18	10:30	Mercury	Total Recv	0.00002	mg/l	J	0.000001	0.000005

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-84F	S-ROUTINE	10-Sep-18	10:30	Methylmercury(1+)	Total Recv	0.244	ng/l		0.023	0.05
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Alkalinity, total	Total	190	mg/l		2	4
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Arsenic	Dissolved	0.009	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Arsenic	Total Recv	0.009	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Bicarbonate	Total	230	mg/l		2	4
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Calcium	Total Recv	52	mg/l		0.09	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Chloride	Total	5	mg/l		0.009	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Copper	Total Recv	0.002	mg/l		0.0002	0.001
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Hardness, Ca, Mg	NA	190	mg/l		1	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Lead	Total Recv	0.0013	mg/l		0.00004	0.0003
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Magnesium	Total Recv	15	mg/l		0.2	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Mercury	Total Recv	0.000045	mg/l	J	0.000001	0.000005
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Potassium	Total Recv	4	mg/l		0.06	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Sodium	Total Recv	11	mg/l		0.03	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Sulfate	Total	20	mg/l		0.01	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.29	mg/l		0.03	0.05
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.049	mg/l		0.0004	0.003
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Total suspended solids	NA	9	mg/l		0.3	1
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
FC-CFR	S-ROUTINE	10-Sep-18	8:45	Methylmercury(1+)	Total Recv	0.817	ng/l		0.023	0.05
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Alkalinity, total	Total	130	mg/l		2	4
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Arsenic	Dissolved	0.005	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Arsenic	Total Recv	0.006	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Bicarbonate	Total	160	mg/l		2	4
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Calcium	Total Recv	38	mg/l		0.09	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Chloride	Total	3	mg/l		0.009	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Hardness, Ca, Mg	NA	129	mg/l		1	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Magnesium	Total Recv	8	mg/l		0.2	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Potassium	Total Recv	2	mg/l		0.06	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Sodium	Total Recv	7	mg/l		0.03	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Sulfate	Total	14	mg/l		0.01	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.15	mg/l		0.03	0.05
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.029	mg/l		0.0004	0.003
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Total suspended solids	NA	4	mg/l		0.3	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
LBR-CFR-02	S-ROUTINE	10-Sep-18	8:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
SS-25	S-ROUTINE	10-Sep-18	8:45	Alkalinity, total	Total	100	mg/l		2	4
SS-25	S-ROUTINE	10-Sep-18	8:45	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SS-25	S-ROUTINE	10-Sep-18	8:45	Arsenic	Dissolved	0.025	mg/l		0.00004	0.001
SS-25	S-ROUTINE	10-Sep-18	8:45	Arsenic	Total Recv	0.026	mg/l		0.00004	0.001
SS-25	S-ROUTINE	10-Sep-18	8:45	Bicarbonate	Total	70	mg/l		2	4
SS-25	S-ROUTINE	10-Sep-18	8:45	Cadmium	Dissolved	0.00003	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	10-Sep-18	8:45	Cadmium	Total Recv	0.00004	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	10-Sep-18	8:45	Calcium	Total Recv	51	mg/l		0.09	1
SS-25	S-ROUTINE	10-Sep-18	8:45	Chloride	Total	14	mg/l		0.009	1
SS-25	S-ROUTINE	10-Sep-18	8:45	Copper	Dissolved	0.004	mg/l		0.0001	0.001
SS-25	S-ROUTINE	10-Sep-18	8:45	Copper	Total Recv	0.004	mg/l		0.0002	0.001
SS-25	S-ROUTINE	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
SS-25	S-ROUTINE	10-Sep-18	8:45	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
SS-25	S-ROUTINE	10-Sep-18	8:45	Magnesium	Total Recv	13	mg/l		0.2	1
SS-25	S-ROUTINE	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SS-25	S-ROUTINE	10-Sep-18	8:45	Potassium	Total Recv	3	mg/l		0.06	1
SS-25	S-ROUTINE	10-Sep-18	8:45	Sodium	Total Recv	18	mg/l		0.03	1
SS-25	S-ROUTINE	10-Sep-18	8:45	Sulfate	Total	94	mg/l		0.01	1
SS-25	S-ROUTINE	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.39	mg/l		0.03	0.05
SS-25	S-ROUTINE	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.06	mg/l		0.0004	0.003
SS-25	S-ROUTINE	10-Sep-18	8:45	Total suspended solids	NA	2	mg/l		0.3	1
SS-25	S-ROUTINE	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
SS-25	S-ROUTINE	10-Sep-18	8:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Arsenic	Dissolved	0.005	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Arsenic	Total Recv	0.006	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Cadmium	Total Recv	0.00004	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Calcium	Total Recv	45	mg/l		0.09	1
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Copper	Dissolved	0.002	mg/l		0.0001	0.001
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Copper	Total Recv	0.007	mg/l		0.0002	0.001
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Lead	Total Recv	0.0006	mg/l		0.00004	0.0003
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Magnesium	Total Recv	9	mg/l		0.2	1
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	0.09	mg/l		0.009	0.02
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Potassium	Total Recv	1	mg/l		0.06	1
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Sodium	Total Recv	4	mg/l		0.03	1
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.009	mg/l		0.0004	0.003
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
WSC-SBC	S-ROUTINE	10-Sep-18	8:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
FC-CFR	QC-FB	10-Sep-18	8:45	Alkalinity, total	Total	<2	mg/l		2	4
FC-CFR	QC-FB	10-Sep-18	8:45	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	10-Sep-18	8:45	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	10-Sep-18	8:45	Bicarbonate	Total	<2	mg/l		2	4
FC-CFR	QC-FB	10-Sep-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	10-Sep-18	8:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	10-Sep-18	8:45	Calcium	Total Recv	<0.09	mg/l		0.09	1
FC-CFR	QC-FB	10-Sep-18	8:45	Chloride	Total	<0.009	mg/l		0.009	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FB	10-Sep-18	8:45	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	QC-FB	10-Sep-18	8:45	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
FC-CFR	QC-FB	10-Sep-18	8:45	Hardness, Ca, Mg	NA	<1	mg/l		1	1
FC-CFR	QC-FB	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	QC-FB	10-Sep-18	8:45	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
FC-CFR	QC-FB	10-Sep-18	8:45	Magnesium	Total Recv	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	10-Sep-18	8:45	Mercury	Total Recv	<0.000001	mg/l		0.000001	0.000005
FC-CFR	QC-FB	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
FC-CFR	QC-FB	10-Sep-18	8:45	Potassium	Total Recv	<0.06	mg/l		0.06	1
FC-CFR	QC-FB	10-Sep-18	8:45	Sodium	Total Recv	<0.03	mg/l		0.03	1
FC-CFR	QC-FB	10-Sep-18	8:45	Sulfate	Total	<0.01	mg/l		0.01	1
FC-CFR	QC-FB	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	<0.03	mg/l		0.03	0.05
FC-CFR	QC-FB	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	<0.0004	mg/l		0.0004	0.003
FC-CFR	QC-FB	10-Sep-18	8:45	Total suspended solids	NA	<0.3	mg/l		0.3	1
FC-CFR	QC-FB	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	QC-FB	10-Sep-18	8:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
FC-CFR	QC-FB	10-Sep-18	8:45	Methylmercury(1+)	Total Recv	<0.023	ng/l		0.023	0.05
MWB-SBC	QC-FB	10-Sep-18	8:45	Alkalinity, total	Total	<2	mg/l		2	4
MWB-SBC	QC-FB	10-Sep-18	8:45	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
MWB-SBC	QC-FB	10-Sep-18	8:45	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
MWB-SBC	QC-FB	10-Sep-18	8:45	Bicarbonate	Total	<2	mg/l		2	4
MWB-SBC	QC-FB	10-Sep-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
MWB-SBC	QC-FB	10-Sep-18	8:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
MWB-SBC	QC-FB	10-Sep-18	8:45	Chloride	Total	<0.009	mg/l		0.009	1
MWB-SBC	QC-FB	10-Sep-18	8:45	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
MWB-SBC	QC-FB	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
MWB-SBC	QC-FB	10-Sep-18	8:45	Sulfate	Total	<0.01	mg/l		0.01	1
MWB-SBC	QC-FB	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	<0.03	mg/l		0.03	0.05
MWB-SBC	QC-FB	10-Sep-18	8:45	Total suspended solids	NA	<0.3	mg/l		0.3	1
MWB-SBC	QC-FB	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	QC-FD	10-Sep-18	8:45	Alkalinity, total	Total	190	mg/l		2	4
FC-CFR	QC-FD	10-Sep-18	8:45	Arsenic	Dissolved	0.008	mg/l		0.00004	0.001
FC-CFR	QC-FD	10-Sep-18	8:45	Arsenic	Total Recv	0.009	mg/l		0.00004	0.001
FC-CFR	QC-FD	10-Sep-18	8:45	Bicarbonate	Total	230	mg/l		2	4
FC-CFR	QC-FD	10-Sep-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FD	10-Sep-18	8:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FD	10-Sep-18	8:45	Calcium	Total Recv	53	mg/l		0.09	1
FC-CFR	QC-FD	10-Sep-18	8:45	Chloride	Total	5	mg/l		0.009	1
FC-CFR	QC-FD	10-Sep-18	8:45	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	QC-FD	10-Sep-18	8:45	Copper	Total Recv	0.002	mg/l		0.0002	0.001
FC-CFR	QC-FD	10-Sep-18	8:45	Hardness, Ca, Mg	NA	195	mg/l		1	1
FC-CFR	QC-FD	10-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	QC-FD	10-Sep-18	8:45	Lead	Total Recv	0.0013	mg/l		0.00004	0.0003
FC-CFR	QC-FD	10-Sep-18	8:45	Magnesium	Total Recv	15	mg/l		0.2	1
FC-CFR	QC-FD	10-Sep-18	8:45	Mercury	Total Recv	0.000077	mg/l		0.000001	0.000005
FC-CFR	QC-FD	10-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
FC-CFR	QC-FD	10-Sep-18	8:45	Potassium	Total Recv	4	mg/l		0.06	1
FC-CFR	QC-FD	10-Sep-18	8:45	Sodium	Total Recv	11	mg/l		0.03	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FD	10-Sep-18	8:45	Sulfate	Total	20	mg/l		0.01	1
FC-CFR	QC-FD	10-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.28	mg/l		0.03	0.05
FC-CFR	QC-FD	10-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.051	mg/l		0.0004	0.003
FC-CFR	QC-FD	10-Sep-18	8:45	Total suspended solids	NA	9	mg/l		0.3	1
FC-CFR	QC-FD	10-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	QC-FD	10-Sep-18	8:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
FC-CFR	QC-FD	10-Sep-18	8:45	Methylmercury(1+)	Total Recv	0.82	ng/l		0.023	0.05
CFR-03A	F-MSR/OBS	11-Sep-18	10:15	pH	NA	8.99	None			
CFR-03A	F-MSR/OBS	11-Sep-18	10:15	Temperature, water	NA	12.2	deg C			
CFR-03A	F-MSR/OBS	11-Sep-18	10:15	Dissolved oxygen (DO)	NA	9.2	mg/l			
CFR-03A	F-MSR/OBS	11-Sep-18	10:15	Dissolved oxygen saturation	NA	103	%			
CFR-03A	F-MSR/OBS	11-Sep-18	10:15	Specific conductance	NA	317.1	uS/cm			
CFR-03A	F-MSR/OBS	11-Sep-18	10:15	Turbidity	NA	1.2	NTU			
CFR-03A	F-MSR/OBS	11-Sep-18	10:15	Flow	NA	117	ft3/sec			
CFR-07D	F-MSR/OBS	11-Sep-18	8:45	pH	NA	8.56	None			
CFR-07D	F-MSR/OBS	11-Sep-18	8:45	Temperature, water	NA	10.9	deg C			
CFR-07D	F-MSR/OBS	11-Sep-18	8:45	Dissolved oxygen (DO)	NA	8.7	mg/l			
CFR-07D	F-MSR/OBS	11-Sep-18	8:45	Dissolved oxygen saturation	NA	94	%			
CFR-07D	F-MSR/OBS	11-Sep-18	8:45	Specific conductance	NA	360.4	uS/cm			
CFR-07D	F-MSR/OBS	11-Sep-18	8:45	Turbidity	NA	2	NTU			
CFR-07D	F-MSR/OBS	11-Sep-18	8:45	Flow	NA	141.76	ft3/sec			
MCWC-MWB	F-MSR/OBS	11-Sep-18	15:00	Temperature, water	NA	15.9	deg C			
MCWC-MWB	F-MSR/OBS	11-Sep-18	15:00	Dissolved oxygen (DO)	NA	9	mg/l			
MCWC-MWB	F-MSR/OBS	11-Sep-18	15:00	Dissolved oxygen saturation	NA	109	%			
MCWC-MWB	F-MSR/OBS	11-Sep-18	15:00	Specific conductance	NA	219.2	uS/cm			
MCWC-MWB	F-MSR/OBS	11-Sep-18	15:00	Turbidity	NA	2.1	NTU			
MCWC-MWB	F-MSR/OBS	11-Sep-18	15:00	Flow	NA	11.83	ft3/sec			
MWB-SBC	F-MSR/OBS	11-Sep-18	13:45	pH	NA	8.76	None			
MWB-SBC	F-MSR/OBS	11-Sep-18	13:45	Temperature, water	NA	14.4	deg C			
MWB-SBC	F-MSR/OBS	11-Sep-18	13:45	Dissolved oxygen (DO)	NA	10.8	mg/l			
MWB-SBC	F-MSR/OBS	11-Sep-18	13:45	Dissolved oxygen saturation	NA	126	%			
MWB-SBC	F-MSR/OBS	11-Sep-18	13:45	Specific conductance	NA	442.8	uS/cm			
MWB-SBC	F-MSR/OBS	11-Sep-18	13:45	Turbidity	NA	1.4	NTU			
MWB-SBC	F-MSR/OBS	11-Sep-18	13:45	Flow	NA	17.77	ft3/sec			
SBC-P2	F-MSR/OBS	11-Sep-18	14:00	pH	NA	10.53	None			
SBC-P2	F-MSR/OBS	11-Sep-18	14:00	Temperature, water	NA	16.8	deg C			
SBC-P2	F-MSR/OBS	11-Sep-18	14:00	Dissolved oxygen (DO)	NA	8.2	mg/l			
SBC-P2	F-MSR/OBS	11-Sep-18	14:00	Dissolved oxygen saturation	NA	101	%			
SBC-P2	F-MSR/OBS	11-Sep-18	14:00	Specific conductance	NA	324.6	uS/cm			
SBC-P2	F-MSR/OBS	11-Sep-18	14:00	Turbidity	NA	1	NTU			
SS-25	F-MSR/OBS	11-Sep-18	12:15	pH	NA	9.74	None			
SS-25	F-MSR/OBS	11-Sep-18	12:15	Temperature, water	NA	14.7	deg C			
SS-25	F-MSR/OBS	11-Sep-18	12:15	Dissolved oxygen (DO)	NA	10.4	mg/l			
SS-25	F-MSR/OBS	11-Sep-18	12:15	Dissolved oxygen saturation	NA	123	%			
SS-25	F-MSR/OBS	11-Sep-18	12:15	Specific conductance	NA	374.2	uS/cm			
SS-25	F-MSR/OBS	11-Sep-18	12:15	Turbidity	NA	1.1	NTU			
SS-25	F-MSR/OBS	11-Sep-18	12:15	Flow	NA	70.6	ft3/sec			
WSC-SBC	F-MSR/OBS	11-Sep-18	11:15	pH	NA	8.24	None			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
WSC-SBC	F-MSR/OBS	11-Sep-18	11:15	Temperature, water	NA	10	deg C			
WSC-SBC	F-MSR/OBS	11-Sep-18	11:15	Dissolved oxygen (DO)	NA	9.7	mg/l			
WSC-SBC	F-MSR/OBS	11-Sep-18	11:15	Dissolved oxygen saturation	NA	102	%			
WSC-SBC	F-MSR/OBS	11-Sep-18	11:15	Specific conductance	NA	266.7	uS/cm			
WSC-SBC	F-MSR/OBS	11-Sep-18	11:15	Turbidity	NA	1.2	NTU			
WSC-SBC	F-MSR/OBS	11-Sep-18	11:15	Flow	NA	66.7	ft3/sec			
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Alkalinity, total	Total	120	mg/l		2	4
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Arsenic	Dissolved	0.014	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Arsenic	Total Recv	0.014	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Bicarbonate	Total	130	mg/l		2	4
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Cadmium	Total Recv	0.00004	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Calcium	Total Recv	46	mg/l		0.09	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Chloride	Total	7	mg/l		0.009	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Copper	Dissolved	0.004	mg/l		0.0001	0.001
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Copper	Total Recv	0.006	mg/l		0.0002	0.001
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Hardness, Ca, Mg	NA	158	mg/l		1	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Lead	Total Recv	0.0003	mg/l		0.00004	0.0003
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Magnesium	Total Recv	10	mg/l		0.2	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Potassium	Total Recv	2	mg/l		0.06	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Sodium	Total Recv	10	mg/l		0.03	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Sulfate	Total	58	mg/l		0.01	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Total Nitrogen, mixed forms	Unfiltered	0.23	mg/l		0.03	0.05
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Total Phosphorus, mixed forms	Unfiltered	0.028	mg/l		0.0004	0.003
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Total suspended solids	NA	2	mg/l		0.3	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-03A	S-ROUTINE	11-Sep-18	10:15	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Alkalinity, total	Total	130	mg/l		2	4
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Arsenic	Dissolved	0.014	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Arsenic	Total Recv	0.014	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Bicarbonate	Total	160	mg/l		2	4
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Cadmium	Total Recv	0.00006	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Calcium	Total Recv	54	mg/l		0.09	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Chloride	Total	7	mg/l		0.009	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Copper	Dissolved	0.005	mg/l		0.0001	0.001
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Copper	Total Recv	0.01	mg/l		0.0002	0.001
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Hardness, Ca, Mg	NA	186	mg/l		1	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Lead	Total Recv	0.0008	mg/l		0.00004	0.0003
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Magnesium	Total Recv	12	mg/l		0.2	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	0.06	mg/l		0.009	0.02
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Potassium	Total Recv	2	mg/l		0.06	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Sodium	Total Recv	11	mg/l		0.03	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Sulfate	Total	72	mg/l		0.01	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.28	mg/l		0.03	0.05

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.023	mg/l		0.0004	0.003
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Total suspended solids	NA	4	mg/l		0.3	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-07D	S-ROUTINE	11-Sep-18	8:45	Zinc	Total Recv	0.012	mg/l		0.001	0.008
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Alkalinity, total	Total	100	mg/l		2	4
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Arsenic	Dissolved	0.019	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Arsenic	Total Recv	0.019	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Bicarbonate	Total	120	mg/l		2	4
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Cadmium	Total Recv	0.00004	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Calcium	Total Recv	31	mg/l		0.09	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Chloride	Total	3	mg/l		0.009	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Copper	Dissolved	0.002	mg/l		0.0001	0.001
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Copper	Total Recv	0.004	mg/l		0.0002	0.001
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Hardness, Ca, Mg	NA	107	mg/l		1	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Lead	Total Recv	0.0009	mg/l		0.00004	0.0003
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Magnesium	Total Recv	7	mg/l		0.2	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Nitrate + Nitrite	Unfiltered	0.04	mg/l		0.009	0.02
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Potassium	Total Recv	1	mg/l		0.06	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Sodium	Total Recv	9	mg/l		0.03	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Sulfate	Total	25	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Total Nitrogen, mixed forms	Unfiltered	0.2	mg/l		0.03	0.05
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Total Phosphorus, mixed forms	Unfiltered	0.022	mg/l		0.0004	0.003
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Total suspended solids	NA	3	mg/l		0.3	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Alkalinity, total	Total	120	mg/l		2	4
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Arsenic	Dissolved	0.019	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Arsenic	Total Recv	0.019	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Bicarbonate	Total	130	mg/l		2	4
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Calcium	Total Recv	68	mg/l		0.09	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Chloride	Total	7	mg/l		0.009	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Copper	Dissolved	0.002	mg/l		0.0001	0.001
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Copper	Total Recv	0.002	mg/l		0.0002	0.001
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Hardness, Ca, Mg	NA	233	mg/l		1	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Magnesium	Total Recv	15	mg/l		0.2	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Nitrate + Nitrite	Unfiltered	0.04	mg/l		0.009	0.02
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Potassium	Total Recv	3	mg/l		0.06	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Sodium	Total Recv	13	mg/l		0.03	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Sulfate	Total	135	mg/l		0.01	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Total Nitrogen, mixed forms	Unfiltered	0.21	mg/l		0.03	0.05
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Total Phosphorus, mixed forms	Unfiltered	0.014	mg/l		0.0004	0.003
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Total suspended solids	NA	2	mg/l		0.3	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Alkalinity, total	Total	91	mg/l		2	4
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Arsenic	Dissolved	0.03	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Arsenic	Total Recv	0.03	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Bicarbonate	Total	31	mg/l		2	4
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Cadmium	Total Recv	0.00005	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Calcium	Total Recv	38	mg/l		0.09	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Chloride	Total	19	mg/l		0.009	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Copper	Dissolved	0.005	mg/l		0.0001	0.001
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Copper	Total Recv	0.006	mg/l		0.0002	0.001
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Hardness, Ca, Mg	NA	140	mg/l		1	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Magnesium	Total Recv	11	mg/l		0.2	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Potassium	Total Recv	3	mg/l		0.06	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Sodium	Total Recv	22	mg/l		0.03	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Sulfate	Total	66	mg/l		0.01	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Total Nitrogen, mixed forms	Unfiltered	0.59	mg/l		0.03	0.05
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Total Phosphorus, mixed forms	Unfiltered	0.097	mg/l		0.0004	0.003
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Total suspended solids	NA	1	mg/l		0.3	1
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
SBC-P2	S-ROUTINE	11-Sep-18	14:00	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
SS-25	S-ROUTINE	11-Sep-18	12:15	Hardness, Ca, Mg	NA	181	mg/l		1	1
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	Alkalinity, total	Total	130	mg/l		2	4
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	Bicarbonate	Total	160	mg/l		2	4
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	Chloride	Total	2	mg/l		0.009	1
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	Hardness, Ca, Mg	NA	151	mg/l		1	1
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	Sulfate	Total	26	mg/l		0.01	1
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	Total Nitrogen, mixed forms	Unfiltered	0.15	mg/l		0.03	0.05
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	Total suspended solids	NA	3	mg/l		0.3	1
MWB-SBC	QC-FB	11-Sep-18	13:15	Calcium	Total Recv	<0.09	mg/l		0.09	1
MWB-SBC	QC-FB	11-Sep-18	13:15	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
MWB-SBC	QC-FB	11-Sep-18	13:15	Hardness, Ca, Mg	NA	<1	mg/l		1	1
MWB-SBC	QC-FB	11-Sep-18	13:15	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
MWB-SBC	QC-FB	11-Sep-18	13:15	Magnesium	Total Recv	<0.009	mg/l		0.009	1
MWB-SBC	QC-FB	11-Sep-18	13:15	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
MWB-SBC	QC-FB	11-Sep-18	13:15	Potassium	Total Recv	<0.06	mg/l		0.06	1
MWB-SBC	QC-FB	11-Sep-18	13:15	Sodium	Total Recv	<0.03	mg/l		0.03	1
MWB-SBC	QC-FB	11-Sep-18	13:15	Total Phosphorus, mixed forms	Unfiltered	<0.0004	mg/l		0.0004	0.003
MWB-SBC	QC-FB	11-Sep-18	13:15	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
CFR-07D	QC-FD	11-Sep-18	8:45	Alkalinity, total	Total	130	mg/l		2	4
CFR-07D	QC-FD	11-Sep-18	8:45	Arsenic	Dissolved	0.014	mg/l		0.00004	0.001
CFR-07D	QC-FD	11-Sep-18	8:45	Arsenic	Total Recv	0.015	mg/l		0.00004	0.001
CFR-07D	QC-FD	11-Sep-18	8:45	Bicarbonate	Total	160	mg/l		2	4

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-07D	QC-FD	11-Sep-18	8:45	Cadmium	Dissolved	0.00004	mg/l		0.00003	0.00003
CFR-07D	QC-FD	11-Sep-18	8:45	Cadmium	Total Recv	0.00007	mg/l		0.00003	0.00003
CFR-07D	QC-FD	11-Sep-18	8:45	Calcium	Total Recv	53	mg/l		0.09	1
CFR-07D	QC-FD	11-Sep-18	8:45	Chloride	Total	7	mg/l		0.009	1
CFR-07D	QC-FD	11-Sep-18	8:45	Copper	Dissolved	0.005	mg/l		0.0001	0.001
CFR-07D	QC-FD	11-Sep-18	8:45	Copper	Total Recv	0.011	mg/l		0.0002	0.001
CFR-07D	QC-FD	11-Sep-18	8:45	Hardness, Ca, Mg	NA	181	mg/l		1	1
CFR-07D	QC-FD	11-Sep-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-07D	QC-FD	11-Sep-18	8:45	Lead	Total Recv	0.0009	mg/l		0.00004	0.0003
CFR-07D	QC-FD	11-Sep-18	8:45	Magnesium	Total Recv	12	mg/l		0.2	1
CFR-07D	QC-FD	11-Sep-18	8:45	Nitrate + Nitrite	Unfiltered	0.06	mg/l		0.009	0.02
CFR-07D	QC-FD	11-Sep-18	8:45	Potassium	Total Recv	2	mg/l		0.06	1
CFR-07D	QC-FD	11-Sep-18	8:45	Sodium	Total Recv	11	mg/l		0.03	1
CFR-07D	QC-FD	11-Sep-18	8:45	Sulfate	Total	72	mg/l		0.01	1
CFR-07D	QC-FD	11-Sep-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.26	mg/l		0.03	0.05
CFR-07D	QC-FD	11-Sep-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.023	mg/l		0.0004	0.003
CFR-07D	QC-FD	11-Sep-18	8:45	Total suspended solids	NA	5	mg/l		0.3	1
CFR-07D	QC-FD	11-Sep-18	8:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-07D	QC-FD	11-Sep-18	8:45	Zinc	Total Recv	0.009	mg/l		0.001	0.008

Table C-4. Fourth quarter surface water results for the Clark Fork River Operable Unit, 2018.

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Alkalinity, total	Total	130	mg/l		2	4
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Arsenic	Dissolved	0.004	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Arsenic	Total Recv	0.004	mg/l		0.00004	0.001
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Bicarbonate	Total	150	mg/l		2	4
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Calcium	Total Recv	39	mg/l		0.09	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Chloride	Total	3	mg/l		0.009	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Hardness, Ca, Mg	NA	133	mg/l		1	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Magnesium	Total Recv	9	mg/l		0.2	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Potassium	Total Recv	2	mg/l		0.06	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Sodium	Total Recv	7	mg/l		0.03	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Sulfate	Total	18	mg/l		0.01	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Total Nitrogen, mixed forms	Unfiltered	0.08	mg/l		0.03	0.05
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Total Phosphorus, mixed forms	Unfiltered	0.02	mg/l		0.002	0.003
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Total suspended solids	NA	2	mg/l		0.3	1
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Zinc	Dissolved	0.012	mg/l		0.0003	0.008
LBR-CFR-02	S-ROUTINE	26-Nov-18	15:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Alkalinity, total	Total	140	mg/l		2	4
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Arsenic	Dissolved	0.005	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Arsenic	Total Recv	0.006	mg/l		0.00004	0.001
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Bicarbonate	Total	170	mg/l		2	4
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Cadmium	Total Recv	0.00006	mg/l		0.00003	0.00003
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Calcium	Total Recv	47	mg/l		0.09	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Chloride	Total	5	mg/l		0.009	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Copper	Dissolved	0.003	mg/l		0.0001	0.001
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Copper	Total Recv	0.008	mg/l		0.0002	0.001
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Hardness, Ca, Mg	NA	164	mg/l		1	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Lead	Total Recv	0.0009	mg/l		0.00004	0.0003
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Magnesium	Total Recv	12	mg/l		0.2	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Nitrate + Nitrite	Unfiltered	0.06	mg/l		0.009	0.02
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Potassium	Total Recv	3	mg/l		0.06	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Sodium	Total Recv	11	mg/l		0.03	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Sulfate	Total	52	mg/l		0.01	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Total Nitrogen, mixed forms	Unfiltered	0.19	mg/l		0.03	0.05
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Total Phosphorus, mixed forms	Unfiltered	0.024	mg/l		0.002	0.003
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Total suspended solids	NA	6	mg/l		0.3	1
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Zinc	Dissolved	0.009	mg/l		0.0003	0.008
CFR-116A	S-ROUTINE	26-Nov-18	8:45	Zinc	Total Recv	0.013	mg/l		0.001	0.008

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	QC-FB	26-Nov-18	13:00	Alkalinity, total	Total	<2	mg/l		2	4
FC-CFR	QC-FB	26-Nov-18	13:00	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	26-Nov-18	13:00	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
FC-CFR	QC-FB	26-Nov-18	13:00	Bicarbonate	Total	<2	mg/l		2	4
FC-CFR	QC-FB	26-Nov-18	13:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	26-Nov-18	13:00	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FB	26-Nov-18	13:00	Calcium	Total Recv	<0.09	mg/l		0.09	1
FC-CFR	QC-FB	26-Nov-18	13:00	Chloride	Total	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	26-Nov-18	13:00	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	QC-FB	26-Nov-18	13:00	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
FC-CFR	QC-FB	26-Nov-18	13:00	Hardness, Ca, Mg	NA	1	mg/l		1	1
FC-CFR	QC-FB	26-Nov-18	13:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	QC-FB	26-Nov-18	13:00	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
FC-CFR	QC-FB	26-Nov-18	13:00	Magnesium	Total Recv	<0.009	mg/l		0.009	1
FC-CFR	QC-FB	26-Nov-18	13:00	Mercury	Total Recv	<0.001	ug/l		0.001	0.005
FC-CFR	QC-FB	26-Nov-18	13:00	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
FC-CFR	QC-FB	26-Nov-18	13:00	Potassium	Total Recv	<0.06	mg/l		0.06	1
FC-CFR	QC-FB	26-Nov-18	13:00	Sodium	Total Recv	<0.03	mg/l		0.03	1
FC-CFR	QC-FB	26-Nov-18	13:00	Sulfate	Total	<0.01	mg/l		0.01	1
FC-CFR	QC-FB	26-Nov-18	13:00	Total Nitrogen, mixed forms	Unfiltered	<0.03	mg/l		0.03	0.05
FC-CFR	QC-FB	26-Nov-18	13:00	Total Phosphorus, mixed forms	Unfiltered	<0.002	mg/l		0.002	0.003
FC-CFR	QC-FB	26-Nov-18	13:00	Total suspended solids	NA	<0.3	mg/l		0.3	1
FC-CFR	QC-FB	26-Nov-18	13:00	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	QC-FB	26-Nov-18	13:00	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
FC-CFR	QC-FB	26-Nov-18	13:00	Methylmercury(1+)	Total Recv	<0.023	ng/l		0.023	0.05
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Alkalinity, total	Total	160	mg/l		2	4
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Arsenic	Dissolved	0.006	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Arsenic	Total Recv	0.007	mg/l		0.00004	0.001
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Bicarbonate	Total	190	mg/l		2	4
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Cadmium	Total Recv	0.00003	mg/l		0.00003	0.00003
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Calcium	Total Recv	41	mg/l		0.09	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Chloride	Total	4	mg/l		0.009	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Copper	Total Recv	0.002	mg/l		0.0002	0.001
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Hardness, Ca, Mg	NA	154	mg/l		1	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Lead	Total Recv	0.0018	mg/l	J	0.00004	0.0003
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Magnesium	Total Recv	12	mg/l		0.2	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Mercury	Total Recv	0.000061	mg/l	J	0.000001	0.000005
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Nitrate + Nitrite	Unfiltered	0.17	mg/l		0.009	0.02
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Potassium	Total Recv	3	mg/l		0.06	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Sodium	Total Recv	9	mg/l		0.03	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Sulfate	Total	19	mg/l		0.01	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Total Nitrogen, mixed forms	Unfiltered	0.39	mg/l		0.03	0.05
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Total Phosphorus, mixed forms	Unfiltered	0.048	mg/l		0.002	0.003
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Total suspended solids	NA	14	mg/l		0.3	1
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Zinc	Total Recv	0.009	mg/l		0.001	0.008
FC-CFR	S-ROUTINE	26-Nov-18	13:30	Methylmercury(1+)	Total Recv	1.05	ng/l		0.023	0.049
FC-CFR	QC-FD	26-Nov-18	13:30	Alkalinity, total	Total	160	mg/l		2	4
FC-CFR	QC-FD	26-Nov-18	13:30	Arsenic	Dissolved	0.006	mg/l		0.00004	0.001
FC-CFR	QC-FD	26-Nov-18	13:30	Arsenic	Total Recv	0.007	mg/l		0.00004	0.001
FC-CFR	QC-FD	26-Nov-18	13:30	Bicarbonate	Total	190	mg/l		2	4
FC-CFR	QC-FD	26-Nov-18	13:30	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
FC-CFR	QC-FD	26-Nov-18	13:30	Cadmium	Total Recv	0.00004	mg/l		0.00003	0.00003
FC-CFR	QC-FD	26-Nov-18	13:30	Calcium	Total Recv	42	mg/l		0.09	1
FC-CFR	QC-FD	26-Nov-18	13:30	Chloride	Total	4	mg/l		0.009	1
FC-CFR	QC-FD	26-Nov-18	13:30	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
FC-CFR	QC-FD	26-Nov-18	13:30	Copper	Total Recv	0.002	mg/l		0.0002	0.001
FC-CFR	QC-FD	26-Nov-18	13:30	Hardness, Ca, Mg	NA	158	mg/l		1	1
FC-CFR	QC-FD	26-Nov-18	13:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
FC-CFR	QC-FD	26-Nov-18	13:30	Lead	Total Recv	0.0024	mg/l	J	0.00004	0.0003
FC-CFR	QC-FD	26-Nov-18	13:30	Magnesium	Total Recv	13	mg/l		0.2	1
FC-CFR	QC-FD	26-Nov-18	13:30	Mercury	Total Recv	0.000089	mg/l	J	0.000001	0.000005
FC-CFR	QC-FD	26-Nov-18	13:30	Nitrate + Nitrite	Unfiltered	0.17	mg/l		0.009	0.02
FC-CFR	QC-FD	26-Nov-18	13:30	Potassium	Total Recv	3	mg/l		0.06	1
FC-CFR	QC-FD	26-Nov-18	13:30	Sodium	Total Recv	10	mg/l		0.03	1
FC-CFR	QC-FD	26-Nov-18	13:30	Sulfate	Total	20	mg/l		0.01	1
FC-CFR	QC-FD	26-Nov-18	13:30	Total Nitrogen, mixed forms	Unfiltered	0.38	mg/l		0.03	0.05
FC-CFR	QC-FD	26-Nov-18	13:30	Total Phosphorus, mixed forms	Unfiltered	0.057	mg/l		0.002	0.003
FC-CFR	QC-FD	26-Nov-18	13:30	Total suspended solids	NA	12	mg/l		0.3	1
FC-CFR	QC-FD	26-Nov-18	13:30	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
FC-CFR	QC-FD	26-Nov-18	13:30	Zinc	Total Recv	0.011	mg/l		0.001	0.008
FC-CFR	QC-FD	26-Nov-18	13:30	Methylmercury(1+)	Total Recv	0.787	ng/l		0.023	0.05
CFR-03A	QC-FB	27-Nov-18	11:00	Alkalinity, total	Total	<2	mg/l		2	4
CFR-03A	QC-FB	27-Nov-18	11:00	Arsenic	Dissolved	<0.00004	mg/l		0.00004	0.001
CFR-03A	QC-FB	27-Nov-18	11:00	Arsenic	Total Recv	<0.00004	mg/l		0.00004	0.001
CFR-03A	QC-FB	27-Nov-18	11:00	Bicarbonate	Total	<2	mg/l		2	4
CFR-03A	QC-FB	27-Nov-18	11:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
CFR-03A	QC-FB	27-Nov-18	11:00	Cadmium	Total Recv	<0.00003	mg/l		0.00003	0.00003
CFR-03A	QC-FB	27-Nov-18	11:00	Calcium	Total Recv	<0.09	mg/l		0.09	1
CFR-03A	QC-FB	27-Nov-18	11:00	Chloride	Total	<0.009	mg/l		0.009	1
CFR-03A	QC-FB	27-Nov-18	11:00	Copper	Dissolved	<0.0001	mg/l		0.0001	0.001
CFR-03A	QC-FB	27-Nov-18	11:00	Copper	Total Recv	<0.0002	mg/l		0.0002	0.001
CFR-03A	QC-FB	27-Nov-18	11:00	Hardness, Ca, Mg	NA	1	mg/l		1	1
CFR-03A	QC-FB	27-Nov-18	11:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-03A	QC-FB	27-Nov-18	11:00	Lead	Total Recv	<0.00004	mg/l		0.00004	0.0003
CFR-03A	QC-FB	27-Nov-18	11:00	Magnesium	Total Recv	<0.009	mg/l		0.009	1
CFR-03A	QC-FB	27-Nov-18	11:00	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
CFR-03A	QC-FB	27-Nov-18	11:00	Potassium	Total Recv	<0.06	mg/l		0.06	1
CFR-03A	QC-FB	27-Nov-18	11:00	Sodium	Total Recv	<0.03	mg/l		0.03	1
CFR-03A	QC-FB	27-Nov-18	11:00	Sulfate	Total	<0.01	mg/l		0.01	1
CFR-03A	QC-FB	27-Nov-18	11:00	Total Nitrogen, mixed forms	Unfiltered	<0.03	mg/l		0.03	0.05
CFR-03A	QC-FB	27-Nov-18	11:00	Total Phosphorus, mixed forms	Unfiltered	<0.002	mg/l		0.002	0.003
CFR-03A	QC-FB	27-Nov-18	11:00	Total suspended solids	NA	<0.3	mg/l		0.3	1

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-03A	QC-FB	27-Nov-18	11:00	Zinc	Dissolved	0.017	mg/l		0.0003	0.008
CFR-03A	QC-FB	27-Nov-18	11:00	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Alkalinity, total	Total	130	mg/l		2	4
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Arsenic	Dissolved	0.008	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Arsenic	Total Recv	0.008	mg/l		0.00004	0.001
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Bicarbonate	Total	150	mg/l		2	4
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Cadmium	Total Recv	0.00009	mg/l		0.00003	0.00003
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Calcium	Total Recv	57	mg/l		0.09	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Chloride	Total	13	mg/l		0.009	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Copper	Dissolved	0.004	mg/l		0.0001	0.001
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Copper	Total Recv	0.007	mg/l		0.0002	0.001
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Hardness, Ca, Mg	NA	193	mg/l		1	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Lead	Total Recv	0.0006	mg/l		0.00004	0.0003
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Magnesium	Total Recv	13	mg/l		0.2	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Nitrate + Nitrite	Unfiltered	0.05	mg/l		0.009	0.02
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Potassium	Total Recv	3	mg/l		0.06	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Sodium	Total Recv	14	mg/l		0.03	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Sulfate	Total	68	mg/l		0.01	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Total Nitrogen, mixed forms	Unfiltered	0.22	mg/l		0.03	0.05
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Total Phosphorus, mixed forms	Unfiltered	0.022	mg/l		0.002	0.003
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Total suspended solids	NA	4	mg/l		0.3	1
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
CFR-03A	S-ROUTINE	27-Nov-18	11:15	Zinc	Total Recv	0.009	mg/l		0.001	0.008
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Alkalinity, total	Total	130	mg/l		2	4
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Arsenic	Dissolved	0.004	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Arsenic	Total Recv	0.004	mg/l		0.00004	0.001
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Bicarbonate	Total	160	mg/l		2	4
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Cadmium	Total Recv	0.00005	mg/l		0.00003	0.00003
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Calcium	Total Recv	48	mg/l		0.09	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Chloride	Total	2	mg/l		0.009	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Copper	Dissolved	0.002	mg/l		0.0001	0.001
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Copper	Total Recv	0.005	mg/l		0.0002	0.001
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Hardness, Ca, Mg	NA	162	mg/l		1	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Lead	Total Recv	0.0004	mg/l		0.00004	0.0003
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Magnesium	Total Recv	10	mg/l		0.2	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Nitrate + Nitrite	Unfiltered	0.1	mg/l		0.009	0.02
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Potassium	Total Recv	1	mg/l		0.06	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Sodium	Total Recv	4	mg/l		0.03	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Sulfate	Total	31	mg/l		0.01	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Total Nitrogen, mixed forms	Unfiltered	0.15	mg/l		0.03	0.05
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Total Phosphorus, mixed forms	Unfiltered	0.01	mg/l		0.002	0.003
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Total suspended solids	NA	3	mg/l		0.3	1
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
WSC-SBC	S-ROUTINE	27-Nov-18	12:00	Zinc	Total Recv	<0.001	mg/l		0.001	0.008

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-34	S-ROUTINE	26-Nov-18	17:15	Alkalinity, total	Total	160	mg/l		2	4
CFR-34	S-ROUTINE	26-Nov-18	17:15	Arsenic	Dissolved	0.008	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	26-Nov-18	17:15	Arsenic	Total Recv	0.01	mg/l		0.00004	0.001
CFR-34	S-ROUTINE	26-Nov-18	17:15	Bicarbonate	Total	190	mg/l		2	4
CFR-34	S-ROUTINE	26-Nov-18	17:15	Cadmium	Dissolved	0.00006	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	26-Nov-18	17:15	Cadmium	Total Recv	0.00011	mg/l		0.00003	0.00003
CFR-34	S-ROUTINE	26-Nov-18	17:15	Calcium	Total Recv	64	mg/l		0.09	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Chloride	Total	10	mg/l		0.009	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Copper	Dissolved	0.005	mg/l		0.0001	0.001
CFR-34	S-ROUTINE	26-Nov-18	17:15	Copper	Total Recv	0.019	mg/l		0.0002	0.001
CFR-34	S-ROUTINE	26-Nov-18	17:15	Hardness, Ca, Mg	NA	220	mg/l		1	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-34	S-ROUTINE	26-Nov-18	17:15	Lead	Total Recv	0.0021	mg/l	J	0.00004	0.0003
CFR-34	S-ROUTINE	26-Nov-18	17:15	Magnesium	Total Recv	14	mg/l		0.2	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Nitrate + Nitrite	Unfiltered	0.23	mg/l		0.009	0.02
CFR-34	S-ROUTINE	26-Nov-18	17:15	Potassium	Total Recv	3	mg/l		0.06	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Sodium	Total Recv	16	mg/l		0.03	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Sulfate	Total	74	mg/l		0.01	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Total Nitrogen, mixed forms	Unfiltered	0.43	mg/l		0.03	0.05
CFR-34	S-ROUTINE	26-Nov-18	17:15	Total Phosphorus, mixed forms	Unfiltered	0.034	mg/l		0.002	0.003
CFR-34	S-ROUTINE	26-Nov-18	17:15	Total suspended solids	NA	12	mg/l		0.3	1
CFR-34	S-ROUTINE	26-Nov-18	17:15	Zinc	Dissolved	0.01	mg/l		0.0003	0.008
CFR-34	S-ROUTINE	26-Nov-18	17:15	Zinc	Total Recv	0.023	mg/l		0.001	0.008
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Alkalinity, total	Total	150	mg/l		2	4
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Arsenic	Dissolved	0.008	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Arsenic	Total Recv	0.009	mg/l		0.00004	0.001
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Bicarbonate	Total	180	mg/l		2	4
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Cadmium	Total Recv	0.00012	mg/l		0.00003	0.00003
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Calcium	Total Recv	62	mg/l		0.09	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Chloride	Total	10	mg/l		0.009	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Copper	Dissolved	0.004	mg/l		0.0001	0.001
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Copper	Total Recv	0.017	mg/l		0.0002	0.001
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Hardness, Ca, Mg	NA	211	mg/l		1	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Lead	Total Recv	0.002	mg/l		0.00004	0.0003
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Magnesium	Total Recv	14	mg/l		0.2	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Nitrate + Nitrite	Unfiltered	0.24	mg/l		0.009	0.02
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Potassium	Total Recv	3	mg/l		0.06	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Sodium	Total Recv	15	mg/l		0.03	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Sulfate	Total	72	mg/l		0.01	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Total Nitrogen, mixed forms	Unfiltered	0.42	mg/l		0.03	0.05
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Total Phosphorus, mixed forms	Unfiltered	0.029	mg/l		0.002	0.003
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Total suspended solids	NA	11	mg/l		0.3	1
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Zinc	Dissolved	0.01	mg/l	B	0.0003	0.008
CFR-27H	S-ROUTINE	27-Nov-18	8:30	Zinc	Total Recv	0.021	mg/l		0.001	0.008
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Alkalinity, total	Total	150	mg/l		2	4
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Arsenic	Dissolved	0.009	mg/l		0.00004	0.001

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Arsenic	Total Recv	0.01	mg/l		0.00004	0.001
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Bicarbonate	Total	180	mg/l		2	4
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Cadmium	Total Recv	0.0001	mg/l		0.00003	0.00003
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Calcium	Total Recv	67	mg/l		0.09	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Chloride	Total	10	mg/l		0.009	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Copper	Dissolved	0.004	mg/l		0.0001	0.001
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Copper	Total Recv	0.012	mg/l		0.0002	0.001
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Hardness, Ca, Mg	NA	229	mg/l		1	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Lead	Total Recv	0.0013	mg/l		0.00004	0.0003
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Magnesium	Total Recv	15	mg/l		0.2	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Nitrate + Nitrite	Unfiltered	0.14	mg/l		0.009	0.02
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Potassium	Total Recv	3	mg/l		0.06	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Sodium	Total Recv	14	mg/l		0.03	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Sulfate	Total	82	mg/l		0.01	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Total Nitrogen, mixed forms	Unfiltered	0.32	mg/l		0.03	0.05
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Total Phosphorus, mixed forms	Unfiltered	0.025	mg/l		0.002	0.003
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Total suspended solids	NA	8	mg/l		0.3	1
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Zinc	Dissolved	0.01	mg/l	B	0.0003	0.008
CFR-11F	S-ROUTINE	27-Nov-18	9:30	Zinc	Total Recv	0.016	mg/l		0.001	0.008
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Alkalinity, total	Total	140	mg/l		2	4
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Arsenic	Dissolved	0.009	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Arsenic	Total Recv	0.009	mg/l		0.00004	0.001
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Bicarbonate	Total	180	mg/l		2	4
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Cadmium	Dissolved	0.00005	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Cadmium	Total Recv	0.00009	mg/l		0.00003	0.00003
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Calcium	Total Recv	66	mg/l		0.09	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Chloride	Total	10	mg/l		0.009	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Copper	Dissolved	0.004	mg/l		0.0001	0.001
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Copper	Total Recv	0.011	mg/l		0.0002	0.001
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Hardness, Ca, Mg	NA	226	mg/l		1	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Lead	Total Recv	0.0011	mg/l		0.00004	0.0003
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Magnesium	Total Recv	15	mg/l		0.2	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Nitrate + Nitrite	Unfiltered	0.14	mg/l		0.009	0.02
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Potassium	Total Recv	3	mg/l		0.06	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Sodium	Total Recv	13	mg/l		0.03	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Sulfate	Total	82	mg/l		0.01	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Total Nitrogen, mixed forms	Unfiltered	0.3	mg/l		0.03	0.05
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Total Phosphorus, mixed forms	Unfiltered	0.019	mg/l		0.002	0.003
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Total suspended solids	NA	6	mg/l		0.3	1
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Zinc	Dissolved	0.009	mg/l	B	0.0003	0.008
CFR-07D	S-ROUTINE	27-Nov-18	10:15	Zinc	Total Recv	0.013	mg/l		0.001	0.008
SS-25	S-ROUTINE	27-Nov-18	12:45	Alkalinity, total	Total	120	mg/l		2	4
SS-25	S-ROUTINE	27-Nov-18	12:45	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SS-25	S-ROUTINE	27-Nov-18	12:45	Arsenic	Dissolved	0.013	mg/l		0.00004	0.001
SS-25	S-ROUTINE	27-Nov-18	12:45	Arsenic	Total Recv	0.013	mg/l		0.00004	0.001

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
SS-25	S-ROUTINE	27-Nov-18	12:45	Bicarbonate	Total	140	mg/l		2	4
SS-25	S-ROUTINE	27-Nov-18	12:45	Cadmium	Dissolved	0.0001	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	27-Nov-18	12:45	Cadmium	Total Recv	0.00013	mg/l		0.00003	0.00003
SS-25	S-ROUTINE	27-Nov-18	12:45	Calcium	Total Recv	65	mg/l		0.09	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Chloride	Total	24	mg/l		0.009	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Copper	Dissolved	0.005	mg/l		0.0001	0.001
SS-25	S-ROUTINE	27-Nov-18	12:45	Copper	Total Recv	0.007	mg/l		0.0002	0.001
SS-25	S-ROUTINE	27-Nov-18	12:45	Hardness, Ca, Mg	NA	227	mg/l		1	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
SS-25	S-ROUTINE	27-Nov-18	12:45	Lead	Total Recv	0.0006	mg/l		0.00004	0.0003
SS-25	S-ROUTINE	27-Nov-18	12:45	Magnesium	Total Recv	15	mg/l		0.2	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Nitrate + Nitrite	Unfiltered	0.03	mg/l		0.009	0.02
SS-25	S-ROUTINE	27-Nov-18	12:45	Potassium	Total Recv	4	mg/l		0.06	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Sodium	Total Recv	23	mg/l		0.03	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Sulfate	Total	109	mg/l		0.01	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Total Nitrogen, mixed forms	Unfiltered	0.3	mg/l		0.03	0.05
SS-25	S-ROUTINE	27-Nov-18	12:45	Total Phosphorus, mixed forms	Unfiltered	0.037	mg/l		0.002	0.003
SS-25	S-ROUTINE	27-Nov-18	12:45	Total suspended solids	NA	2	mg/l		0.3	1
SS-25	S-ROUTINE	27-Nov-18	12:45	Zinc	Dissolved	0.009	mg/l	B	0.0003	0.008
SS-25	S-ROUTINE	27-Nov-18	12:45	Zinc	Total Recv	0.011	mg/l		0.001	0.008
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Alkalinity, total	Total	120	mg/l		2	4
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Arsenic	Dissolved	0.016	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Arsenic	Total Recv	0.016	mg/l		0.00004	0.001
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Bicarbonate	Total	150	mg/l		2	4
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Cadmium	Total Recv	0.00003	mg/l		0.00003	0.00003
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Calcium	Total Recv	76	mg/l		0.09	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Chloride	Total	7	mg/l		0.009	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Copper	Dissolved	0.002	mg/l		0.0001	0.001
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Copper	Total Recv	0.002	mg/l		0.0002	0.001
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Hardness, Ca, Mg	NA	260	mg/l		1	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Lead	Total Recv	0.0005	mg/l		0.00004	0.0003
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Magnesium	Total Recv	17	mg/l		0.2	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Nitrate + Nitrite	Unfiltered	0.1	mg/l		0.009	0.02
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Potassium	Total Recv	3	mg/l		0.06	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Sodium	Total Recv	14	mg/l		0.03	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Sulfate	Total	153	mg/l		0.01	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Total Nitrogen, mixed forms	Unfiltered	0.24	mg/l		0.03	0.05
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Total Phosphorus, mixed forms	Unfiltered	0.017	mg/l		0.002	0.003
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Total suspended solids	NA	2	mg/l		0.3	1
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Zinc	Dissolved	<0.0003	mg/l		0.0003	0.008
MWB-SBC	S-ROUTINE	27-Nov-18	13:45	Zinc	Total Recv	<0.001	mg/l		0.001	0.008
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Alkalinity, total	Total	120	mg/l		2	4
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Arsenic	Dissolved	0.011	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Arsenic	Total Recv	0.011	mg/l		0.00004	0.001
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Bicarbonate	Total	140	mg/l		2	4

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Cadmium	Dissolved	0.00014	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Cadmium	Total Recv	0.00016	mg/l		0.00003	0.00003
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Calcium	Total Recv	56	mg/l		0.09	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Chloride	Total	31	mg/l		0.009	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Copper	Dissolved	0.007	mg/l		0.0001	0.001
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Copper	Total Recv	0.008	mg/l		0.0002	0.001
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Hardness, Ca, Mg	NA	194	mg/l		1	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Lead	Total Recv	0.0006	mg/l		0.00004	0.0003
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Magnesium	Total Recv	13	mg/l		0.2	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Potassium	Total Recv	5	mg/l		0.06	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Sodium	Total Recv	26	mg/l		0.03	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Sulfate	Total	90	mg/l		0.01	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Total Nitrogen, mixed forms	Unfiltered	0.33	mg/l		0.03	0.05
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Total Phosphorus, mixed forms	Unfiltered	0.044	mg/l		0.002	0.003
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Total suspended solids	NA	2	mg/l		0.3	1
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Zinc	Dissolved	0.009	mg/l	B	0.0003	0.008
SBC-P2	S-ROUTINE	27-Nov-18	14:30	Zinc	Total Recv	0.013	mg/l		0.001	0.008
SBC-P2	QC-FD	27-Nov-18	14:30	Alkalinity, total	Total	120	mg/l		2	4
SBC-P2	QC-FD	27-Nov-18	14:30	Ammonia	Unfiltered	<0.02	mg/l		0.02	0.05
SBC-P2	QC-FD	27-Nov-18	14:30	Arsenic	Dissolved	0.011	mg/l		0.00004	0.001
SBC-P2	QC-FD	27-Nov-18	14:30	Arsenic	Total Recv	0.011	mg/l		0.00004	0.001
SBC-P2	QC-FD	27-Nov-18	14:30	Bicarbonate	Total	140	mg/l		2	4
SBC-P2	QC-FD	27-Nov-18	14:30	Cadmium	Dissolved	0.00016	mg/l		0.00003	0.00003
SBC-P2	QC-FD	27-Nov-18	14:30	Cadmium	Total Recv	0.00017	mg/l		0.00003	0.00003
SBC-P2	QC-FD	27-Nov-18	14:30	Calcium	Total Recv	56	mg/l		0.09	1
SBC-P2	QC-FD	27-Nov-18	14:30	Chloride	Total	31	mg/l		0.009	1
SBC-P2	QC-FD	27-Nov-18	14:30	Copper	Dissolved	0.007	mg/l		0.0001	0.001
SBC-P2	QC-FD	27-Nov-18	14:30	Copper	Total Recv	0.008	mg/l		0.0002	0.001
SBC-P2	QC-FD	27-Nov-18	14:30	Hardness, Ca, Mg	NA	196	mg/l		1	1
SBC-P2	QC-FD	27-Nov-18	14:30	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
SBC-P2	QC-FD	27-Nov-18	14:30	Lead	Total Recv	0.0006	mg/l		0.00004	0.0003
SBC-P2	QC-FD	27-Nov-18	14:30	Magnesium	Total Recv	14	mg/l		0.2	1
SBC-P2	QC-FD	27-Nov-18	14:30	Nitrate + Nitrite	Unfiltered	<0.009	mg/l		0.009	0.02
SBC-P2	QC-FD	27-Nov-18	14:30	Potassium	Total Recv	5	mg/l		0.06	1
SBC-P2	QC-FD	27-Nov-18	14:30	Sodium	Total Recv	26	mg/l		0.03	1
SBC-P2	QC-FD	27-Nov-18	14:30	Sulfate	Total	90	mg/l		0.01	1
SBC-P2	QC-FD	27-Nov-18	14:30	Total Nitrogen, mixed forms	Unfiltered	0.32	mg/l		0.03	0.05
SBC-P2	QC-FD	27-Nov-18	14:30	Total Phosphorus, mixed forms	Unfiltered	0.043	mg/l		0.002	0.003
SBC-P2	QC-FD	27-Nov-18	14:30	Total suspended solids	NA	2	mg/l		0.3	1
SBC-P2	QC-FD	27-Nov-18	14:30	Zinc	Dissolved	0.01	mg/l		0.0003	0.008
SBC-P2	QC-FD	27-Nov-18	14:30	Zinc	Total Recv	0.014	mg/l		0.001	0.008
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Alkalinity, total	Total	100	mg/l		2	4
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Arsenic	Dissolved	0.016	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Arsenic	Total Recv	0.017	mg/l		0.00004	0.001
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Bicarbonate	Total	130	mg/l		2	4
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Cadmium	Dissolved	<0.00003	mg/l		0.00003	0.00003

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Cadmium	Total Recv	0.00012	mg/l		0.00003	0.00003
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Calcium	Total Recv	36	mg/l		0.09	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Chloride	Total	3	mg/l		0.009	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Copper	Dissolved	0.002	mg/l		0.0001	0.001
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Copper	Total Recv	0.01	mg/l		0.0002	0.001
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Hardness, Ca, Mg	NA	125	mg/l		1	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Lead	Dissolved	<0.00003	mg/l		0.00003	0.0003
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Lead	Total Recv	0.0031	mg/l		0.00004	0.0003
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Magnesium	Total Recv	9	mg/l		0.2	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Nitrate + Nitrite	Unfiltered	0.09	mg/l		0.009	0.02
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Potassium	Total Recv	1	mg/l		0.06	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Sodium	Total Recv	11	mg/l		0.03	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Sulfate	Total	35	mg/l		0.01	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Total Nitrogen, mixed forms	Unfiltered	0.23	mg/l		0.03	0.05
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Total Phosphorus, mixed forms	Unfiltered	0.034	mg/l		0.002	0.003
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Total suspended solids	NA	10	mg/l		0.3	1
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Zinc	Dissolved	0.008	mg/l	B	0.0003	0.008
MCWC-MWB	S-ROUTINE	27-Nov-18	16:00	Zinc	Total Recv	0.019	mg/l		0.001	0.008
CFR-84F	S-ROUTINE	26-Nov-18	11:30	Mercury	Total Recv	0.000019	mg/l		0.000001	0.000005
CFR-84F	S-ROUTINE	26-Nov-18	11:30	Methylmercury(1+)	Total Recv	0.186	ng/l	J	0.023	0.05
MCWC-MWB	F-MSR/OBS	27-Nov-18	16:00	Dissolved oxygen (DO)	NA	14.4	mg/l			
MCWC-MWB	F-MSR/OBS	27-Nov-18	16:00	Dissolved oxygen saturation	NA	131	%			
MCWC-MWB	F-MSR/OBS	27-Nov-18	16:00	Flow	NA	17.59	ft3/sec			
MCWC-MWB	F-MSR/OBS	27-Nov-18	16:00	pH	NA	7.5	None			
MCWC-MWB	F-MSR/OBS	27-Nov-18	16:00	Specific conductance	NA	642.2	uS/cm			
MCWC-MWB	F-MSR/OBS	27-Nov-18	16:00	Temperature, water	NA	3.4	deg C			
MCWC-MWB	F-MSR/OBS	27-Nov-18	16:00	Turbidity	NA	5.7	NTU			
MWB-SBC	F-MSR/OBS	27-Nov-18	13:45	Dissolved oxygen (DO)	NA	15.7	mg/l			
MWB-SBC	F-MSR/OBS	27-Nov-18	13:45	Dissolved oxygen saturation	NA	143	%			
MWB-SBC	F-MSR/OBS	27-Nov-18	13:45	Flow	NA	21.14	ft3/sec			
MWB-SBC	F-MSR/OBS	27-Nov-18	13:45	pH	NA	7.94	None			
MWB-SBC	F-MSR/OBS	27-Nov-18	13:45	Specific conductance	NA	1288	uS/cm			
MWB-SBC	F-MSR/OBS	27-Nov-18	13:45	Temperature, water	NA	3.7	deg C			
MWB-SBC	F-MSR/OBS	27-Nov-18	13:45	Turbidity	NA	1.7	NTU			
CFR-07D	F-MSR/OBS	27-Nov-18	10:15	Dissolved oxygen (DO)	NA	15.5	mg/l			
CFR-07D	F-MSR/OBS	27-Nov-18	10:15	Dissolved oxygen saturation	NA	134	%			
CFR-07D	F-MSR/OBS	27-Nov-18	10:15	Flow	NA	237.86	ft3/sec			
CFR-07D	F-MSR/OBS	27-Nov-18	10:15	pH	NA	7.95	None			
CFR-07D	F-MSR/OBS	27-Nov-18	10:15	Specific conductance	NA	1074	uS/cm			
CFR-07D	F-MSR/OBS	27-Nov-18	10:15	Temperature, water	NA	1.9	deg C			
CFR-07D	F-MSR/OBS	27-Nov-18	10:15	Turbidity	NA	3	NTU			
CFR-11F	F-MSR/OBS	27-Nov-18	9:30	Dissolved oxygen (DO)	NA	14.7	mg/l			
CFR-11F	F-MSR/OBS	27-Nov-18	9:30	Dissolved oxygen saturation	NA	125	%			
CFR-11F	F-MSR/OBS	27-Nov-18	9:30	Flow	NA	262.08	ft3/sec			
CFR-11F	F-MSR/OBS	27-Nov-18	9:30	pH	NA	7.83	None			
CFR-11F	F-MSR/OBS	27-Nov-18	9:30	Specific conductance	NA	1100	uS/cm			
CFR-11F	F-MSR/OBS	27-Nov-18	9:30	Temperature, water	NA	1.5	deg C			
CFR-11F	F-MSR/OBS	27-Nov-18	9:30	Turbidity	NA	4.4	NTU			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-34	F-MSR/OBS	26-Nov-18	17:15	Dissolved oxygen (DO)	NA	16.2	mg/l			
CFR-34	F-MSR/OBS	26-Nov-18	17:15	Dissolved oxygen saturation	NA	130	%			
CFR-34	F-MSR/OBS	26-Nov-18	17:15	Flow	NA	371.74	ft3/sec			
CFR-34	F-MSR/OBS	26-Nov-18	17:15	pH	NA	7.95	None			
CFR-34	F-MSR/OBS	26-Nov-18	17:15	Specific conductance	NA	1086	uS/cm			
CFR-34	F-MSR/OBS	26-Nov-18	17:15	Temperature, water	NA	0	deg C			
CFR-34	F-MSR/OBS	26-Nov-18	17:15	Turbidity	NA	6	NTU			
LBR-CFR-02	F-MSR/OBS	26-Nov-18	15:45	Dissolved oxygen (DO)	NA	15.4	mg/l			
LBR-CFR-02	F-MSR/OBS	26-Nov-18	15:45	Dissolved oxygen saturation	NA	124	%			
LBR-CFR-02	F-MSR/OBS	26-Nov-18	15:45	Flow	NA	107.66	ft3/sec			
LBR-CFR-02	F-MSR/OBS	26-Nov-18	15:45	pH	NA	7.94	None			
LBR-CFR-02	F-MSR/OBS	26-Nov-18	15:45	Specific conductance	NA	646.4	uS/cm			
LBR-CFR-02	F-MSR/OBS	26-Nov-18	15:45	Temperature, water	NA	0.2	deg C			
LBR-CFR-02	F-MSR/OBS	26-Nov-18	15:45	Turbidity	NA	1.7	NTU			
SBC-P2	F-MSR/OBS	27-Nov-18	14:30	Dissolved oxygen (DO)	NA	14.7	mg/l			
SBC-P2	F-MSR/OBS	27-Nov-18	14:30	Dissolved oxygen saturation	NA	151	%			
SBC-P2	F-MSR/OBS	27-Nov-18	14:30	pH	NA	8.01	None			
SBC-P2	F-MSR/OBS	27-Nov-18	14:30	Specific conductance	NA	1183	uS/cm			
SBC-P2	F-MSR/OBS	27-Nov-18	14:30	Temperature, water	NA	2.6	deg C			
SBC-P2	F-MSR/OBS	27-Nov-18	14:30	Turbidity	NA	2.1	NTU			
SS-25	F-MSR/OBS	27-Nov-18	12:45	Dissolved oxygen (DO)	NA	16.7	mg/l			
SS-25	F-MSR/OBS	27-Nov-18	12:45	Dissolved oxygen saturation	NA	150	%			
SS-25	F-MSR/OBS	27-Nov-18	12:45	pH	NA	7.61	None			
SS-25	F-MSR/OBS	27-Nov-18	12:45	Specific conductance	NA	1228	uS/cm			
SS-25	F-MSR/OBS	27-Nov-18	12:45	Temperature, water	NA	3.2	deg C			
SS-25	F-MSR/OBS	27-Nov-18	12:45	Turbidity	NA	1.9	NTU			
WSC-SBC	F-MSR/OBS	27-Nov-18	12:00	Dissolved oxygen (DO)	NA	14.5	mg/l			
WSC-SBC	F-MSR/OBS	27-Nov-18	12:00	Dissolved oxygen saturation	NA	130	%			
WSC-SBC	F-MSR/OBS	27-Nov-18	12:00	pH	NA	7.81	None			
WSC-SBC	F-MSR/OBS	27-Nov-18	12:00	Specific conductance	NA	722.7	uS/cm			
WSC-SBC	F-MSR/OBS	27-Nov-18	12:00	Temperature, water	NA	3.1	deg C			
WSC-SBC	F-MSR/OBS	27-Nov-18	12:00	Turbidity	NA	1.8	NTU			
CFR-03A	F-MSR/OBS	27-Nov-18	11:15	Dissolved oxygen (DO)	NA	16.4	mg/l			
CFR-03A	F-MSR/OBS	27-Nov-18	11:15	Dissolved oxygen saturation	NA	144	%			
CFR-03A	F-MSR/OBS	27-Nov-18	11:15	pH	NA	6.91	None			
CFR-03A	F-MSR/OBS	27-Nov-18	11:15	Specific conductance	NA	971	uS/cm			
CFR-03A	F-MSR/OBS	27-Nov-18	11:15	Temperature, water	NA	2.5	deg C			
CFR-03A	F-MSR/OBS	27-Nov-18	11:15	Turbidity	NA	3.9	NTU			
CFR-27H	F-MSR/OBS	27-Nov-18	8:30	Dissolved oxygen (DO)	NA	14.8	mg/l			
CFR-27H	F-MSR/OBS	27-Nov-18	8:30	Dissolved oxygen saturation	NA	122	%			
CFR-27H	F-MSR/OBS	27-Nov-18	8:30	pH	NA	6.47	None			
CFR-27H	F-MSR/OBS	27-Nov-18	8:30	Specific conductance	NA	1046	uS/cm			
CFR-27H	F-MSR/OBS	27-Nov-18	8:30	Temperature, water	NA	0.5	deg C			
CFR-27H	F-MSR/OBS	27-Nov-18	8:30	Turbidity	NA	5.6	NTU			
FC-CFR	F-MSR/OBS	26-Nov-18	13:30	Dissolved oxygen (DO)	NA	16.4	mg/l			
FC-CFR	F-MSR/OBS	26-Nov-18	13:30	Dissolved oxygen saturation	NA	129	%			
FC-CFR	F-MSR/OBS	26-Nov-18	13:30	pH	NA	7.95	None			
FC-CFR	F-MSR/OBS	26-Nov-18	13:30	Specific conductance	NA	736.9	uS/cm			

Station ID	Activity Type	Activity Start Date	Activity Start Time	Characteristic Name	Sample Fraction	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
FC-CFR	F-MSR/OBS	26-Nov-18	13:30	Temperature, water	NA	0	deg C			
FC-CFR	F-MSR/OBS	26-Nov-18	13:30	Turbidity	NA	7.2	NTU			
CFR-84F	F-MSR/OBS	26-Nov-18	11:30	Dissolved oxygen (DO)	NA	16.6	mg/l			
CFR-84F	F-MSR/OBS	26-Nov-18	11:30	Dissolved oxygen saturation	NA	131	%			
CFR-84F	F-MSR/OBS	26-Nov-18	11:30	pH	NA	7.86	None			
CFR-84F	F-MSR/OBS	26-Nov-18	11:30	Specific conductance	NA	1052	uS/cm			
CFR-84F	F-MSR/OBS	26-Nov-18	11:30	Temperature, water	NA	0.4	deg C			
CFR-84F	F-MSR/OBS	26-Nov-18	11:30	Turbidity	NA	3.3	NTU			
CFR-116A	F-MSR/OBS	26-Nov-18	8:45	Dissolved oxygen (DO)	NA	16	mg/l			
CFR-116A	F-MSR/OBS	26-Nov-18	8:45	Dissolved oxygen saturation	NA	125	%			
CFR-116A	F-MSR/OBS	26-Nov-18	8:45	pH	NA	7.75	None			
CFR-116A	F-MSR/OBS	26-Nov-18	8:45	Specific conductance	NA	852.2	uS/cm			
CFR-116A	F-MSR/OBS	26-Nov-18	8:45	Temperature, water	NA	0.8	deg C			
CFR-116A	F-MSR/OBS	26-Nov-18	8:45	Turbidity	NA	3.7	NTU			

APPENDIX D

SEDIMENT DATA

Table D-1. Sediment results for the Clark Fork River Operable Unit, 2018.

Station ID	Activity Type	Activity Start Date	Activity Start Time	Size Fraction	Characteristic Name	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-03A	S-ROUTINE	20-Mar-18	9:30	<0.065 mm	Arsenic	139	mg/kg		2	2
CFR-03A	S-ROUTINE	20-Mar-18	9:30	<0.065 mm	Cadmium	6.1	mg/kg		0.2	0.2
CFR-03A	S-ROUTINE	20-Mar-18	9:30	<0.065 mm	Copper	1220	mg/kg		6	6
CFR-03A	S-ROUTINE	20-Mar-18	9:30	<0.065 mm	Lead	166	mg/kg		0.2	5
CFR-03A	S-ROUTINE	20-Mar-18	9:30	<0.065 mm	Zinc	1220	mg/kg		2	5
CFR-03A	QC-FD	20-Mar-18	9:30	<0.065 mm	Arsenic	125	mg/kg		1	1
CFR-03A	QC-FD	20-Mar-18	9:30	<0.065 mm	Cadmium	5.3	mg/kg		0.1	0.2
CFR-03A	QC-FD	20-Mar-18	9:30	<0.065 mm	Copper	1150	mg/kg		4	5
CFR-03A	QC-FD	20-Mar-18	9:30	<0.065 mm	Lead	150	mg/kg		0.2	5
CFR-03A	QC-FD	20-Mar-18	9:30	<0.065 mm	Zinc	1110	mg/kg		1	5
CFR-07D	S-ROUTINE	20-Mar-18	8:30	<0.065 mm	Arsenic	200	mg/kg		1	1
CFR-07D	S-ROUTINE	20-Mar-18	8:30	<0.065 mm	Cadmium	7.4	mg/kg		0.2	0.2
CFR-07D	S-ROUTINE	20-Mar-18	8:30	<0.065 mm	Copper	1980	mg/kg		5	5
CFR-07D	S-ROUTINE	20-Mar-18	8:30	<0.065 mm	Lead	278	mg/kg		0.2	5
CFR-07D	S-ROUTINE	20-Mar-18	8:30	<0.065 mm	Zinc	1250	mg/kg		2	5
CFR-116A	S-ROUTINE	19-Mar-18	9:00	<0.065 mm	Arsenic	70	mg/kg		2	2
CFR-116A	S-ROUTINE	19-Mar-18	9:00	<0.065 mm	Cadmium	4.2	mg/kg		0.2	0.2
CFR-116A	S-ROUTINE	19-Mar-18	9:00	<0.065 mm	Copper	561	mg/kg	J	7	7
CFR-116A	S-ROUTINE	19-Mar-18	9:00	<0.065 mm	Lead	135	mg/kg	J	0.3	5
CFR-116A	S-ROUTINE	19-Mar-18	9:00	<0.065 mm	Zinc	791	mg/kg		2	5
CFR-11F	S-ROUTINE	19-Mar-18	17:45	<0.065 mm	Arsenic	178	mg/kg		1	1
CFR-11F	S-ROUTINE	19-Mar-18	17:45	<0.065 mm	Cadmium	5.8	mg/kg		0.2	0.2
CFR-11F	S-ROUTINE	19-Mar-18	17:45	<0.065 mm	Copper	1590	mg/kg	J	5	5
CFR-11F	S-ROUTINE	19-Mar-18	17:45	<0.065 mm	Lead	215	mg/kg	J	0.2	5
CFR-11F	S-ROUTINE	19-Mar-18	17:45	<0.065 mm	Zinc	1070	mg/kg		2	5
CFR-27H	S-ROUTINE	19-Mar-18	16:45	<0.065 mm	Arsenic	121	mg/kg		1	1
CFR-27H	S-ROUTINE	19-Mar-18	16:45	<0.065 mm	Cadmium	4.6	mg/kg		0.1	0.2
CFR-27H	S-ROUTINE	19-Mar-18	16:45	<0.065 mm	Copper	1160	mg/kg	J	4	5
CFR-27H	S-ROUTINE	19-Mar-18	16:45	<0.065 mm	Lead	171	mg/kg	J	0.2	5
CFR-27H	S-ROUTINE	19-Mar-18	16:45	<0.065 mm	Zinc	822	mg/kg		1	5
CFR-34	S-ROUTINE	19-Mar-18	15:30	<0.065 mm	Arsenic	127	mg/kg		0.9	1
CFR-34	S-ROUTINE	19-Mar-18	15:30	<0.065 mm	Cadmium	8.5	mg/kg		0.1	0.2
CFR-34	S-ROUTINE	19-Mar-18	15:30	<0.065 mm	Copper	1230	mg/kg	J	3	5
CFR-34	S-ROUTINE	19-Mar-18	15:30	<0.065 mm	Lead	172	mg/kg	J	0.1	5
CFR-34	S-ROUTINE	19-Mar-18	15:30	<0.065 mm	Zinc	956	mg/kg		1	5
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	<0.065 mm	Arsenic	23	mg/kg		1	1
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	<0.065 mm	Cadmium	1.5	mg/kg		0.1	0.2
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	<0.065 mm	Copper	67	mg/kg	J	4	5
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	<0.065 mm	Lead	209	mg/kg	J	0.2	5
LBR-CFR-02	S-ROUTINE	19-Mar-18	14:00	<0.065 mm	Zinc	163	mg/kg		1	5

Station ID	Activity Type	Activity Start Date	Activity Start Time	Size Fraction	Characteristic Name	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
LBR-CFR-02	QC-FD	19-Mar-18	14:00	<0.065 mm	Arsenic	23	mg/kg		1	1
LBR-CFR-02	QC-FD	19-Mar-18	14:00	<0.065 mm	Cadmium	1.5	mg/kg		0.1	0.2
LBR-CFR-02	QC-FD	19-Mar-18	14:00	<0.065 mm	Copper	40	mg/kg		5	5
LBR-CFR-02	QC-FD	19-Mar-18	14:00	<0.065 mm	Lead	54	mg/kg		0.2	5
LBR-CFR-02	QC-FD	19-Mar-18	14:00	<0.065 mm	Zinc	142	mg/kg		1	5
LC-7.5	S-ROUTINE	20-Mar-18	14:30	<0.065 mm	Arsenic	71	mg/kg		1	1
LC-7.5	S-ROUTINE	20-Mar-18	14:30	<0.065 mm	Cadmium	2.4	mg/kg		0.2	0.2
LC-7.5	S-ROUTINE	20-Mar-18	14:30	<0.065 mm	Copper	410	mg/kg		5	5
LC-7.5	S-ROUTINE	20-Mar-18	14:30	<0.065 mm	Lead	92	mg/kg		0.2	5
LC-7.5	S-ROUTINE	20-Mar-18	14:30	<0.065 mm	Zinc	249	mg/kg		2	5
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	<0.065 mm	Arsenic	153	mg/kg		2	2
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	<0.065 mm	Cadmium	7.6	mg/kg		0.3	0.3
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	<0.065 mm	Copper	499	mg/kg		9	9
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	<0.065 mm	Lead	198	mg/kg		0.3	5
MCWC-MWB	S-ROUTINE	20-Mar-18	13:30	<0.065 mm	Zinc	681	mg/kg		3	5
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	<0.065 mm	Arsenic	232	mg/kg		1	1
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	<0.065 mm	Cadmium	5.3	mg/kg		0.1	0.2
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	<0.065 mm	Copper	198	mg/kg		4	5
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	<0.065 mm	Lead	151	mg/kg		0.2	5
MWB-SBC	S-ROUTINE	20-Mar-18	12:15	<0.065 mm	Zinc	642	mg/kg		1	5
RTC-1.5	S-ROUTINE	19-Mar-18	15:00	<0.065 mm	Arsenic	26	mg/kg		1	1
RTC-1.5	S-ROUTINE	19-Mar-18	15:00	<0.065 mm	Cadmium	1.5	mg/kg		0.1	0.2
RTC-1.5	S-ROUTINE	19-Mar-18	15:00	<0.065 mm	Copper	86	mg/kg	J	5	5
RTC-1.5	S-ROUTINE	19-Mar-18	15:00	<0.065 mm	Lead	125	mg/kg	J	0.2	5
RTC-1.5	S-ROUTINE	19-Mar-18	15:00	<0.065 mm	Zinc	137	mg/kg		1	5
SS-25	S-ROUTINE	19-Mar-18	11:30	<0.065 mm	Arsenic	147	mg/kg		2	2
SS-25	S-ROUTINE	19-Mar-18	11:30	<0.065 mm	Cadmium	7.2	mg/kg		0.2	0.2
SS-25	S-ROUTINE	19-Mar-18	11:30	<0.065 mm	Copper	436	mg/kg	J	6	6
SS-25	S-ROUTINE	19-Mar-18	11:30	<0.065 mm	Lead	261	mg/kg	J	0.2	5
SS-25	S-ROUTINE	19-Mar-18	11:30	<0.065 mm	Zinc	962	mg/kg		2	5
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	<0.065 mm	Arsenic	85	mg/kg		1	1
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	<0.065 mm	Cadmium	4.3	mg/kg		0.1	0.2
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	<0.065 mm	Copper	862	mg/kg		5	5
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	<0.065 mm	Lead	106	mg/kg		0.2	5
WSC-SBC	S-ROUTINE	20-Mar-18	10:30	<0.065 mm	Zinc	431	mg/kg		1	5
CFR-116A	S-ROUTINE	10-Sep-18	8:45	<0.065 mm	Arsenic	52	mg/kg		0.4	1
CFR-116A	S-ROUTINE	10-Sep-18	8:45	<0.065 mm	Cadmium	4	mg/kg		0.2	0.2
CFR-116A	S-ROUTINE	10-Sep-18	8:45	<0.065 mm	Copper	567	mg/kg		6	6
CFR-116A	S-ROUTINE	10-Sep-18	8:45	<0.065 mm	Lead	95	mg/kg	DJ	10	10
CFR-116A	S-ROUTINE	10-Sep-18	8:45	<0.065 mm	Zinc	980	mg/kg		7	7
CFR-11F	S-ROUTINE	10-Sep-18	17:15	<0.065 mm	Arsenic	113	mg/kg		0.4	1
CFR-11F	S-ROUTINE	10-Sep-18	17:15	<0.065 mm	Cadmium	8	mg/kg		0.2	0.2

Station ID	Activity Type	Activity Start Date	Activity Start Time	Size Fraction	Characteristic Name	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-11F	S-ROUTINE	10-Sep-18	17:15	<0.065 mm	Copper	1240	mg/kg		6	6
CFR-11F	S-ROUTINE	10-Sep-18	17:15	<0.065 mm	Lead	204	mg/kg	DJ	10	10
CFR-11F	S-ROUTINE	10-Sep-18	17:15	<0.065 mm	Zinc	1150	mg/kg		7	7
CFR-27H	S-ROUTINE	10-Sep-18	16:15	<0.065 mm	Arsenic	184	mg/kg		0.4	1
CFR-27H	S-ROUTINE	10-Sep-18	16:15	<0.065 mm	Cadmium	8.7	mg/kg		0.2	0.2
CFR-27H	S-ROUTINE	10-Sep-18	16:15	<0.065 mm	Copper	1550	mg/kg		5	5
CFR-27H	S-ROUTINE	10-Sep-18	16:15	<0.065 mm	Lead	248	mg/kg	DJ	10	10
CFR-27H	S-ROUTINE	10-Sep-18	16:15	<0.065 mm	Zinc	1440	mg/kg		6	6
CFR-34	S-ROUTINE	10-Sep-18	15:00	<0.065 mm	Arsenic	117	mg/kg		0.4	1
CFR-34	S-ROUTINE	10-Sep-18	15:00	<0.065 mm	Cadmium	10.1	mg/kg		0.2	0.2
CFR-34	S-ROUTINE	10-Sep-18	15:00	<0.065 mm	Copper	1420	mg/kg		6	6
CFR-34	S-ROUTINE	10-Sep-18	15:00	<0.065 mm	Lead	288	mg/kg	DJ	10	10
CFR-34	S-ROUTINE	10-Sep-18	15:00	<0.065 mm	Zinc	1550	mg/kg		7	7
LBR-CFR-02	S-ROUTINE	10-Sep-18	13:30	<0.065 mm	Arsenic	37	mg/kg		0.5	1
LBR-CFR-02	S-ROUTINE	10-Sep-18	13:30	<0.065 mm	Cadmium	1.7	mg/kg		0.2	0.2
LBR-CFR-02	S-ROUTINE	10-Sep-18	13:30	<0.065 mm	Copper	64	mg/kg		7	7
LBR-CFR-02	S-ROUTINE	10-Sep-18	13:30	<0.065 mm	Lead	227	mg/kg	DJ	10	10
LBR-CFR-02	S-ROUTINE	10-Sep-18	13:30	<0.065 mm	Zinc	211	mg/kg		7	7
LC-7.5	S-ROUTINE	10-Sep-18	18:15	<0.065 mm	Arsenic	95	mg/kg		0.4	1
LC-7.5	S-ROUTINE	10-Sep-18	18:15	<0.065 mm	Cadmium	2.6	mg/kg		0.2	0.2
LC-7.5	S-ROUTINE	10-Sep-18	18:15	<0.065 mm	Copper	409	mg/kg		6	6
LC-7.5	S-ROUTINE	10-Sep-18	18:15	<0.065 mm	Lead	131	mg/kg	J	0.8	5
LC-7.5	S-ROUTINE	10-Sep-18	18:15	<0.065 mm	Zinc	290	mg/kg		7	7
RTC-1.5	S-ROUTINE	10-Sep-18	18:45	<0.065 mm	Arsenic	33	mg/kg		0.5	1
RTC-1.5	S-ROUTINE	10-Sep-18	18:45	<0.065 mm	Cadmium	1.9	mg/kg		0.2	0.2
RTC-1.5	S-ROUTINE	10-Sep-18	18:45	<0.065 mm	Copper	88	mg/kg		8	8
RTC-1.5	S-ROUTINE	10-Sep-18	18:45	<0.065 mm	Lead	145	mg/kg	J	1	5
RTC-1.5	S-ROUTINE	10-Sep-18	18:45	<0.065 mm	Zinc	208	mg/kg		8	8
LBR-CFR-02	QC-FD	10-Sep-18	13:30	<0.065 mm	Arsenic	30	mg/kg		0.4	1
LBR-CFR-02	QC-FD	10-Sep-18	13:30	<0.065 mm	Cadmium	1.6	mg/kg		0.2	0.2
LBR-CFR-02	QC-FD	10-Sep-18	13:30	<0.065 mm	Copper	52	mg/kg		6	6
LBR-CFR-02	QC-FD	10-Sep-18	13:30	<0.065 mm	Lead	135	mg/kg	D	10	10
LBR-CFR-02	QC-FD	10-Sep-18	13:30	<0.065 mm	Zinc	151	mg/kg		6	6
CFR-03A	S-ROUTINE	11-Sep-18	10:15	<0.065 mm	Arsenic	242	mg/kg		0.5	1
CFR-03A	S-ROUTINE	11-Sep-18	10:15	<0.065 mm	Cadmium	9.3	mg/kg		0.2	0.2
CFR-03A	S-ROUTINE	11-Sep-18	10:15	<0.065 mm	Copper	1490	mg/kg		7	7
CFR-03A	S-ROUTINE	11-Sep-18	10:15	<0.065 mm	Lead	395	mg/kg	DJ	20	20
CFR-03A	S-ROUTINE	11-Sep-18	10:15	<0.065 mm	Zinc	1720	mg/kg		8	8
CFR-07D	S-ROUTINE	11-Sep-18	8:45	<0.065 mm	Arsenic	266	mg/kg		0.5	1
CFR-07D	S-ROUTINE	11-Sep-18	8:45	<0.065 mm	Cadmium	9	mg/kg		0.2	0.2
CFR-07D	S-ROUTINE	11-Sep-18	8:45	<0.065 mm	Copper	2170	mg/kg		7	7
CFR-07D	S-ROUTINE	11-Sep-18	8:45	<0.065 mm	Lead	308	mg/kg	DJ	20	20

Station ID	Activity Type	Activity Start Date	Activity Start Time	Size Fraction	Characteristic Name	Result Value	Result Value Unit	Result Qualifier	Method Detection Limit Value	Lower Reporting Limit Value
CFR-07D	S-ROUTINE	11-Sep-18	8:45	<0.065 mm	Zinc	1580	mg/kg		8	8
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	<0.065 mm	Arsenic	105	mg/kg		0.5	1
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	<0.065 mm	Cadmium	5.1	mg/kg		0.3	0.3
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	<0.065 mm	Copper	323	mg/kg		8	8
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	<0.065 mm	Lead	146	mg/kg	J	1	5
MCWC-MWB	S-ROUTINE	11-Sep-18	15:00	<0.065 mm	Zinc	608	mg/kg		9	9
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	<0.065 mm	Arsenic	211	mg/kg		0.6	1
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	<0.065 mm	Cadmium	6.6	mg/kg		0.3	0.3
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	<0.065 mm	Copper	230	mg/kg		9	9
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	<0.065 mm	Lead	160	mg/kg	J	1	5
MWB-SBC	S-ROUTINE	11-Sep-18	13:45	<0.065 mm	Zinc	666	mg/kg		10	10
SS-25	S-ROUTINE	11-Sep-18	12:15	<0.065 mm	Arsenic	111	mg/kg		0.6	1
SS-25	S-ROUTINE	11-Sep-18	12:15	<0.065 mm	Cadmium	9.9	mg/kg		0.3	0.3
SS-25	S-ROUTINE	11-Sep-18	12:15	<0.065 mm	Copper	402	mg/kg		8	8
SS-25	S-ROUTINE	11-Sep-18	12:15	<0.065 mm	Lead	397	mg/kg	J	1	5
SS-25	S-ROUTINE	11-Sep-18	12:15	<0.065 mm	Zinc	1690	mg/kg		9	9
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	<0.065 mm	Arsenic	108	mg/kg		0.4	1
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	<0.065 mm	Cadmium	3.5	mg/kg		0.2	0.2
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	<0.065 mm	Copper	997	mg/kg		6	6
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	<0.065 mm	Lead	136	mg/kg	DJ	10	10
WSC-SBC	S-ROUTINE	11-Sep-18	11:15	<0.065 mm	Zinc	499	mg/kg		6	6
CFR-03A	QC-FD	11-Sep-18	10:15	<0.065 mm	Arsenic	195	mg/kg		0.5	1
CFR-03A	QC-FD	11-Sep-18	10:15	<0.065 mm	Cadmium	7.7	mg/kg		0.2	0.2
CFR-03A	QC-FD	11-Sep-18	10:15	<0.065 mm	Copper	1140	mg/kg		8	8
CFR-03A	QC-FD	11-Sep-18	10:15	<0.065 mm	Lead	251	mg/kg	D	20	20
CFR-03A	QC-FD	11-Sep-18	10:15	<0.065 mm	Zinc	1270	mg/kg		8	8

APPENDIX E

PERIPHYTON DATA: NON-DIATOMS

Non-Diatom Algae Study: Clark Fork River 2018
Non-Diatom Algae Data

Determinations by Rhithron Associates, Inc.

RAI Sample ID	Client ID	Station ID	Sample Date	Taxon	Division	RA	RB
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	Diatoms	Bacillariophyta	VC	1
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Homoeothrix*	Cyanophyta	C	2
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Cosmarium*	Chlorophyta	R	0
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Komvophoron*	Cyanophyta	R	0
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Leptolyngbya*	Cyanophyta	R	0
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Phormidium*	Cyanophyta	R	0
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Pseudanabaena*	Cyanophyta	R	0
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Scenedesmus*	Chlorophyta	R	0
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	*Stigeoclonium*	Chlorophyta	R	0
PBSJ18CFRP001	MCWC-MWB	Mill-Willow Creek at Frontage Road	9/24/2018	Unknown Coccoid	Chlorophyta	R	0
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	Diatoms	Bacillariophyta	VA	1
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	*Cladophora*	Chlorophyta	C	2
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	*Tolypothrix*	Cyanophyta	C	3
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	*Phormidium*	Cyanophyta	C	4
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	*Scenedesmus*	Chlorophyta	C	5
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	*Leptolyngbya*	Cyanophyta	C	6
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	*Calothrix*	Cyanophyta	R	0
PBSJ18CFRP002	MWB-SBC	Mill-Willow Bypass near mouth	9/24/2018	*Pseudanabaena*	Cyanophyta	R	0
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Leptolyngbya*	Cyanophyta	VA	2
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Chantransia*	Rhodophyta	VC	3
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Cladophora*	Chlorophyta	C	4
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Oedogonium*	Chlorophyta	C	5
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Homoeothrix*	Cyanophyta	C	6
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Phormidium*	Cyanophyta	R	0
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Stigeoclonium*	Chlorophyta	R	0
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	*Tetraspora*	Chlorophyta	R	0
PBSJ18CFRP003	WSC-SBC	Warm Springs Creek near mouth	9/24/2018	Undetermined Cyanophyte	Cyanophyta	R	0
PBSJ18CFRP004	SS-25	Silver Bow Creek at Warm Springs	9/24/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP004	SS-25	Silver Bow Creek at Warm Springs	9/24/2018	*Stigeoclonium*	Chlorophyta	VC	2
PBSJ18CFRP004	SS-25	Silver Bow Creek at Warm Springs	9/24/2018	*Oedogonium*	Chlorophyta	C	3
PBSJ18CFRP004	SS-25	Silver Bow Creek at Warm Springs	9/24/2018	*Cladophora*	Chlorophyta	C	4
PBSJ18CFRP004	SS-25	Silver Bow Creek at Warm Springs	9/24/2018	*Leptolyngbya*	Cyanophyta	VC	5
PBSJ18CFRP004	SS-25	Silver Bow Creek at Warm Springs	9/24/2018	*Ankistrodesmus*	Chlorophyta	R	0
PBSJ18CFRP004	SS-25	Silver Bow Creek at Warm Springs	9/24/2018	*Cosmarium*	Chlorophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	Diatoms	Bacillariophyta	VC	1

Non-Diatom Algae Study: Clark Fork River 2018
Non-Diatom Algae Data

Determinations by Rhithron Associates, Inc.

RAI Sample ID	Client ID	Station ID	Sample Date	Taxon	Division	RA	RB
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Aphanocapsa*	Cyanophyta	C	2
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Calothrix*	Cyanophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Chamaesiphon*	Cyanophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Cladophora*	Chlorophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Homoeothrix*	Cyanophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Komvophoron*	Cyanophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Oedogonium*	Chlorophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Phormidium*	Cyanophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Pseudanabaena*	Cyanophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	*Scenedesmus*	Chlorophyta	R	0
PBSJ18CFRP005	CFR-03A	Clark Fork River near Galen	9/25/2018	Unknown Green Filament	Chlorophyta	R	0
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	*Cladophora*	Chlorophyta	C	2
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	*Pseudanabaena*	Cyanophyta	C	3
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	*Scenedesmus*	Chlorophyta	C	4
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	*Calothrix*	Cyanophyta	R	0
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	*Komvophoron*	Cyanophyta	R	0
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	*Pediastrum*	Chlorophyta	R	0
PBSJ18CFRP006	CFR-07D	Clark Fork River at Galen Road	9/25/2018	*Phormidium*	Cyanophyta	R	0
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	Diatoms	Bacillariophyta	VA	1
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	*Cladophora*	Chlorophyta	C	2
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	*Nostoc*	Cyanophyta	C	3
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	*Pseudanabaena*	Cyanophyta	C	4
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	*Chamaesiphon*	Cyanophyta	R	0
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	*Leptolyngbya*	Cyanophyta	R	0
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	*Scenedesmus*	Chlorophyta	R	0
PBSJ18CFRP007	CFR-11F	Clark Fork River at Gem Back Road	9/25/2018	Undetermined Chlorophyte	Chlorophyta	R	0
PBSJ18CFRP008	CFR-34	Clark Fork River at Williams-Tavenner Bridge	9/26/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP008	CFR-34	Clark Fork River at Williams-Tavenner Bridge	9/26/2018	*Cladophora*	Chlorophyta	C	2
PBSJ18CFRP008	CFR-34	Clark Fork River at Williams-Tavenner Bridge	9/26/2018	*Leptolyngbya*	Cyanophyta	VC	3
PBSJ18CFRP008	CFR-34	Clark Fork River at Williams-Tavenner Bridge	9/26/2018	*Aphanocapsa*	Cyanophyta	C	4
PBSJ18CFRP008	CFR-34	Clark Fork River at Williams-Tavenner Bridge	9/26/2018	*Chamaesiphon*	Cyanophyta	R	0
PBSJ18CFRP008	CFR-34	Clark Fork River at Williams-Tavenner Bridge	9/26/2018	*Cosmarium*	Chlorophyta	R	0
PBSJ18CFRP008	CFR-34	Clark Fork River at Williams-Tavenner Bridge	9/26/2018	*Scenedesmus*	Chlorophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Cladophora*	Chlorophyta	C	2

Non-Diatom Algae Study: Clark Fork River 2018
Non-Diatom Algae Data

Determinations by Rhithron Associates, Inc.

RAI Sample ID	Client ID	Station ID	Sample Date	Taxon	Division	RA	RB
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Chantransia*	Rhodophyta	C	3
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Leptolyngbya*	Cyanophyta	C	4
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Chamaesiphon*	Cyanophyta	C	5
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Calothrix*	Cyanophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Cosmarium*	Chlorophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Homoeothrix*	Cyanophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Klebsormidium*	Chlorophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Phormidium*	Cyanophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Pseudanabaena*	Cyanophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Scenedesmus*	Chlorophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Stigeoclonium*	Chlorophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	*Ulothrix*	Chlorophyta	R	0
PBSJ18CFRP009	CFR-116A	Clark Fork at Turah	9/27/2018	Unknown Bluegreen Filament	Cyanophyta	R	0
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	Diatoms	Bacillariophyta	VA	1
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	*Phormidium*	Cyanophyta	C	2
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	*Chantransia*	Rhodophyta	C	3
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	*Scenedesmus*	Chlorophyta	C	4
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	*Cosmarium*	Chlorophyta	R	0
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	*Pediastrum*	Chlorophyta	R	0
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	*Stigeoclonium*	Chlorophyta	R	0
PBSJ18CFRP010	LC-7.5	Lost Creek at Frontage Road	9/25/2018	Unknown Green Filament	Chlorophyta	R	0
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Cladophora*	Chlorophyta	C	2
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Microspora*	Chlorophyta	VC	3
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Mougeotia*	Chlorophyta	C	4
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Phormidium*	Cyanophyta	C	5
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Ankistrodesmus*	Chlorophyta	R	0
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Leptolyngbya*	Cyanophyta	R	0
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Scenedesmus*	Chlorophyta	R	0
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Staurastrum*	Chlorophyta	R	0
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Stigeoclonium*	Chlorophyta	R	0
PBSJ18CFRP011	RTC-1.5	Racetrack Creek at Frontage Road	9/26/2018	*Tribonema*	Chrysophyta	R	0
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Spirogyra*	Chlorophyta	VC	2
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Chantransia*	Rhodophyta	VC	3
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Oedogonium*	Chlorophyta	C	4

Non-Diatom Algae Study: Clark Fork River 2018
Non-Diatom Algae Data

Determinations by Rhithron Associates, Inc.

RAI Sample ID	Client ID	Station ID	Sample Date	Taxon	Division	RA	RB
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Microspora*	Chlorophyta	C	5
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Anabaena*	Cyanophyta	C	6
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Leptolyngbya*	Cyanophyta	C	7
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Cladophora*	Chlorophyta	R	0
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Closterium*	Chlorophyta	R	0
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Cosmarium*	Chlorophyta	R	0
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Scenedesmus*	Chlorophyta	R	0
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Sphaerocystis*	Chlorophyta	R	0
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	*Stigeoclonium*	Chlorophyta	R	0
PBSJ18CFRP012	LBR-CFR-02	Little Blackfoot River at Beck Hill Road	9/26/2018	Unknown Green Spherical	Chlorophyta	R	0
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	Diatoms	Bacillariophyta	A	1
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Cladophora*	Chlorophyta	C	2
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Oedogonium*	Chlorophyta	C	3
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Aphanocapsa*	Cyanophyta	C	4
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Phormidium*	Cyanophyta	C	5
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Chamaesiphon*	Cyanophyta	C	6
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Leptolyngbya*	Cyanophyta	C	7
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Kirchneriella*	Chlorophyta	R	0
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Microspora*	Chlorophyta	R	0
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Pseudanabaena*	Cyanophyta	R	0
PBSJ18CFRP013	CFR-27H	Clark Fork River at Deer Lodge	9/26/2018	*Scenedesmus*	Chlorophyta	R	0

APPENDIX F

PERIPHYTON DATA: DIATOMS

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP001

RAI No.: PBSJ18CFRP001 Sta. Name: Mill-Willow Creek at Frontage Road
Client ID: MCWC-MWB
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium exiguum	2	0.25%		
Achnanthidium minutissimum	158	19.55%		
Adlafia minuscula	1	0.12%		
Adlafia suchlandtii	1	0.12%		
Amphipleura pellucida	2	0.25%		
Amphora pediculus	9	1.11%		
Cocconeis pediculus	2	0.25%		
Cocconeis placentula sensu lato	88	10.89%		
Cocconeis pseudolineata	1	0.12%		
Craticula molestiformis	7	0.87%		
Craticula subminuscula	1	0.12%		
Cyclotella meneghiniana	4	0.50%		
Cylindrotheca closterium	1	0.12%		
Diatoma moniliformis	1	0.12%		
Encyonema sp.	2	0.25%		GV
Encyonema minutum	12	1.49%		
Encyonema silesiacum	1	0.12%		
Fistulifera saprophila	2	0.25%		
Fragilaria sp.	2	0.25%		GV
Fragilaria candidagiliae	1	0.12%		Likely F. candidagiliae
Fragilaria vaucheriae	5	0.62%		
Geissleria decussis	1	0.12%		
Gomphoneis eriense	3	0.37%		
Gomphonema parvulum	5	0.62%		
Hantzschia amphioxys	1	0.12%		
Hippodonta capitata	2	0.25%		
Hippodonta capitata subsp. iberoamericana	2	0.25%		
Melosira varians	32	3.96%		
Navicula sp.	30	3.71%		GV
Navicula aitchelbee	3	0.37%		
Navicula antonii	8	0.99%		
Navicula capitatoradiata	3	0.37%		
Navicula cryptotenella	11	1.36%		
Navicula cryptotenelloides	5	0.62%		
Navicula erifuga	2	0.25%		
Navicula gregaria	1	0.12%		
Navicula lanceolata	3	0.37%		
Navicula radiosa	2	0.25%		
Navicula reichardtiana	51	6.31%		
Nitzschia acicularis	4	0.50%		
Nitzschia archibaldii	34	4.21%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP001

RAI No.: PBSJ18CFRP001 Sta. Name: Mill-Willow Creek at Frontage Road
Client ID: MCWC-MWB
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia dissipata	26	3.22%		
Nitzschia dissipata v. media	4	0.50%		
Nitzschia fonticola	9	1.11%		
Nitzschia inconspicua	2	0.25%		
Nitzschia lacuum	2	0.25%		
Nitzschia liebethruthii	1	0.12%		
Nitzschia linearis	18	2.23%		
Nitzschia palea	14	1.73%		
Nitzschia paleacea	37	4.58%		
Nitzschia pura	1	0.12%		
Nitzschia recta	1	0.12%		
Nitzschia sociabilis	2	0.25%		
Nitzschia supralitorea	4	0.50%		
Pinnularia sp.	2	0.25%		GV
Pinnularia brebissonii	1	0.12%		
Pinnularia rupestris	1	0.12%		broken
Planothidium dubium	11	1.36%		
Planothidium frequentissimum	30	3.71%		
Planothidium lanceolatum	39	4.83%		
Psammothidium daonense	2	0.25%		
Pseudostaurosira brevistriata	1	0.12%		
Reimeria sinuata	11	1.36%		
Rhoicosphenia abbreviata	1	0.12%		
Rhoicosphenia californica	2	0.25%		
Sellaphora atomoides	13	1.61%		
Sellaphora auldreekie	2	0.25%		
Stauroneis separanda	1	0.12%		
Staurosira construens	4	0.50%		may be lepto
Staurosira construens v. venter	16	1.98%		
Staurosirella leptostauron	5	0.62%		
Staurosirella leptostauron v. dubia	24	2.97%		
Surirella angusta	5	0.62%		
Surirella brebissonii v. kuetzingii	10	1.24%		

Sample Count 808

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP002

RAI No.: PBSJ18CFRP002 Sta. Name: Mill-Willow Bypass near mouth
Client ID: MWB-SBC
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium exiguum	1	0.12%		
Achnanthidium minutissimum	75	9.29%		
Amphora pediculus	9	1.12%		
Cocconeis pediculus	10	1.24%		
Cocconeis placentula sensu lato	100	12.39%		
Craticula subminuscula	1	0.12%		
Cyclotella atomus	7	0.87%		
Cyclotella meneghiniana	5	0.62%		
Cymbella affiniformis	1	0.12%		
Cymbella affinis	250	30.98%		
Cymbella compacta	12	1.49%		
Diatoma moniliformis	6	0.74%		
Diatoma vulgaris	90	11.15%		
Encyonema sp.	4	0.50%		GV
Encyonema minutum	5	0.62%		
Epithemia sorex	8	0.99%		
Geissleria acceptata	1	0.12%		
Gomphoneis eriense	4	0.50%		
Gomphoneis olivaceum	11	1.36%		
Gomphonema sp.	14	1.73%		GV
Gomphonema cymbelliclinum	2	0.25%		
Gomphonema pala	1	0.12%		
Gomphonema pumilum v. elegans	2	0.25%		
Gomphonema pumilum v. rigidum	1	0.12%		
Hippodonta capitata subsp. iberoamericana	1	0.12%		
Melosira varians	1	0.12%		
Navicula sp.	4	0.50%		GV
Navicula antonii	6	0.74%		
Navicula capitatoradiata	1	0.12%		
Navicula cryptocephala	1	0.12%		
Navicula cryptotenella	27	3.35%		
Navicula reichardtiana	7	0.87%		
Navicula tripunctata	6	0.74%		
Nitzschia archibaldii	6	0.74%		
Nitzschia dissipata	17	2.11%		
Nitzschia dissipata v. media	1	0.12%		
Nitzschia fonticola	49	6.07%		maybe
Nitzschia heufleriana	4	0.50%		
Nitzschia inconspicua	4	0.50%		
Nitzschia linearis	1	0.12%		
Nitzschia palea	2	0.25%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP002

RAI No.: PBSJ18CFRP002 Sta. Name: Mill-Willow Bypass near mouth
Client ID: MWB-SBC
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia soratensis	1	0.12%		
Placoneis symmetrica	1	0.12%		
Planothidium dubium	2	0.25%		
Planothidium frequentissimum	3	0.37%		
Planothidium lanceolatum	3	0.37%		
Reimeria sinuata	14	1.73%		
Rhoicosphenia californica	5	0.62%		
Staurosira construens v. binodis	1	0.12%		
Staurosirella leptostauron v. dubia	5	0.62%		
Ulnaria contracta	9	1.12%		
Ulnaria ulna	5	0.62%		
Sample Count	807			

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP003

RAI No.: PBSJ18CFRP003 Sta. Name: Warm Springs Creek near mouth
Client ID: WSC-SBC
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium latecephalum	1	0.12%		
Achnanthidium minutissimum	464	57.50%		
Amphora pediculus	1	0.12%		
Caloneis bacillum	1	0.12%		
Cocconeis pediculus	2	0.25%		
Cocconeis placentula sensu lato	12	1.49%		
Cymbella affinis	24	2.97%		
Cymbella compacta	12	1.49%		
Cymbella cymbiformis	1	0.12%		
Diadesmis confervacea	1	0.12%		
Diatoma moniliformis	16	1.98%		
Diatoma vulgaris	2	0.25%		
Didymosphenia geminata	2	0.25%		
Encyonema sp.	14	1.73%		GV
Encyonema caespitosum	3	0.37%		
Encyonema minuta v. pseudogracilis	3	0.37%		
Encyonema minutum	71	8.80%		
Encyonema silesiacum	56	6.94%		
Encyonema ventricosum	7	0.87%		
Encyonopsis subminuta	3	0.37%		
Eunotia minor	2	0.25%		
Fragilaria sp.	4	0.50%		GV
Fragilaria capucina	4	0.50%		
Fragilaria capucina v. gracilis	1	0.12%		
Fragilaria microvaucheriae	1	0.12%		Most likely F. microvaucheriae
Fragilaria vaucheriae	3	0.37%		
Geissleria acceptata	2	0.25%		
Gomphonema sp.	2	0.25%		GV
Navicula sp.	6	0.74%		GV
Navicula capitatoradiata	3	0.37%		
Navicula cryptotenella	11	1.36%		
Navicula reichardtiana	5	0.62%		
Nitzschia archibaldii	2	0.25%		
Nitzschia communis	1	0.12%		
Nitzschia dissipata	10	1.24%		
Nitzschia fonticola	5	0.62%		
Nitzschia inconspicua	2	0.25%		
Nitzschia palea	7	0.87%		
Nitzschia paleacea	2	0.25%		
Nitzschia pura	1	0.12%		
Nitzschia sociabilis	1	0.12%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP003

RAI No.: PBSJ18CFRP003 Sta. Name: Warm Springs Creek near mouth
Client ID: WSC-SBC
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Planothidium frequentissimum	1	0.12%		
Planothidium rostratum	2	0.25%		
Reimeria sinuata	6	0.74%		
Sellaphora atomoides	1	0.12%		
Staurosira construens	2	0.25%		
Staurosira construens v. venter	10	1.24%		
Staurosirella leptostauron	1	0.12%		
Staurosirella leptostauron v. dubia	9	1.12%		
Staurosirella pinnata	4	0.50%		
Sample Count 807				

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP004

RAI No.: PBSJ18CFRP004 Sta. Name: Silver Bow Creek at Warm Springs
Client ID: SS-25
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	37	4.57%		
Amphora pediculus	7	0.86%		
Brachysira vitrea	3	0.37%		
Cocconeis pediculus	32	3.95%		
Cocconeis placentula sensu lato	238	29.38%		
Cyclotella atomus	4	0.49%		
Cyclotella meneghiniana	1	0.12%		
Cymbella affinis	36	4.44%		
Cymbella compacta	2	0.25%		
Diatoma moniliformis	4	0.49%		
Diatoma vulgaris	28	3.46%		
Encyonema minutum	3	0.37%		
Epithemia sorex	31	3.83%		
Fragilaria sp.	2	0.25%		GV
Fragilaria capucina	1	0.12%		
Fragilaria tenera	10	1.23%		
Fragilaria vaucheriae	25	3.09%		
Geissleria decussis	2	0.25%		
Gomphoneis eriense	3	0.37%		
Gomphoneis olivaceum	15	1.85%		
Gomphonema sp.	24	2.96%		GV
Gomphonema pala	5	0.62%		
Gomphonema parvulum	8	0.99%		
Gomphonema pumilum v. rigidum	2	0.25%		
Gomphonema truncatum	1	0.12%		
Halamphora veneta	29	3.58%		
Hippodonta capitata subsp. iberoamericana	2	0.25%		
Mayamaea atomus	1	0.12%		
Melosira varians	2	0.25%		
Navicula sp.	4	0.49%		GV
Navicula antonii	6	0.74%		
Navicula capitatoradiata	5	0.62%		
Navicula cryptotenella	17	2.10%		
Navicula cryptotenelloides	1	0.12%		
Navicula reichardtiana	8	0.99%		
Nitzschia amphibia	22	2.72%		
Nitzschia dissipata	9	1.11%		
Nitzschia fonticola	48	5.93%		
Nitzschia frustulum	5	0.62%		
Nitzschia inconspicua	4	0.49%		
Nitzschia liebethruthii	15	1.85%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP004

RAI No.: PBSJ18CFRP004 Sta. Name: Silver Bow Creek at Warm Springs
Client ID: SS-25
Date Coll.: 9/24/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia paleacea	31	3.83%		
Nitzschia radicula	22	2.72%		
Nitzschia sociabilis	1	0.12%		
Nitzschia soratensis	5	0.62%		
Planothidium frequentissimum	1	0.12%		
Planothidium lanceolatum	5	0.62%		
Reimeria sinuata	1	0.12%		
Rhoicosphenia abbreviata	9	1.11%		
Rhoicosphenia californica	4	0.49%		
Sellaphora atomoides	5	0.62%		
Staurosira construens v. venter	1	0.12%		
Staurosirella leptostauron	1	0.12%		
Ulnaria acus	2	0.25%		
Ulnaria contracta	15	1.85%		
Ulnaria ulna	5	0.62%		
Sample Count	810			

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP005

RAI No.: PBSJ18CFRP005 Sta. Name: Clark Fork River near Galen
Client ID: CFR-03A
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium gracillimum	2	0.24%		
Achnanthidium minutissimum	128	15.65%		
Adlafia minuscula	1	0.12%		
Amphora pediculus	39	4.77%		
Caloneis bacillum	5	0.61%		
Cocconeis placentula sensu lato	167	20.42%		
Cyclotella meneghiniana	5	0.61%		
Cymbella affinis	14	1.71%		
Cymbella compacta	1	0.12%		
Cymbella mexicana	2	0.24%		
Diatoma moniliformis	22	2.69%		
Diatoma tenuis	1	0.12%		
Diatoma vulgaris	3	0.37%		
Encyonema sp.	5	0.61%		likely E. minuta v. pseudogracilis
Encyonema minutum	46	5.62%		
Encyonema silesiacum	18	2.20%		
Epithemia sorex	17	2.08%		
Epithemia turgida	3	0.37%		
Fragilaria sp.	2	0.24%		GV
Fragilaria capucina	1	0.12%		
Fragilaria vaucheriae	1	0.12%		
Geissleria acceptata	1	0.12%		
Geissleria decussis	1	0.12%		
Gomphoneis olivaceum	2	0.24%		
Gomphonema sp.	6	0.73%		GV
Gomphonema clavatum	1	0.12%		
Gomphonema parvulum	7	0.86%		
Gomphonema pumilum v. rigidum	2	0.24%		
Gyrosigma attenuatum	1	0.12%		
Halamphora veneta	2	0.24%		
Karayevia sp.	1	0.12%		
Navicula sp.	4	0.49%		GV
Navicula antonii	3	0.37%		
Navicula capitatoradiata	2	0.24%		
Navicula cryptotenella	30	3.67%		
Navicula cryptotenelloides	26	3.18%		
Navicula gregaria	1	0.12%		
Navicula reichardtiana	15	1.83%		
Navicula salinicola	3	0.37%		
Navicula tripunctata	14	1.71%		
Nitzschia sp.	2	0.24%		GV

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP005

RAI No.: PBSJ18CFRP005 Sta. Name: Clark Fork River near Galen
Client ID: CFR-03A
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia amphibia	4	0.49%		
Nitzschia archibaldii	4	0.49%		
Nitzschia dissipata	44	5.38%		
Nitzschia dissipata v. media	2	0.24%		
Nitzschia fonticola	24	2.93%		
Nitzschia heufleriana	1	0.12%		
Nitzschia inconspicua	1	0.12%		
Nitzschia liebethruthii	2	0.24%		
Nitzschia palea	1	0.12%		
Nitzschia paleacea	7	0.86%		
Nitzschia radicula	20	2.44%		
Nitzschia sociabilis	4	0.49%		
Nitzschia soratensis	6	0.73%		
Planothidium dubium	2	0.24%		
Planothidium frequentissimum	6	0.73%		
Planothidium lanceolatum	10	1.22%		
Reimeria sinuata	10	1.22%		
Rhoicosphenia abbreviata	22	2.69%		
Sellaphora atomoides	15	1.83%		
Simonsenia delognei	1	0.12%		
Staurosira construens v. venter	20	2.44%		
Staurosirella leptostauron	2	0.24%		
Staurosirella pinnata	1	0.12%		
Stephanodiscus minutulus	2	0.24%		
Sample Count	818			

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP006

RAI No.: PBSJ18CFRP006 Sta. Name: Clark Fork River at Galen Road
Client ID: CFR-07D
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium gracillimum	1	0.12%		
Achnanthidium minutissimum	122	14.99%		
Adlafia minuscula	2	0.25%		
Amphora minutissima	2	0.25%		
Amphora pediculus	49	6.02%		
Caloneis bacillum	2	0.25%		
Cocconeis pediculus	3	0.37%		
Cocconeis placentula sensu lato	54	6.63%		
Craticula subminuscula	5	0.61%		
Cyclotella atomus	1	0.12%		
Cyclotella meneghiniana	2	0.25%		
Cymbella affinis	4	0.49%		
Cymbella compacta	4	0.49%		
Diatoma moniliformis	61	7.49%		
Diatoma vulgaris	6	0.74%		
Encyonema sp.	2	0.25%		GV
Encyonema minutum	29	3.56%		
Encyonema silesiacum	28	3.44%		
Encyonema ventricosum	2	0.25%		
Epithemia sorex	12	1.47%		
Epithemia turgida	2	0.25%		
Fragilaria sp.	2	0.25%		GV
Fragilaria tenera	1	0.12%		
Gomphoneis olivaceum	4	0.49%		
Gomphonema sp.	6	0.74%		GV
Halamphora veneta	4	0.49%		
Mayamaea atomus	3	0.37%		
Melosira varians	6	0.74%		
Navicula sp.	2	0.25%		GV
Navicula antonii	4	0.49%		
Navicula capitatoradiata	3	0.37%		
Navicula cryptotenella	29	3.56%		
Navicula cryptotenelloides	4	0.49%		
Navicula reichardtiana	22	2.70%		
Navicula tripunctata	22	2.70%		
Nitzschia sp.	10	1.23%		GV
Nitzschia amphibia	1	0.12%		
Nitzschia archibaldii	18	2.21%		
Nitzschia dissipata	144	17.69%		
Nitzschia fonticola	25	3.07%		
Nitzschia heufleriana	3	0.37%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP006

RAI No.: PBSJ18CFRP006 Sta. Name: Clark Fork River at Galen Road
Client ID: CFR-07D
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia inconspicua	4	0.49%		
Nitzschia linearis	4	0.49%		
Nitzschia palea	7	0.86%		
Nitzschia paleacea	22	2.70%		
Nitzschia radicula	4	0.49%		
Planothidium sp.	10	1.23%		GV
Planothidium frequentissimum	8	0.98%		
Planothidium lanceolatum	7	0.86%		
Reimeria sinuata	2	0.25%		
Rhoicosphenia abbreviata	24	2.95%		
Rhoicosphenia californica	2	0.25%		
Sellaphora atomoides	2	0.25%		
Staurosira construens v. venter	3	0.37%		
Staurosirella pinnata	1	0.12%		
Surirella angusta	3	0.37%		
Ulnaria contracta	1	0.12%		
Ulnaria ulna	4	0.49%		
Sample Count	814			

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP007

RAI No.: PBSJ18CFRP007 Sta. Name: Clark Fork River at Gem Back Road
Client ID: CFR-11F
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	96	11.87%		
Amphora pediculus	42	5.19%		
Cocconeis pediculus	7	0.87%		
Cocconeis placentula sensu lato	100	12.36%		
Cyclotella atomus	2	0.25%		
Cyclotella meneghiniana	1	0.12%		
Cymbella affinis	1	0.12%		
Diatoma moniliformis	162	20.02%		
Diatoma vulgaris	21	2.60%		
Encyonema sp.	2	0.25%		GV
Encyonema minutum	17	2.10%		
Encyonema ventricosum	2	0.25%		
Epithemia sorex	2	0.25%		
Fragilaria sp.	2	0.25%		GV
Geissleria decussis	1	0.12%		
Gomphoneis eriense	1	0.12%		
Gomphoneis olivaceum	16	1.98%		
Gomphonema sp.	4	0.49%		GV
Gomphonema parvulum	1	0.12%		
Mayamaea atomus	7	0.87%		
Melosira varians	1	0.12%		
Navicula sp.	2	0.25%		GV
Navicula antonii	3	0.37%		
Navicula capitatoradiata	3	0.37%		
Navicula cryptotenella	25	3.09%		
Navicula cryptotenelloides	7	0.87%		
Navicula lanceolata	1	0.12%		
Navicula reichardtiana	43	5.32%		
Navicula tripunctata	8	0.99%		
Nitzschia archibaldii	42	5.19%		
Nitzschia dissipata	96	11.87%		
Nitzschia dissipata v. media	2	0.25%		
Nitzschia fonticola	9	1.11%		
Nitzschia gracilis	1	0.12%		
Nitzschia inconspicua	2	0.25%		
Nitzschia linearis	4	0.49%		
Nitzschia palea	2	0.25%		
Nitzschia paleacea	15	1.85%		
Nitzschia radicula	4	0.49%		
Nitzschia recta	2	0.25%		
Nitzschia soratensis	1	0.12%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP007

RAI No.: PBSJ18CFRP007 Sta. Name: Clark Fork River at Gem Back Road
Client ID: CFR-11F
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Planothidium sp.	2	0.25%		GV
Planothidium frequentissimum	3	0.37%		
Planothidium lanceolatum	3	0.37%		
Psammothidium bioretii	2	0.25%		
Pseudostaurosira elliptica	2	0.25%		
Reimeria sinuata	3	0.37%		
Rhoicosphenia abbreviata	7	0.87%		
Rhoicosphenia californica	2	0.25%		
Sellaphora atomoides	1	0.12%		
Sellaphora auldreekie	1	0.12%		
Staurosira construens v. venter	10	1.24%		
Stephanodiscus minutulus	1	0.12%		
Surirella brebissonii v. kuetzingii	1	0.12%		
Ulnaria contracta	7	0.87%		
Ulnaria ulna	4	0.49%		

Sample Count 809

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP008

RAI No.: PBSJ18CFRP008 Sta. Name: Clark Fork River at Williams-Tavenner Bridge
Client ID: CFR-34
Date Coll.: 9/26/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	90	11.12%		
Adlafia minuscula	1	0.12%		
Amphora pediculus	98	12.11%		
Caloneis bacillum	18	2.22%		
Cocconeis pediculus	26	3.21%		
Cocconeis placentula sensu lato	42	5.19%		
Craticula subminuscula	2	0.25%		
Cyclotella atomus	10	1.24%		
Cyclotella meneghiniana	2	0.25%		
Cymbella affinis	2	0.25%		
Diatoma moniliformis	16	1.98%		
Diatoma vulgaris	1	0.12%		
Encyonema minutum	108	13.35%		
Encyonema silesiacum	6	0.74%		
Encyonopsis microcephala	2	0.25%		
Epithemia sorex	2	0.25%		
Fragilaria sp.	4	0.49%		GV
Fragilaria vaucheriae	2	0.25%		
Gomphoneis olivaceum	5	0.62%		
Gomphonema sp.	14	1.73%		GV
Gomphonema parvulum	3	0.37%		
Gomphonema subclavatum	1	0.12%		
Mayamaea atomus	2	0.25%		
Navicula sp.	6	0.74%		GV
Navicula antonii	7	0.87%		
Navicula cryptotenella	38	4.70%		
Navicula cryptotenelloides	6	0.74%		
Navicula reichardtiana	16	1.98%		
Nitzschia archibaldii	13	1.61%		
Nitzschia dissipata	114	14.09%		
Nitzschia fonticola	5	0.62%		
Nitzschia heufleriana	2	0.25%		
Nitzschia inconspicua	10	1.24%		
Nitzschia linearis	3	0.37%		
Nitzschia palea	5	0.62%		
Nitzschia paleacea	30	3.71%		
Nitzschia recta	6	0.74%		
Nitzschia soratensis	1	0.12%		
Planothidium frequentissimum	4	0.49%		
Planothidium lanceolatum	3	0.37%		
Planothidium rostratum	1	0.12%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP008

RAI No.: PBSJ18CFRP008 Sta. Name: Clark Fork River at Williams-Tavenner Bridge
Client ID: CFR-34
Date Coll.: 9/26/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Pseudostaurosira brevistriata	6	0.74%		
Reimeria sinuata	5	0.62%		
Rhoicosphenia abbreviata	12	1.48%		
Sellaphora atomoides	12	1.48%		
Sellaphora pupula	2	0.25%		
Staurosira construens	6	0.74%		
Staurosira construens v. binodis	2	0.25%		
Staurosira construens v. venter	24	2.97%		
Surirella angusta	2	0.25%		
Surirella brebissonii v. kuetzingii	6	0.74%		
Ulnaria contracta	4	0.49%		
Ulnaria ulna	1	0.12%		
Sample Count 809				

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP009

RAI No.: PBSJ18CFRP009 Sta. Name: Clark Fork at Turah
Client ID: CFR-116A
Date Coll.: 9/27/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium deflexum	1	0.12%		
Achnanthidium minutissimum	47	5.86%		
Achnanthidium pyrenaicum	2	0.25%		
Adlafia minuscula	1	0.12%		
Amphipleura pellucida	1	0.12%		
Amphora pediculus	11	1.37%		
Caloneis bacillum	1	0.12%		
Cocconeis pediculus	28	3.49%		
Cocconeis placentula sensu lato	50	6.23%		
Cyclotella meneghiniana	8	1.00%		
Cymbella affiniformis	6	0.75%		
Cymbella affinis	58	7.23%		
Diatoma moniliformis	55	6.86%		
Diatoma vulgaris	51	6.36%		
Encyonema sp.	2	0.25%		GV
Encyonema caespitosum	6	0.75%		
Encyonema minutum	45	5.61%		
Encyonema silesiacum	7	0.87%		
Epithemia sorex	141	17.58%		
Fragilaria sp.	4	0.50%		GV
Gomphoneis olivaceum	5	0.62%		
Gomphonema sp.	15	1.87%		GV
Gomphonema pumilum v. rigidum	19	2.37%		
Melosira varians	1	0.12%		
Navicula sp.	6	0.75%		GV
Navicula antonii	2	0.25%		
Navicula capitatoradiata	7	0.87%		
Navicula cryptotenella	5	0.62%		
Navicula cryptotenelloides	1	0.12%		
Navicula goersii	1	0.12%		
Navicula reichardtiana	10	1.25%		
Nitzschia sp.	8	1.00%		GV, n. acidoclinata?
Nitzschia archibaldii	9	1.12%		
Nitzschia dissipata	65	8.10%		
Nitzschia dissipata v. media	1	0.12%		
Nitzschia fonticola	3	0.37%		
Nitzschia graciliformis	2	0.25%		
Nitzschia heufleriana	4	0.50%		
Nitzschia inconspicua	7	0.87%		
Nitzschia lacuum	6	0.75%		
Nitzschia liebethruthii	1	0.12%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP009

RAI No.: PBSJ18CFRP009 Sta. Name: Clark Fork at Turah
Client ID: CFR-116A
Date Coll.: 9/27/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia linearis	3	0.37%		
Nitzschia minuta	2	0.25%		
Nitzschia palea	11	1.37%		
Nitzschia paleacea	50	6.23%		
Nitzschia sociabilis	1	0.12%		
Nitzschia soratensis	10	1.25%		
Nitzschia supralitorea	3	0.37%		
Odontidium mesodon	1	0.12%		
Planothidium lanceolatum	2	0.25%		
Rhoicosphenia abbreviata	4	0.50%		
Rhoicosphenia californica	3	0.37%		
Sellaphora atomoides	4	0.50%		
Staurosira construens v. venter	3	0.37%		
Ulnaria ulna	2	0.25%		
Sample Count	802			

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP010

RAI No.: PBSJ18CFRP010 Sta. Name: Lost Creek at Frontage Road
Client ID: LC-7.5
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium affine	3	0.37%		
Achnanthidium deflexum	23	2.84%		
Achnanthidium minutissimum	267	32.96%		
Amphora copulata	2	0.25%		
Amphora pediculus	15	1.85%		
Caloneis bacillum	1	0.12%		
Cocconeis pediculus	2	0.25%		
Cocconeis placentula sensu lato	12	1.48%		
Cymbella affiniformis	2	0.25%		
Cymbella affinis	12	1.48%		
Cymbella compacta	3	0.37%		
Cymbella mexicana	2	0.25%		
Cymbella subturgidula	2	0.25%		
Denticula kuetzingii	6	0.74%		
Diatoma moniliformis	20	2.47%		
Diatoma vulgaris	1	0.12%		
Encyonema silesiacum	2	0.25%		
Encyonopsis microcephala	186	22.96%		
Encyonopsis subminuta	30	3.70%		
Eunotia implicata	1	0.12%		
Fallacia lenzii	1	0.12%		
Fragilaria sp.	4	0.49%		GV
Fragilaria capucina v. gracilis	2	0.25%		
Fragilaria tenera	2	0.25%		
Fragilaria vaucheriae	3	0.37%		
Gomphonema sp.	2	0.25%		GV
Gomphonema pumilum v. elegans	1	0.12%		
Gomphonema pumilum v. rigidum	4	0.49%		
Navicula sp.	4	0.49%		GV
Navicula aitchelbee	13	1.60%		
Navicula cryptocephala	2	0.25%		
Navicula cryptotenella	16	1.98%		
Navicula cryptotenelloides	10	1.23%		
Navicula erifuga	1	0.12%		
Navicula gregaria	3	0.37%		
Navicula reichardtiana	4	0.49%		
Navicula veneta	1	0.12%		
Nitzschia sp.	2	0.25%		GV
Nitzschia amphibia	2	0.25%		
Nitzschia dissipata	22	2.72%		
Nitzschia heufleriana	2	0.25%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP010

RAI No.: PBSJ18CFRP010 Sta. Name: Lost Creek at Frontage Road
Client ID: LC-7.5
Date Coll.: 9/25/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia recta	2	0.25%		
Pseudostaurosira brevistriata	11	1.36%		
Rhoicosphenia abbreviata	3	0.37%		
Sellaphora sp.	5	0.62%		obscured, GV
Sellaphora disjuncta	13	1.60%		
Staurosira construens	2	0.25%		
Staurosira construens v. venter	51	6.30%		
Staurosirella leptostauron	6	0.74%		
Staurosirella pinnata	9	1.11%		
Synedra rumpens	2	0.25%		
Synedra tenera	6	0.74%		
Ulnaria acus	4	0.49%		
Ulnaria ulna	3	0.37%		
Sample Count	810			

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP011

RAI No.: PBSJ18CFRP011 Sta. Name: Racetrack Creek at Frontage Road
Client ID: RTC-1.5
Date Coll.: 9/26/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium deflexum	162	20.20%		
Achnanthidium gracillimum	2	0.25%		
Achnanthidium minutissimum	389	48.50%		
Achnanthidium pyrenaicum	103	12.84%		
Adlafia minuscula	1	0.12%		
Amphora pediculus	1	0.12%		
Cocconeis pediculus	1	0.12%		
Cocconeis placentula sensu lato	9	1.12%		
Encyonema minutum	30	3.74%		
Encyonema silesiacum	6	0.75%		
Fistulifera saprophila	2	0.25%		
Fragilaria capucina v. gracilis	1	0.12%		
Fragilaria recapitellata	2	0.25%		
Fragilaria tenera	1	0.12%		
Gomphonema sp.	4	0.50%		GV
Gomphonema parvulum	3	0.37%		
Gomphonema pumilum v. elegans	5	0.62%		
Gomphonema pumilum v. rigidum	3	0.37%		
Melosira varians	1	0.12%		
Meridion circulare	1	0.12%		
Navicula aitchelbee	4	0.50%		
Navicula cryptocephala	2	0.25%		
Navicula gregaria	6	0.75%		
Navicula recens	1	0.12%		
Navicula reichardtiana	5	0.62%		
Navicula tripunctata	1	0.12%		
Nitzschia dissipata	2	0.25%		
Nitzschia palea	1	0.12%		
Nitzschia soratensis	1	0.12%		
Planothidium dubium	3	0.37%		
Planothidium frequentissimum	13	1.62%		
Planothidium lanceolatum	7	0.87%		
Psammothidium lauenburgianum	1	0.12%		
Pseudostaurosira brevistriata	1	0.12%		
Reimeria sinuata	4	0.50%		
Staurosira construens v. venter	1	0.12%		
Staurosirella leptostauron	4	0.50%		
Surirella angusta	1	0.12%		
Synedra famelica	5	0.62%		GV
Synedra rumpens	11	1.37%		
Ulnaria ulna	1	0.12%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP011

RAI No.:	PBSJ18CFRP011			Sta. Name:	Racetrack Creek at Frontage Road
Client ID:	RTC-1.5				
Date Coll.:	9/26/2018	No Jars:	1	STORET ID:	
Sample Notes:					

Taxonomic Name	Count	PRA	Cell Count	Comment
Sample Count	802			

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP012

RAI No.: PBSJ18CFRP012 Sta. Name: Little Blackfoot River at Beck Hill Road
Client ID: LBR-CFR-02
Date Coll.: 9/26/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	20	2.48%		
Adlafia minuscula	1	0.12%		
Amphipleura pellucida	10	1.24%		
Amphora pediculus	3	0.37%		
Aulacoseira islandica	2	0.25%		
Cocconeis pediculus	21	2.61%		
Cocconeis placentula sensu lato	116	14.41%		
Cyclotella meneghiniana	6	0.75%		
Cymbella affinis	7	0.87%		
Diatoma moniliformis	166	20.62%		
Diatoma vulgaris	4	0.50%		
Encyonema sp.	8	0.99%		GV
Encyonema minutum	3	0.37%		
Encyonema silesiacum	4	0.50%		
Epithemia sorex	68	8.45%		
Fragilaria sp.	4	0.50%		GV
Fragilaria capucina	1	0.12%		
Fragilaria capucina v. gracilis	4	0.50%		
Gomphoneis olivaceum	2	0.25%		
Gomphonema sp.	3	0.37%		GV
Gomphonema parvulum	2	0.25%		
Gomphonema pumilum v. elegans	4	0.50%		
Gomphonema pumilum v. rigidum	7	0.87%		
Mayamaea atomus	3	0.37%		
Melosira varians	4	0.50%		
Meridion circulare	5	0.62%		
Navicula sp.	3	0.37%		GV, obscured
Navicula capitatoradiata	3	0.37%		
Navicula cryptotenella	2	0.25%		
Navicula gregaria	1	0.12%		
Navicula reichardtiana	8	0.99%		
Navicula tripunctata	5	0.62%		
Nitzschia sp.	5	0.62%		GV
Nitzschia archibaldii	38	4.72%		
Nitzschia dissipata	76	9.44%		
Nitzschia dissipata v. media	6	0.75%		
Nitzschia fonticola	5	0.62%		
Nitzschia fossilis	8	0.99%		
Nitzschia heufleriana	5	0.62%		
Nitzschia lacuum	2	0.25%		
Nitzschia palea	10	1.24%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP012

RAI No.: PBSJ18CFRP012 Sta. Name: Little Blackfoot River at Beck Hill Road
Client ID: LBR-CFR-02
Date Coll.: 9/26/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia paleacea	38	4.72%		
Nitzschia soratensis	1	0.12%		
Nitzschia supralitorea	2	0.25%		
Planothidium frequentissimum	1	0.12%		
Planothidium lanceolatum	4	0.50%		
Reimeria sinuata	6	0.75%		
Rhoicosphenia abbreviata	2	0.25%		
Staurosira construens v. venter	20	2.48%		
Staurosirella pinnata	1	0.12%		
Surirella angusta	2	0.25%		
Synedra rumpens	7	0.87%		
Ulnaria acus	30	3.73%		
Ulnaria contracta	1	0.12%		
Ulnaria ulna	35	4.35%		

Sample Count 805

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP013

RAI No.: PBSJ18CFRP013 Sta. Name: Clark Fork River at Deer Lodge
Client ID: CFR-27H
Date Coll.: 9/26/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Diatoms				
Bacillariophyta				
Achnanthidium deflexum	1	0.12%		
Achnanthidium gracillimum	5	0.62%		
Achnanthidium minutissimum	241	30.05%		
Amphora copulata	2	0.25%		
Amphora pediculus	97	12.09%		
Caloneis bacillum	23	2.87%		
Cocconeis pediculus	2	0.25%		
Cocconeis placentula sensu lato	38	4.74%		
Craticula subminuscula	1	0.12%		
Cyclotella meneghiniana	3	0.37%		
Cymbella compacta	2	0.25%		
Diatoma moniliformis	13	1.62%		
Diatoma vulgaris	2	0.25%		
Encyonema sp.	10	1.25%		GV
Encyonema minutum	8	1.00%		
Encyonema silesiacum	43	5.36%		
Encyonema ventricosum	2	0.25%		
Encyonopsis microcephala	2	0.25%		
Fistulifera saprophila	1	0.12%		
Fragilaria capucina	1	0.12%		
Fragilaria microvaucheriae	2	0.25%		Likely F. microvaucheriae
Geissleria decussis	2	0.25%		
Gomphoneis olivaceum	17	2.12%		
Gomphonema parvulum	6	0.75%		
Halamphora veneta	1	0.12%		
Luticola mutica	1	0.12%		
Mayamaea atomus	3	0.37%		
Navicula aitchelbee	1	0.12%		
Navicula antonii	5	0.62%		
Navicula cryptotenella	46	5.74%		
Navicula cryptotenelloides	2	0.25%		
Navicula gregaria	1	0.12%		
Navicula reichardtiana	31	3.87%		
Navicula tripunctata	3	0.37%		
Navicula wiesneri	2	0.25%		
Neidium ampliatum	1	0.12%		
Nitzschia sp.	4	0.50%		GV
Nitzschia acicularis	3	0.37%		
Nitzschia archibaldii	15	1.87%		
Nitzschia dissipata	61	7.61%		
Nitzschia hantzschiana	1	0.12%		

Taxa Listing

Project ID: PBSJ18CFRP
RAI No.: PBSJ18CFRP013

RAI No.: PBSJ18CFRP013 Sta. Name: Clark Fork River at Deer Lodge
Client ID: CFR-27H
Date Coll.: 9/26/2018 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Cell Count	Comment
Nitzschia inconspicua	5	0.62%		
Nitzschia linearis	1	0.12%		
Nitzschia palea	7	0.87%		
Nitzschia paleacea	9	1.12%		
Nitzschia sociabilis	2	0.25%		
Nitzschia soratensis	10	1.25%		
Planothidium frequentissimum	4	0.50%		
Planothidium lanceolatum	2	0.25%		
Reimeria sinuata	7	0.87%		
Rhoicosphenia abbreviata	10	1.25%		
Sellaphora atomoides	24	2.99%		
Sellaphora disjuncta	2	0.25%		
Sellaphora pupula	1	0.12%		
Simonsenia delognei	2	0.25%		
Staurosira construens v. binodis	3	0.37%		
Staurosira construens v. venter	6	0.75%		
Surirella brebissonii v. kuetzingii	1	0.12%		
Ulnaria contracta	1	0.12%		

Sample Count 802

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP001
Station Name:	Mill-Willow Creek at Frontage Road
Client ID:	MCWC-MWB
STORET ID:	
Date Collected:	9/24/2018
Count Of Taxon:	74
Sum Of Count:	808

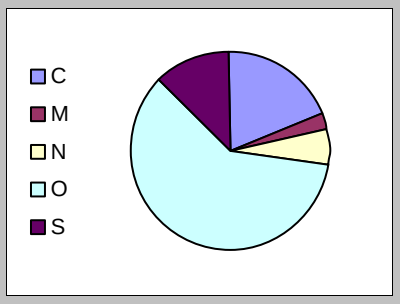
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.766	Excellent	Excellent
Species Richness	74	Excellent	Excellent
Native Taxa Percent	0.37%		
Cosmopolitan Taxa Percent	77.60%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.37%		
Dominant Taxon Percent	19.55%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	40.22%	Fair	Excellent
Motile Taxa Percent	40.84%		
Mountains Brackish Taxa Percent	80.82%		
Plains Brackish Taxa Percent	0.25%		
Organic Nutrients			
Pollution Index	2.446	Good	Excellent
Nitrogen Heterotroph Taxa Percent	13.49%		
Polysaprobous Taxa Percent	33.79%		
Low DO Taxa Percent	4.33%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	63.12%		
Eutraphentic Taxa Percent	40.35%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	19.55%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	16.09%		
Abnormal Cells Percent	0.00%	Excellent	

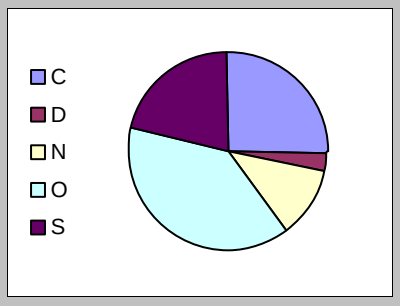
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Fair
MTP	Montana DEQ Plains (Bahls 1992)	Excellent

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	24.50%	49.60%
Mountains Metals Increasers Taxa Percent	3.59%	5.05%
Mountains Nutrient Increasers Taxa Percent	6.56%	9.68%
Mountains Sediment Increasers Taxa Percent	15.72%	36.32%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	4.33%	83.15%
Plains General Increasers Taxa Percent	38.12%	63.31%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	158	19.55%
Cocconeis placentula sensu lato	88	10.89%
Navicula reichardtiana	51	6.31%
Planothidium lanceolatum	39	4.83%
Nitzschia paleacea	37	4.58%
Nitzschia archibaldii	34	4.21%
Melosira varians	32	3.96%
Navicula	30	3.71%
Planothidium frequentissimum	30	3.71%
Nitzschia dissipata	26	3.22%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP002
Station Name:	Mill-Willow Bypass near mouth
Client ID:	MWB-SBC
STORET ID:	
Date Collected:	9/24/2018
Count Of Taxon:	52
Sum Of Count:	807

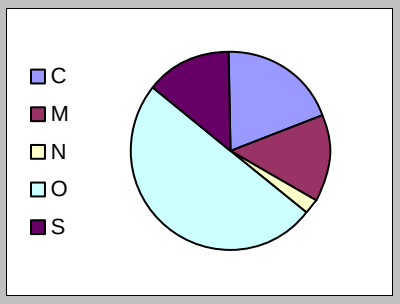
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	3.833	Excellent	Good
Species Richness	52	Excellent	Excellent
Native Taxa Percent	0.50%		
Cosmopolitan Taxa Percent	59.23%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.50%		
Dominant Taxon Percent	30.98%	Good	Good
Sediment			
Siltation Taxa Percent	17.47%	Excellent	Excellent
Motile Taxa Percent	20.94%		
Mountains Brackish Taxa Percent	88.85%		
Plains Brackish Taxa Percent	0.12%		
Organic Nutrients			
Pollution Index	2.853	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	1.49%		
Polysaprobous Taxa Percent	7.31%		
Low DO Taxa Percent	0.87%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	85.25%		
Eutraphentic Taxa Percent	55.39%		
Rhopalodiales Percent	0.99%		
Metals			
Disturbance Taxa Percent	9.29%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	1.49%		
Abnormal Cells Percent	0.00%	Excellent	

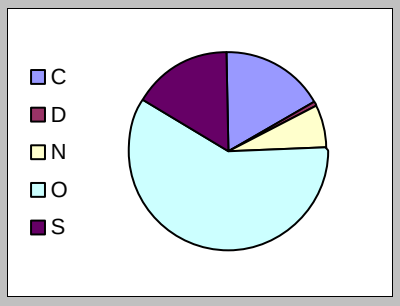
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Good

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	28.25%	57.14%
Mountains Metals Increasers Taxa Percent	20.07%	29.46%
Mountains Nutrient Increasers Taxa Percent	3.47%	6.68%
Mountains Sediment Increasers Taxa Percent	20.32%	48.80%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.87%	88.10%
Plains General Increasers Taxa Percent	22.68%	22.07%



Dominant Taxa

Category	A	PRA
Cymbella affinis	250	30.98%
Cocconeis placentula sensu lato	100	12.39%
Diatoma vulgaris	90	11.15%
Achnanthidium minutissimum	75	9.29%
Nitzschia fonticola	49	6.07%
Navicula cryptotenella	27	3.35%
Nitzschia dissipata	17	2.11%
Gomphonema	14	1.73%
Reimeria sinuata	14	1.73%
Cymbella compacta	12	1.49%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP003
Station Name:	Warm Springs Creek near mouth
Client ID:	WSC-SBC
STORET ID:	
Date Collected:	9/24/2018
Count Of Taxon:	50
Sum Of Count:	807

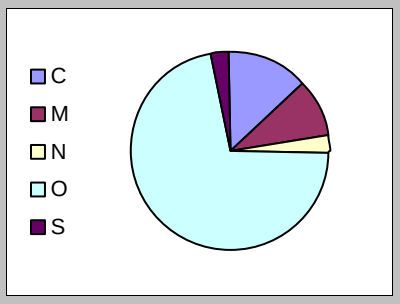
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.864	Good	Fair
Species Richness	50	Excellent	Excellent
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	87.61%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.12%		
Dominant Taxon Percent	57.50%	Fair	Fair
Sediment			
Siltation Taxa Percent	7.43%	Excellent	Excellent
Motile Taxa Percent	8.30%		
Mountains Brackish Taxa Percent	90.09%		
Plains Brackish Taxa Percent	0.50%		
Organic Nutrients			
Pollution Index	2.708	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	1.61%		
Polysaprobous Taxa Percent	22.30%		
Low DO Taxa Percent	0.87%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	87.73%		
Eutraphentic Taxa Percent	11.28%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	57.50%	Fair	Fair
Acidophilous Taxa Percent	0.25%		
Metals Tolerant Taxa Percent	17.84%		
Abnormal Cells Percent	0.00%	Excellent	

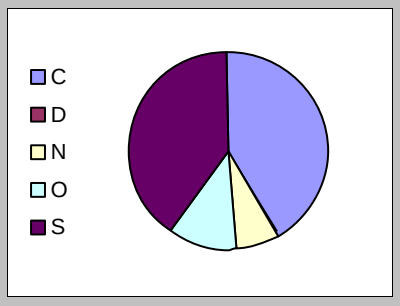
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Fair
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	15.99%	32.64%
Mountains Metals Increasers Taxa Percent	11.15%	12.71%
Mountains Nutrient Increasers Taxa Percent	2.85%	6.18%
Mountains Sediment Increasers Taxa Percent	3.47%	11.70%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.37%	88.88%
Plains General Increasers Taxa Percent	79.18%	99.38%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	464	57.50%
Encyonema minutum	71	8.80%
Encyonema silesiacum	56	6.94%
Cymbella affinis	24	2.97%
Diatoma moniliformis	16	1.98%
Encyonema	14	1.73%
Cymbella compacta	12	1.49%
Cocconeis placentula sensu lato	12	1.49%
Navicula cryptotenella	11	1.36%
Staurosira construens v. venter	10	1.24%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP004
Station Name:	Silver Bow Creek at Warm Springs
Client ID:	SS-25
STORET ID:	
Date Collected:	9/24/2018
Count Of Taxon:	56
Sum Of Count:	810

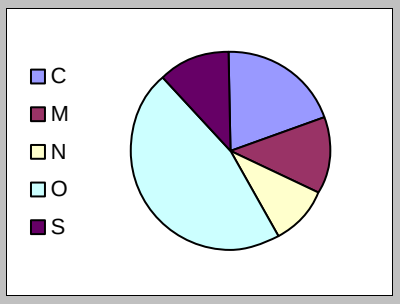
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.404	Excellent	Excellent
Species Richness	56	Excellent	Excellent
Native Taxa Percent	0.37%		
Cosmopolitan Taxa Percent	77.28%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.37%		
Dominant Taxon Percent	29.38%	Good	Good
Sediment			
Siltation Taxa Percent	26.30%	Good	Excellent
Motile Taxa Percent	31.98%		
Mountains Brackish Taxa Percent	74.57%		
Plains Brackish Taxa Percent	1.23%		
Organic Nutrients			
Pollution Index	2.603	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	9.14%		
Polysaprobous Taxa Percent	21.60%		
Low DO Taxa Percent	1.11%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	75.06%		
Eutraphentic Taxa Percent	64.81%		
Rhopalodiales Percent	3.83%		
Metals			
Disturbance Taxa Percent	4.57%	Excellent	Excellent
Acidophilous Taxa Percent	1.23%		
Metals Tolerant Taxa Percent	9.14%		
Abnormal Cells Percent	0.00%	Excellent	

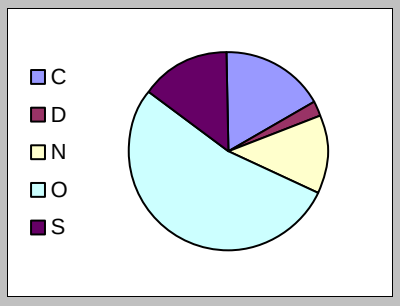
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Good

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	30.25%	61.03%
Mountains Metals Increasers Taxa Percent	18.89%	26.76%
Mountains Nutrient Increasers Taxa Percent	14.57%	21.77%
Mountains Sediment Increasers Taxa Percent	18.02%	42.47%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	3.21%	85.08%
Plains General Increasers Taxa Percent	23.70%	24.51%



Dominant Taxa

Category	A	PRA
Cocconeis placentula sensu lato	238	29.38%
Nitzschia fonticola	48	5.93%
Achnanthidium minutissimum	37	4.57%
Cymbella affinis	36	4.44%
Cocconeis pediculus	32	3.95%
Epithemia sorex	31	3.83%
Nitzschia paleacea	31	3.83%
Amphora veneta	29	3.58%
Diatoma vulgaris	28	3.46%
Fragilaria vaucheriae	25	3.09%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP005
Station Name:	Clark Fork River near Galen
Client ID:	CFR-03A
STORET ID:	
Date Collected:	9/25/2018
Count Of Taxon:	65
Sum Of Count:	818

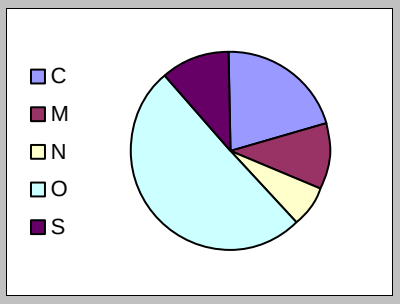
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.529	Excellent	Excellent
Species Richness	65	Excellent	Excellent
Native Taxa Percent	0.24%		
Cosmopolitan Taxa Percent	86.55%		
Mountains Rare Taxa Percent	0.24%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	20.42%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	29.22%	Good	Excellent
Motile Taxa Percent	35.82%		
Mountains Brackish Taxa Percent	82.64%		
Plains Brackish Taxa Percent	0.37%		
Organic Nutrients			
Pollution Index	2.622	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	3.06%		
Polysaprobous Taxa Percent	18.58%		
Low DO Taxa Percent	1.71%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	77.87%		
Eutraphentic Taxa Percent	43.40%		
Rhopalodiales Percent	2.44%		
Metals			
Disturbance Taxa Percent	15.65%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	11.49%		
Abnormal Cells Percent	0.00%	Excellent	

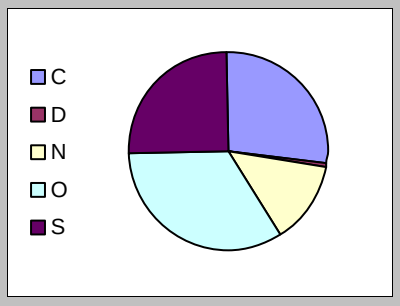
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Excellent

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	29.58%	59.87%
Mountains Metals Increasers Taxa Percent	14.43%	17.88%
Mountains Nutrient Increasers Taxa Percent	9.17%	12.92%
Mountains Sediment Increasers Taxa Percent	15.89%	36.69%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	1.22%	87.70%
Plains General Increasers Taxa Percent	44.74%	79.10%



Dominant Taxa

Category	A	PRA
Cocconeis placentula sensu lato	167	20.42%
Achnanthidium minutissimum	128	15.65%
Encyonema minutum	46	5.62%
Nitzschia dissipata	44	5.38%
Amphora pediculus	39	4.77%
Navicula cryptotenella	30	3.67%
Navicula cryptotenelloides	26	3.18%
Nitzschia fonticola	24	2.93%
Rhoicosphenia abbreviata	22	2.69%
Diatoma moniliformis	22	2.69%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP006
Station Name:	Clark Fork River at Galen Road
Client ID:	CFR-07D
STORET ID:	
Date Collected:	9/25/2018
Count Of Taxon:	58
Sum Of Count:	814

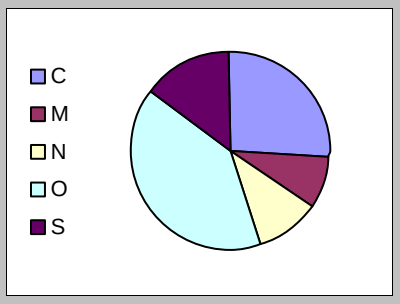
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.508	Excellent	Excellent
Species Richness	58	Excellent	Excellent
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	89.19%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	17.69%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	42.14%	Fair	Excellent
Motile Taxa Percent	50.00%		
Mountains Brackish Taxa Percent	80.34%		
Plains Brackish Taxa Percent	0.37%		
Organic Nutrients			
Pollution Index	2.589	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	5.53%		
Polysaprobous Taxa Percent	26.41%		
Low DO Taxa Percent	1.11%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	80.22%		
Eutraphentic Taxa Percent	39.56%		
Rhopalodiales Percent	1.72%		
Metals			
Disturbance Taxa Percent	14.99%	Excellent	Excellent
Acidophilous Taxa Percent	0.12%		
Metals Tolerant Taxa Percent	12.41%		
Abnormal Cells Percent	0.00%	Excellent	

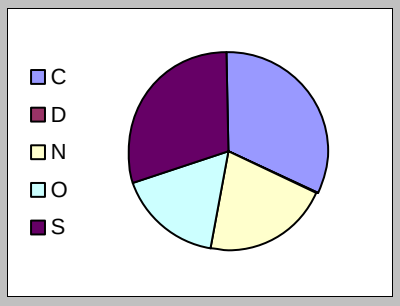
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Fair
MTP	Montana DEQ Plains (Bahls 1992)	Excellent

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	39.31%	77.04%
Mountains Metals Increasers Taxa Percent	12.53%	14.92%
Mountains Nutrient Increasers Taxa Percent	14.99%	22.36%
Mountains Sediment Increasers Taxa Percent	22.11%	53.59%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	1.11%	87.90%
Plains General Increasers Taxa Percent	64.25%	98.65%



Dominant Taxa

Category	A	PRA
Nitzschia dissipata	144	17.69%
Achnanthidium minutissimum	122	14.99%
Diatoma moniliformis	61	7.49%
Cocconeis placentula sensu lato	54	6.63%
Amphora pediculus	49	6.02%
Encyonema minutum	29	3.56%
Navicula cryptotenella	29	3.56%
Encyonema silesiacum	28	3.44%
Nitzschia fonticola	25	3.07%
Rhoicosphenia abbreviata	24	2.95%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP007
Station Name:	Clark Fork River at Gem Back Road
Client ID:	CFR-11F
STORET ID:	
Date Collected:	9/25/2018
Count Of Taxon:	56
Sum Of Count:	809

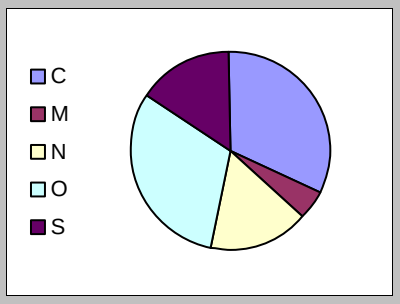
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.132	Excellent	Excellent
Species Richness	56	Excellent	Excellent
Native Taxa Percent	0.12%		
Cosmopolitan Taxa Percent	89.86%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.12%		
Dominant Taxon Percent	20.02%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	34.98%	Good	Excellent
Motile Taxa Percent	40.42%		
Mountains Brackish Taxa Percent	72.44%		
Plains Brackish Taxa Percent	0.12%		
Organic Nutrients			
Pollution Index	2.521	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	3.58%		
Polysaprobous Taxa Percent	34.36%		
Low DO Taxa Percent	0.49%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	83.44%		
Eutraphentic Taxa Percent	53.15%		
Rhopalodiales Percent	0.25%		
Metals			
Disturbance Taxa Percent	11.87%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	5.56%		
Abnormal Cells Percent	0.00%	Excellent	

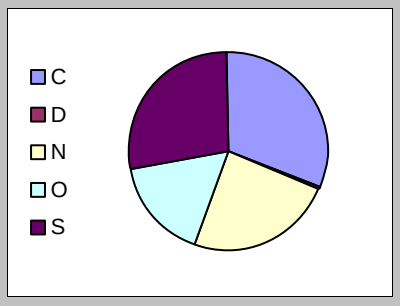
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Excellent

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	50.19%	90.32%
Mountains Metals Increasers Taxa Percent	7.79%	8.69%
Mountains Nutrient Increasers Taxa Percent	24.23%	43.25%
Mountains Sediment Increasers Taxa Percent	24.85%	61.03%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.99%	88.10%
Plains General Increasers Taxa Percent	64.89%	98.81%



Dominant Taxa

Category	A	PRA
Diatoma moniliformis	162	20.02%
Cocconeis placentula sensu lato	100	12.36%
Achnanthidium minutissimum	96	11.87%
Nitzschia dissipata	96	11.87%
Navicula reichardtiana	43	5.32%
Amphora pediculus	42	5.19%
Nitzschia archibaldii	42	5.19%
Navicula cryptotenella	25	3.09%
Diatoma vulgaris	21	2.60%
Encyonema minutum	17	2.10%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP008
Station Name:	Clark Fork River at Williams-Tavenner Bridge
Client ID:	CFR-34
STORET ID:	
Date Collected:	9/26/2018
Count Of Taxon:	53
Sum Of Count:	809

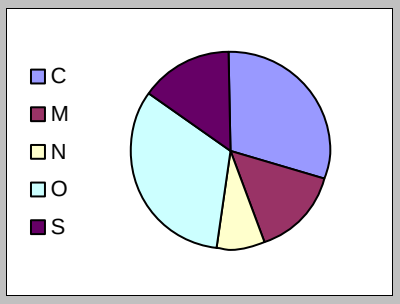
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.421	Excellent	Excellent
Species Richness	53	Excellent	Excellent
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	88.75%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	14.09%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	35.72%	Good	Excellent
Motile Taxa Percent	49.07%		
Mountains Brackish Taxa Percent	82.20%		
Plains Brackish Taxa Percent	0.12%		
Organic Nutrients			
Pollution Index	2.574	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	6.43%		
Polysaprobous Taxa Percent	28.55%		
Low DO Taxa Percent	1.24%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	80.10%		
Eutraphentic Taxa Percent	36.96%		
Rhopalodiales Percent	0.25%		
Metals			
Disturbance Taxa Percent	11.12%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	20.02%		
Abnormal Cells Percent	0.00%	Excellent	

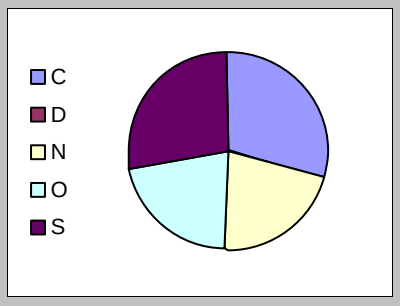
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Excellent

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	47.59%	87.90%
Mountains Metals Increasers Taxa Percent	22.74%	35.94%
Mountains Nutrient Increasers Taxa Percent	11.99%	17.11%
Mountains Sediment Increasers Taxa Percent	24.35%	59.48%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.62%	88.49%
Plains General Increasers Taxa Percent	56.98%	95.45%



Dominant Taxa

Category	A	PRA
Nitzschia dissipata	114	14.09%
Encyonema minutum	108	13.35%
Amphora pediculus	98	12.11%
Achnanthidium minutissimum	90	11.12%
Cocconeis placentula sensu lato	42	5.19%
Navicula cryptotenella	38	4.70%
Nitzschia paleacea	30	3.71%
Cocconeis pediculus	26	3.21%
Staurosira construens v. venter	24	2.97%
Caloneis bacillum	18	2.22%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP009
Station Name:	Clark Fork at Turah
Client ID:	CFR-116A
STORET ID:	
Date Collected:	9/27/2018
Count Of Taxon:	55
Sum Of Count:	802

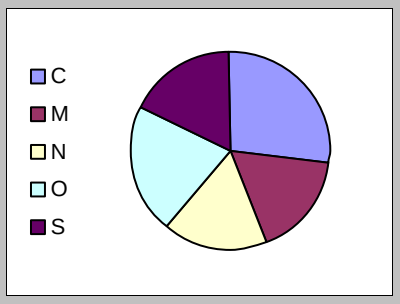
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.504	Excellent	Excellent
Species Richness	55	Excellent	Excellent
Native Taxa Percent	0.37%		
Cosmopolitan Taxa Percent	79.68%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.12%		
Dominant Taxon Percent	17.58%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	27.81%	Good	Excellent
Motile Taxa Percent	44.89%		
Mountains Brackish Taxa Percent	69.83%		
Plains Brackish Taxa Percent	0.12%		
Organic Nutrients			
Pollution Index	2.632	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	9.98%		
Polysaprobous Taxa Percent	26.81%		
Low DO Taxa Percent	2.37%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	75.44%		
Eutraphentic Taxa Percent	56.73%		
Rhopalodiales Percent	17.58%		
Metals			
Disturbance Taxa Percent	5.86%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	14.46%		
Abnormal Cells Percent	0.00%	Excellent	

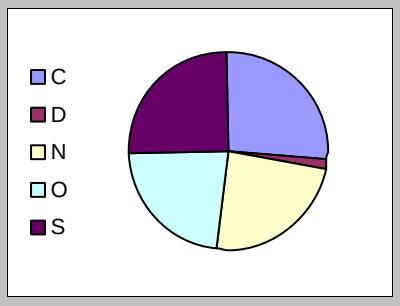
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Excellent

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	55.99%	94.52%
Mountains Metals Increasers Taxa Percent	34.04%	65.17%
Mountains Nutrient Increasers Taxa Percent	34.66%	69.15%
Mountains Sediment Increasers Taxa Percent	36.78%	86.43%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	2.87%	85.54%
Plains General Increasers Taxa Percent	52.74%	91.77%



Dominant Taxa

Category	A	PRA
Epithemia sorex	141	17.58%
Nitzschia dissipata	65	8.10%
Cymbella affinis	58	7.23%
Diatoma moniliformis	55	6.86%
Diatoma vulgaris	51	6.36%
Cocconeis placentula sensu lato	50	6.23%
Nitzschia paleacea	50	6.23%
Achnanthidium minutissimum	47	5.86%
Encyonema minutum	45	5.61%
Cocconeis pediculus	28	3.49%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP010
Station Name:	Lost Creek at Frontage Road
Client ID:	LC-7.5
STORET ID:	
Date Collected:	9/25/2018
Count Of Taxon:	54
Sum Of Count:	810

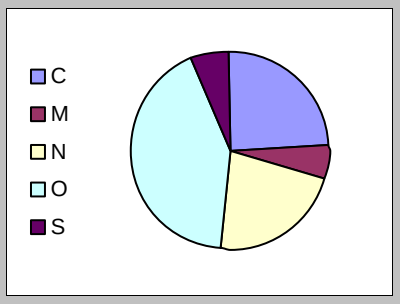
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	3.683	Excellent	Good
Species Richness	54	Excellent	Excellent
Native Taxa Percent	0.49%		
Cosmopolitan Taxa Percent	61.11%		
Mountains Rare Taxa Percent	0.49%		
Plains Rare Taxa Percent	2.84%		
Dominant Taxon Percent	32.96%	Good	Good
Sediment			
Siltation Taxa Percent	12.72%	Excellent	Excellent
Motile Taxa Percent	13.95%		
Mountains Brackish Taxa Percent	86.05%		
Plains Brackish Taxa Percent	0.99%		
Organic Nutrients			
Pollution Index	2.863	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.25%		
Polysaprobous Taxa Percent	5.43%		
Low DO Taxa Percent	0.49%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	82.84%		
Eutraphentic Taxa Percent	10.25%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	32.96%	Good	Good
Acidophilous Taxa Percent	0.99%		
Metals Tolerant Taxa Percent	1.11%		
Abnormal Cells Percent	0.00%	Excellent	

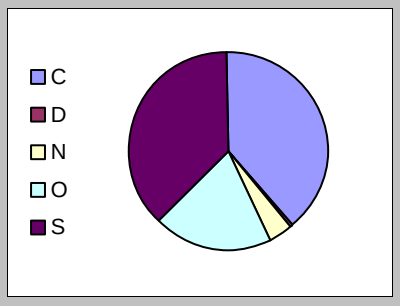
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Good

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	36.54%	72.58%
Mountains Metals Increasers Taxa Percent	8.02%	9.01%
Mountains Nutrient Increasers Taxa Percent	31.11%	60.64%
Mountains Sediment Increasers Taxa Percent	8.89%	20.61%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.74%	88.30%
Plains General Increasers Taxa Percent	66.79%	99.16%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	267	32.96%
Encyonopsis microcephala	186	22.96%
Staurosira construens v. venter	51	6.30%
Encyonopsis subminuta	30	3.70%
Achnanthidium deflexum	23	2.84%
Nitzschia dissipata	22	2.72%
Diatoma moniliformis	20	2.47%
Navicula cryptotenella	16	1.98%
Amphora pediculus	15	1.85%
Navicula aitchelbee	13	1.60%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP011
Station Name:	Racetrack Creek at Frontage Road
Client ID:	RTC-1.5
STORET ID:	
Date Collected:	9/26/2018
Count Of Taxon:	41
Sum Of Count:	802

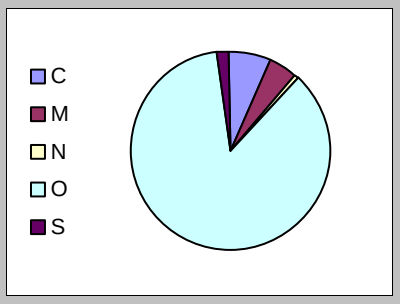
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.630	Good	Fair
Species Richness	41	Excellent	Excellent
Native Taxa Percent	12.84%		
Cosmopolitan Taxa Percent	81.17%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	20.20%		
Dominant Taxon Percent	48.50%	Good	Good
Sediment			
Siltation Taxa Percent	3.37%	Excellent	Excellent
Motile Taxa Percent	3.12%		
Mountains Brackish Taxa Percent	95.01%		
Plains Brackish Taxa Percent	0.25%		
Organic Nutrients			
Pollution Index	2.859	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.62%		
Polysaprobous Taxa Percent	9.73%		
Low DO Taxa Percent	1.25%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	60.72%		
Eutraphentic Taxa Percent	4.24%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	48.50%	Good	Good
Acidophilous Taxa Percent	0.12%		
Metals Tolerant Taxa Percent	7.98%		
Abnormal Cells Percent	0.00%	Excellent	

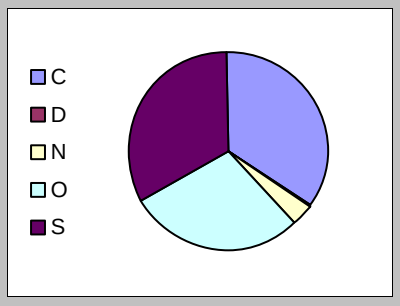
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	7.61%	18.94%
Mountains Metals Increasers Taxa Percent	5.36%	6.43%
Mountains Nutrient Increasers Taxa Percent	0.62%	4.65%
Mountains Sediment Increasers Taxa Percent	2.12%	10.03%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.75%	88.30%
Plains General Increasers Taxa Percent	54.49%	93.45%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	389	48.50%
Achnanthidium deflexum	162	20.20%
Achnanthidium pyrenaicum	103	12.84%
Encyonema minutum	30	3.74%
Planothidium frequentissimum	13	1.62%
Synedra rumpens	11	1.37%
Cocconeis placentula sensu lato	9	1.12%
Planothidium lanceolatum	7	0.87%
Encyonema silesiacum	6	0.75%
Navicula gregaria	6	0.75%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP012
Station Name:	Little Blackfoot River at Beck Hill Road
Client ID:	LBR-CFR-02
STORET ID:	
Date Collected:	9/26/2018
Count Of Taxon:	55
Sum Of Count:	805

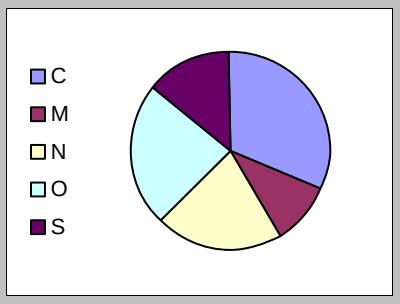
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.309	Excellent	Excellent
Species Richness	55	Excellent	Excellent
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	80.99%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	20.62%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	27.83%	Good	Excellent
Motile Taxa Percent	38.51%		
Mountains Brackish Taxa Percent	65.59%		
Plains Brackish Taxa Percent	0.37%		
Organic Nutrients			
Pollution Index	2.458	Good	Excellent
Nitrogen Heterotroph Taxa Percent	8.07%		
Polysaprobous Taxa Percent	41.12%		
Low DO Taxa Percent	2.36%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	82.86%		
Eutraphentic Taxa Percent	66.21%		
Rhopalodiales Percent	8.45%		
Metals			
Disturbance Taxa Percent	2.48%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	9.81%		
Abnormal Cells Percent	0.25%	Good	

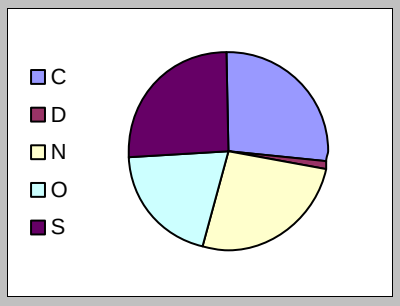
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Excellent

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	56.89%	94.95%
Mountains Metals Increasers Taxa Percent	17.52%	23.89%
Mountains Nutrient Increasers Taxa Percent	36.89%	74.22%
Mountains Sediment Increasers Taxa Percent	25.59%	62.93%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	2.73%	85.77%
Plains General Increasers Taxa Percent	55.90%	94.63%



Dominant Taxa

Category	A	PRA
Diatoma moniliformis	166	20.62%
Cocconeis placentula sensu lato	116	14.41%
Nitzschia dissipata	76	9.44%
Epithemia sorex	68	8.45%
Nitzschia archibaldii	38	4.72%
Nitzschia paleacea	38	4.72%
Ulnaria ulna	35	4.35%
Ulnaria acus	30	3.73%
Cocconeis pediculus	21	2.61%
Staurosira construens v. venter	20	2.48%

Metrics Report

Project ID:	PBSJ18CFRP
Sample ID:	PBSJ18CFRP013
Station Name:	Clark Fork River at Deer Lodge
Client ID:	CFR-27H
STORET ID:	
Date Collected:	9/26/2018
Count Of Taxon:	59
Sum Of Count:	802

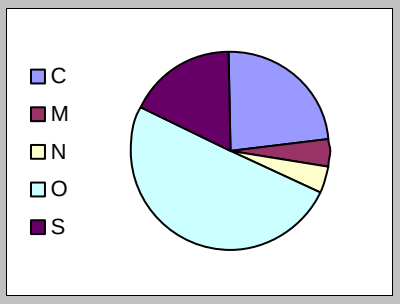
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.080	Excellent	Excellent
Species Richness	59	Excellent	Excellent
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	85.54%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.12%		
Dominant Taxon Percent	30.05%	Good	Good
Sediment			
Siltation Taxa Percent	30.80%	Good	Excellent
Motile Taxa Percent	42.52%		
Mountains Brackish Taxa Percent	86.41%		
Plains Brackish Taxa Percent	0.12%		
Organic Nutrients			
Pollution Index	2.634	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	4.49%		
Polysaprobous Taxa Percent	18.45%		
Low DO Taxa Percent	2.49%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	76.68%		
Eutraphentic Taxa Percent	31.30%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	30.05%	Good	Good
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	9.85%		
Abnormal Cells Percent	0.12%	Good	

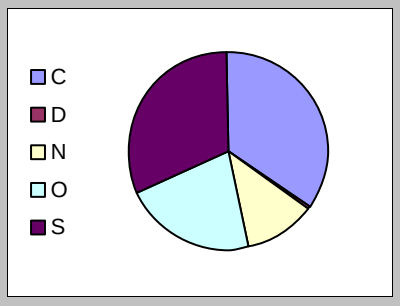
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Good

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	32.04%	64.43%
Mountains Metals Increasers Taxa Percent	5.74%	6.68%
Mountains Nutrient Increasers Taxa Percent	5.36%	8.53%
Mountains Sediment Increasers Taxa Percent	24.44%	59.87%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.87%	88.10%
Plains General Increasers Taxa Percent	61.72%	97.88%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	241	30.05%
Amphora pediculus	97	12.09%
Nitzschia dissipata	61	7.61%
Navicula cryptotenella	46	5.74%
Encyonema silesiacum	43	5.36%
Cocconeis placentula sensu lato	38	4.74%
Navicula reichardtiana	31	3.87%
Sellaphora atomoides	24	2.99%
Caloneis bacillum	23	2.87%
Gomphonema olivaceum	17	2.12%

Wednesday, March 06, 2019

APPENDIX G

MACROINVERTEBRATE DATA

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR001

RAI No.: **PBSJ18CFR001** Sta. Name: **Mill-Willow Creek at Frontage Road**
Client ID: **MCWC-MWB**
Date Coll.: **9/24/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Oligochaeta							
Naididae							
Nais sp.	7	1.28%	Yes	Unknown		8	CG
Acari							
Acari	4	0.73%	Yes	Unknown		5	PR
Ephemeroptera							
Baetidae							
Baetis tricaudatus complex	6	1.10%	Yes	Larva		5	CG
Ephemerellidae							
Drunella spinifera	1	0.18%	Yes	Larva		0	PR
Ephemerella sp.	1	0.18%	Yes	Larva	Early Instar	1.5	SC
Heptageniidae							
Cinygmula sp.	2	0.37%	Yes	Larva		0	SC
Epeorus sp.	3	0.55%	Yes	Larva	Early Instar	2	CG
Rhithrogena sp.	4	0.73%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Sweltsa sp.	15	2.75%	Yes	Larva		0	PR
Perlidae							
Hesperoperla pacifica	3	0.55%	Yes	Larva		1	PR
Perlodidae							
Isoperla sp.	4	0.73%	Yes	Larva		2	PR
Pteronarcyidae							
Pteronarcella sp.	3	0.55%	Yes	Larva		4	SH
Trichoptera							
Brachycentridae							
Brachycentrus occidentalis	46	8.42%	Yes	Larva		2	CF
Glossosomatidae							
Glossosoma sp.	68	12.45%	Yes	Larva		0	SC
Glossosomatidae	4	0.73%	No	Pupa		0	SC
Protoptila sp.	3	0.55%	Yes	Larva		1	SC
Helicopsychidae							
Helicopsyche sp.	3	0.55%	Yes	Larva		3	SC
Hydropsychidae							
Cheumatopsyche sp.	8	1.47%	Yes	Larva		5	CF
Hydropsyche sp.	100	18.32%	Yes	Larva		5	CF
Lepidostomatidae							
Lepidostoma sp.	87	15.93%	Yes	Larva		1	SH
Rhyacophilidae							
Rhyacophila Brunnea/Vemna Gr.	4	0.73%	Yes	Larva		2	PR
Coleoptera							
Elmidae							
Cleptelmis addenda	2	0.37%	Yes	Larva		4	CG
Optioservus sp.	41	7.51%	No	Larva		5	SC
Optioservus sp.	31	5.68%	Yes	Adult		5	SC
Zaitzevia sp.	16	2.93%	No	Larva		5	CG
Zaitzevia sp.	3	0.55%	Yes	Adult		5	CG

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR001

RAI No.: **PBSJ18CFR001** Sta. Name: **Mill-Willow Creek at Frontage Road**
Client ID: **MCWC-MWB**
Date Coll.: **9/24/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Diptera							
Empididae							
Neoplasta sp.	7	1.28%	Yes	Larva		5	PR
Simuliidae							
Simulium sp.	34	6.23%	Yes	Larva		6	CF
Tipulidae							
Hexatoma sp.	4	0.73%	Yes	Larva		2	PR
Chironomidae							
Chironominae							
Microtendipes sp.	1	0.18%	Yes	Larva		6	CF
Chironominae							
Micropsectra sp.	1	0.18%	Yes	Larva		4	CG
Diamesinae							
Pagastia sp.	1	0.18%	Yes	Larva		1	CG
Orthocladiinae							
Cricotopus / Orthocladius	2	0.37%	No	Larva	Early Instar	7	SH
Eukiefferiella sp.	1	0.18%	No	Larva	Damaged	8	CG
Eukiefferiella Brehmi Gr.	1	0.18%	Yes	Larva		8	CG
Eukiefferiella Claripennis Gr.	3	0.55%	Yes	Larva		8	CG
Eukiefferiella Devonica Gr.	1	0.18%	Yes	Larva		8	CG
Orthocladius sp.	4	0.73%	Yes	Larva		6	CG
Orthocladius sp.	2	0.37%	No	Pupa		6	CG
Thienemanniella sp.	1	0.18%	Yes	Larva		6	CG
Tvetenia sp.	3	0.55%	No	Pupa		5	CG
Tvetenia Bavarica Gr.	5	0.92%	Yes	Larva		5	CG
Prodiamesinae							
Odontomesa sp.	1	0.18%	No	Pupa		4	CG
Odontomesa sp.	1	0.18%	Yes	Larva		4	CG
Tanypodinae							
Thienemannimyia Gr.	4	0.73%	Yes	Larva	Early Instar	5	PR
Sample Count	546						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR002

RAI No.: **PBSJ18CFR002** Sta. Name: **Mill-Willow Bypass near mouth**
Client ID: **MWB-SBC**
Date Coll.: **9/24/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Trepaxonemata							
Trepaxonemata	2	0.37%	Yes	Unknown		4	PR
Naididae							
Nais sp.	7	1.29%	Yes	Unknown		8	CG
Asellidae							
Caecidotea sp.	1	0.18%	Yes	Unknown		8	CG
Acari							
Acari	7	1.29%	Yes	Unknown		5	PR
Ephemeroptera							
Baetidae							
Baetis tricaudatus complex	2	0.37%	Yes	Larva		5	CG
Ephemerellidae							
Ephemerella sp.	1	0.18%	Yes	Larva	Early Instar	1.5	SC
Heptageniidae							
Cinygmula sp.	1	0.18%	Yes	Larva		0	SC
Rhithrogena sp.	1	0.18%	Yes	Larva		0	SC
Leptophlebiidae							
Leptophlebiidae	2	0.37%	Yes	Larva	Early Instar	2	CG
Plecoptera							
Perlodidae							
Perlodidae	43	7.92%	Yes	Larva	Early Instar	2	PR
Skwala sp.	1	0.18%	Yes	Larva		3	PR
Pteronarcyidae							
Pteronarcella sp.	1	0.18%	Yes	Larva		4	SH
Trichoptera							
Brachycentridae							
Brachycentrus occidentalis	31	5.71%	Yes	Larva		2	CF
Glossosomatidae							
Glossosoma sp.	5	0.92%	Yes	Larva		0	SC
Protoptila sp.	6	1.10%	Yes	Larva		1	SC
Hydropsychidae							
Cheumatopsyche sp.	18	3.31%	Yes	Larva		5	CF
Hydropsyche sp.	87	16.02%	Yes	Larva		5	CF
Hydropsychidae	52	9.58%	No	Larva	Early Instar	4	CF
Lepidostomatidae							
Lepidostoma sp.	86	15.84%	Yes	Larva		1	SH
Leptoceridae							
Oecetis sp.	3	0.55%	Yes	Larva		8	PR
Lepidoptera							
Crambidae							
Petrophila sp.	2	0.37%	Yes	Larva		5	SC

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR002

RAI No.: **PBSJ18CFR002** Sta. Name: **Mill-Willow Bypass near mouth**
Client ID: **MWB-SBC**
Date Coll.: **9/24/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Coleoptera							
Elmidae							
Optioservus sp.	27	4.97%	No	Larva		5	SC
Optioservus sp.	3	0.55%	Yes	Adult		5	SC
Zaitzevia sp.	8	1.47%	No	Larva		5	CG
Zaitzevia sp.	3	0.55%	Yes	Adult		5	CG
Diptera							
Empididae							
Hemerodromia sp.	2	0.37%	Yes	Larva		6	PR
Simuliidae							
Simulium sp.	1	0.18%	No	Pupa		6	CF
Simulium sp.	2	0.37%	Yes	Larva		6	CF
Tipulidae							
Antocha monticola	3	0.55%	Yes	Larva		3	CG
Chironomidae							
Chironominae							
Microtendipes sp.	15	2.76%	Yes	Larva		6	CF
Polypedilum sp.	2	0.37%	Yes	Larva		6	SH
Orthocladiinae							
Cricotopus sp.	7	1.29%	No	Pupa		7	SH
Cricotopus (Cricotopus) sp.	19	3.50%	Yes	Larva		7	SH
Cricotopus (Nostococladius) sp.	4	0.74%	Yes	Larva		6	SH
Cricotopus / Orthocladius	29	5.34%	No	Larva	Early Instar	7	SH
Cricotopus trifascia	5	0.92%	Yes	Larva		7	SH
Eukiefferiella sp.	6	1.10%	Yes	Larva	Early Instar	8	CG
Eukiefferiella sp.	2	0.37%	No	Pupa		8	CG
Eukiefferiella Devonica Gr.	9	1.66%	Yes	Larva		8	CG
Limnophyes sp.	1	0.18%	Yes	Pupa		8	CG
Orthocladiinae	5	0.92%	No	Larva	Early Instar	6	CG
Orthocladiinae	1	0.18%	No	Pupa	Damaged	6	CG
Orthocladius sp.	4	0.74%	No	Pupa		6	CG
Orthocladius sp.	15	2.76%	Yes	Larva		6	CG
Tvetenia Bavarica Gr.	8	1.47%	Yes	Larva		5	CG
Tanypodinae							
Thienemannimyia Gr.	3	0.55%	Yes	Larva	Early Instar	5	PR
Sample Count	543						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR003

RAI No.: **PBSJ18CFR003** Sta. Name: **Warm Springs Creek near mouth**
Client ID: **WSC-SBC**
Date Coll.: **9/24/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata							
Nemata	2	0.39%	Yes	Unknown		5	UN
Sphaeriidae							
Sphaeriidae	1	0.19%	Yes	Unknown		8	CF
Acari							
Acari	7	1.35%	Yes	Unknown		5	PR
Ephemeroptera							
Baetidae							
Acentrella sp.	3	0.58%	Yes	Larva		4	CG
Baetis tricaudatus complex	8	1.55%	Yes	Larva		5	CG
Ephemerellidae							
Drunella grandis	4	0.77%	Yes	Larva		2	PR
Heptageniidae							
Cinygmula sp.	16	3.09%	Yes	Larva		0	SC
Epeorus sp.	1	0.19%	Yes	Larva	Early Instar	2	CG
Heptageniidae	2	0.39%	No	Larva	Early Instar	4	SC
Rhithrogena sp.	11	2.13%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Chloroperlidae	8	1.55%	Yes	Larva	Early Instar	1	PR
Paraperla sp.	2	0.39%	Yes	Larva		1	CG
Perlidae							
Hesperoperla pacifica	5	0.97%	Yes	Larva		1	PR
Perlodidae							
Perlodidae	1	0.19%	No	Larva	Early Instar	2	PR
Skwala sp.	8	1.55%	Yes	Larva		3	PR
Pteronarcyidae							
Pteronarcella sp.	1	0.19%	Yes	Larva		4	SH
Trichoptera							
Brachycentridae							
Brachycentrus sp.	2	0.39%	Yes	Larva	Early Instar	1	CF
Glossosomatidae							
Glossosoma sp.	9	1.74%	Yes	Larva		0	SC
Hydropsychidae							
Arctopsyche sp.	24	4.64%	Yes	Larva		2	PR
Hydropsyche sp.	5	0.97%	Yes	Larva		5	CF
Lepidostomatidae							
Lepidostoma sp.	41	7.93%	Yes	Larva		1	SH
Rhyacophilidae							
Rhyacophila sp.	5	0.97%	No	Larva	Early Instar	1	PR
Rhyacophila Brunnea/Vemna Gr.	5	0.97%	Yes	Larva		2	PR
Coleoptera							
Elmidae							
Cleptelmis addenda	2	0.39%	Yes	Larva		4	CG
Optioservus sp.	10	1.93%	Yes	Adult		5	SC
Optioservus sp.	111	21.47%	No	Larva		5	SC

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR003

RAI No.: **PBSJ18CFR003** Sta. Name: **Warm Springs Creek near mouth**
Client ID: **WSC-SBC**
Date Coll.: **9/24/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Diptera							
Empididae							
Chelifera sp.	**13**	**2.51%**	**Yes**	**Larva**		**5**	**PR**
Neoplasta sp.	**2**	**0.39%**	**Yes**	**Larva**		**5**	**PR**
Simuliidae							
Simulium sp.	**13**	**2.51%**	**Yes**	**Larva**		**6**	**CF**
Simulium sp.	**1**	**0.19%**	**No**	**Pupa**		**6**	**CF**
Tipulidae							
Hexatoma sp.	**2**	**0.39%**	**Yes**	**Larva**		**2**	**PR**
Chironomidae							
Diamesinae							
Pagastia sp.	**2**	**0.39%**	**Yes**	**Larva**		**1**	**CG**
Orthocladiinae							
Cardiocladius sp.	**2**	**0.39%**	**Yes**	**Larva**		**5**	**PR**
Cricotopus sp.	**1**	**0.19%**	**No**	**Pupa**		**7**	**SH**
Cricotopus (Cricotopus) sp.	**7**	**1.35%**	**Yes**	**Larva**		**7**	**SH**
Cricotopus / Orthocladius	**57**	**11.03%**	**No**	**Larva**	**Early Instar**	**7**	**SH**
Eukiefferiella sp.	**3**	**0.58%**	**No**	**Pupa**		**8**	**CG**
Eukiefferiella Claripennis Gr.	**2**	**0.39%**	**Yes**	**Larva**		**8**	**CG**
Eukiefferiella Devonica Gr.	**8**	**1.55%**	**Yes**	**Larva**		**8**	**CG**
Eukiefferiella Gracei Gr.	**2**	**0.39%**	**Yes**	**Larva**		**8**	**CG**
Orthocladius sp.	**6**	**1.16%**	**No**	**Pupa**		**6**	**CG**
Orthocladius sp.	**100**	**19.34%**	**Yes**	**Larva**		**6**	**CG**
Tvetenia Bavarica Gr.	**2**	**0.39%**	**Yes**	**Larva**		**5**	**CG**
Sample Count	517						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR004

RAI No.: **PBSJ18CFR004** Sta. Name: **Silver Bow Creek at Warm Springs**
Client ID: **SS-25**
Date Coll.: **9/24/2018** No. Jars: **4** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Hydrozoa							
Hydrozoa	6	1.13%	Yes	Unknown		5	PR
Trepaxonemata							
Trepaxonemata	9	1.69%	Yes	Unknown		4	PR
Enchytraeidae							
Enchytraeidae	1	0.19%	Yes	Immature		4	CG
Naididae							
Nais sp.	4	0.75%	Yes	Unknown		8	CG
Naididae							
Tubificinae	1	0.19%	Yes	Immature		11	CG
Physidae							
Physella sp.	1	0.19%	Yes	Unknown		8	SC
Diplostraca							
Cladocera	18	3.38%	Yes	Unknown		8	CF
Gammaridae							
Gammarus sp.	3	0.56%	Yes	Unknown		4	SH
Hyalellidae							
Hyalella sp.	12	2.26%	Yes	Unknown		8	CG
Acari							
Acari	6	1.13%	Yes	Unknown		5	PR
Ephemeroptera							
Baetidae							
Baetidae	3	0.56%	No	Larva	Early Instar	4	CG
Baetis tricaudatus complex	7	1.32%	Yes	Larva		5	CG
Caenidae							
Caenis sp.	1	0.19%	Yes	Larva		7	CG
Ephemerellidae							
Ephemerella sp.	57	10.71%	Yes	Larva	Early Instar	1.5	SC
Plecoptera							
Perlodidae							
Isoperla sp.	3	0.56%	Yes	Larva		2	PR

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR004

RAI No.: **PBSJ18CFR004** Sta. Name: **Silver Bow Creek at Warm Springs**
Client ID: **SS-25**
Date Coll.: **9/24/2018** No. Jars: **4** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Trichoptera							
Brachycentridae							
Brachycentrus occidentalis	11	2.07%	Yes	Larva		2	CF
Glossosomatidae							
Protoptila sp.	2	0.38%	Yes	Larva		1	SC
Hydropsychidae							
Cheumatopsyche sp.	83	15.60%	Yes	Larva		5	CF
Hydropsyche sp.	129	24.25%	Yes	Larva		5	CF
Hydropsychidae	16	3.01%	No	Larva	Early Instar	4	CF
Hydroptilidae							
Hydroptilidae	1	0.19%	Yes	Pupa		4	PH
Lepidostomatidae							
Lepidostoma sp.	10	1.88%	Yes	Larva		1	SH
Leptoceridae							
Nectopsyche sp.	1	0.19%	Yes	Larva		2	SH
Oecetis sp.	3	0.56%	Yes	Larva		8	PR
Lepidoptera							
Crambidae							
Petrophila sp.	1	0.19%	Yes	Larva		5	SC
Coleoptera							
Elmidae							
Cleptelmis addenda	1	0.19%	Yes	Larva		4	CG
Optioservus sp.	32	6.02%	Yes	Larva		5	SC
Zaitzevia sp.	7	1.32%	Yes	Larva		5	CG
Diptera							
Chaoboridae							
Chaoborus sp.	1	0.19%	Yes	Larva		7	PR
Empididae							
Hemerodromia sp.	1	0.19%	Yes	Larva		6	PR
Tipulidae							
Antocha monticola	1	0.19%	Yes	Larva		3	CG

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR004

RAI No.: **PBSJ18CFR004** Sta. Name: **Silver Bow Creek at Warm Springs**
Client ID: **SS-25**
Date Coll.: **9/24/2018** No. Jars: **4** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Chironomidae							
Chironominae							
Microtendipes sp.	7	1.32%	Yes	Larva		6	CF
Polypedilum sp.	1	0.19%	Yes	Larva		6	SH
Chironominae							
Cladotanytarsus sp.	1	0.19%	Yes	Larva		7	CG
Micropsectra sp.	4	0.75%	Yes	Larva		4	CG
Paratanytarsus sp.	1	0.19%	Yes	Larva		6	CG
Tanytarsus sp.	3	0.56%	Yes	Larva		6	CF
Diamesinae							
Diamesa sp.	2	0.38%	Yes	Larva		5	CG
Orthocladiinae							
Cricotopus sp.	3	0.56%	No	Pupa		7	SH
Cricotopus (Isocladius) sp.	1	0.19%	Yes	Larva		7	SH
Cricotopus / Orthocladius	12	2.26%	No	Larva	Early Instar	7	SH
Cricotopus bicinctus	7	1.32%	Yes	Larva		7	SH
Cricotopus trifascia	36	6.77%	Yes	Larva		7	SH
Eukiefferiella Devonica Gr.	2	0.38%	Yes	Larva		8	CG
Orthocladiinae	3	0.56%	No	Larva	Early Instar	6	CG
Tvetenia sp.	1	0.19%	No	Pupa		5	CG
Tvetenia Bavarica Gr.	1	0.19%	Yes	Larva		5	CG
Tvetenia tshernovskii	10	1.88%	Yes	Larva		5	CG
Tanypodinae							
Thienemannimyia Gr.	5	0.94%	Yes	Larva	Early Instar	5	PR
Sample Count	532						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR005

RAI No.: **PBSJ18CFR005** Sta. Name: **Clark Fork River near Galen**
Client ID: **CFR-03A**
Date Coll.: **9/25/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Trepaxonemata							
Trepaxonemata	1	0.18%	Yes	Unknown		4	PR
Nemata							
Nemata	5	0.92%	Yes	Unknown		5	UN
Enchytraeidae							
Enchytraeidae	1	0.18%	Yes	Immature		4	CG
Naididae							
Nais sp.	1	0.18%	Yes	Unknown		8	CG
Naididae							
Tubificinae	2	0.37%	Yes	Immature		11	CG
Acari							
Acari	6	1.11%	Yes	Unknown		5	PR
Odonata							
Gomphidae							
Ophiogomphus sp.	1	0.18%	Yes	Larva		5	PR
Ephemeroptera							
Baetidae							
Baetis tricaudatus complex	20	3.70%	Yes	Larva		5	CG
Ephemerellidae							
Ephemerella excrucians	20	3.70%	Yes	Larva		4	SH
Heptageniidae							
Ecdyonurus criddlei	1	0.18%	Yes	Larva		2	SH
Plecoptera							
Perlodidae							
Skwala sp.	4	0.74%	Yes	Larva		3	PR

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR005

RAI No.: **PBSJ18CFR005** Sta. Name: **Clark Fork River near Galen**
Client ID: **CFR-03A**
Date Coll.: **9/25/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Trichoptera							
Brachycentridae							
Amiocentrus aspilus	6	1.11%	Yes	Larva		3	CG
Brachycentrus occidentalis	11	2.03%	Yes	Larva		2	CF
Glossosomatidae							
Glossosoma sp.	7	1.29%	Yes	Larva		0	SC
Protoptila sp.	91	16.82%	Yes	Larva		1	SC
Helicopsychidae							
Helicopsyche sp.	5	0.92%	Yes	Larva		3	SC
Hydropsychidae							
Cheumatopsyche sp.	2	0.37%	Yes	Larva		5	CF
Hydropsyche sp.	87	16.08%	Yes	Larva		5	CF
Hydroptilidae							
Hydroptila sp.	2	0.37%	Yes	Larva		6	PH
Lepidostomatidae							
Lepidostoma sp.	19	3.51%	Yes	Larva		1	SH
Leptoceridae							
Oecetis sp.	4	0.74%	Yes	Larva		8	PR
Psychomyiidae							
Psychomyia sp.	15	2.77%	Yes	Larva		2	CG
Rhyacophilidae							
Rhyacophila Brunnea/Vemna Gr.	1	0.18%	Yes	Larva		2	PR
Lepidoptera							
Crambidae							
Petrophila sp.	2	0.37%	Yes	Larva		5	SC
Coleoptera							
Elmidae							
Cleptelmis addenda	3	0.55%	Yes	Larva		4	CG
Optioservus sp.	76	14.05%	Yes	Larva		5	SC
Zaitzevia sp.	11	2.03%	Yes	Larva		5	CG
Diptera							
Empididae							
Hemerodromia sp.	3	0.55%	Yes	Larva		6	PR
Neoplasta sp.	1	0.18%	Yes	Larva		5	PR
Tipulidae							
Antocha monticola	5	0.92%	Yes	Larva		3	CG

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR005

RAI No.: **PBSJ18CFR005** Sta. Name: **Clark Fork River near Galen**
Client ID: **CFR-03A**
Date Coll.: **9/25/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Chironomidae							
Chironominae							
Microtendipes sp.	**56**	**10.35%**	**Yes**	**Larva**		**6**	**CF**
Orthocladiinae							
Cricotopus (Nostococladius) sp.	**41**	**7.58%**	**Yes**	**Larva**		**6**	**SH**
Cricotopus / Orthocladius	**2**	**0.37%**	**No**	**Larva**	**Early Instar**	**7**	**SH**
Cricotopus trifascia	**1**	**0.18%**	**Yes**	**Larva**		**7**	**SH**
Eukiefferiella sp.	**5**	**0.92%**	**No**	**Pupa**		**8**	**CG**
Eukiefferiella Claripennis Gr.	**1**	**0.18%**	**Yes**	**Larva**		**8**	**CG**
Eukiefferiella Devonica Gr.	**6**	**1.11%**	**Yes**	**Larva**		**8**	**CG**
Orthocladiinae	**1**	**0.18%**	**No**	**Larva**	**Damaged**	**6**	**CG**
Orthocladius sp.	**13**	**2.40%**	**Yes**	**Larva**		**6**	**CG**
Tvetenia sp.	**1**	**0.18%**	**Yes**	**Pupa**		**5**	**CG**
Tanypodinae							
Thienemannimyia Gr.	**1**	**0.18%**	**Yes**	**Larva**	**Early Instar**	**5**	**PR**
Sample Count	541						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR006

RAI No.: **PBSJ18CFR006** Sta. Name: **Clark Fork River at Galen Road**
Client ID: **CFR-07D**
Date Coll.: **9/25/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Acari							
Acari	6	1.13%	Yes	Unknown		5	PR
Ephemeroptera							
Baetidae							
Acentrella sp.	1	0.19%	Yes	Larva		4	CG
Baetis tricaudatus complex	8	1.50%	Yes	Larva		5	CG
Ephemerellidae							
Ephemerella excrucians	13	2.44%	Yes	Larva		4	SH
Heptageniidae							
Rhithrogena sp.	1	0.19%	Yes	Larva		0	SC
Plecoptera							
Perlodidae							
Isoperla sp.	10	1.88%	Yes	Larva		2	PR
Skwala sp.	10	1.88%	Yes	Larva		3	PR
Trichoptera							
Brachycentridae							
Brachycentrus occidentalis	11	2.06%	Yes	Larva		2	CF
Glossosomatidae							
Glossosoma sp.	7	1.31%	Yes	Larva		0	SC
Glossosomatidae	1	0.19%	No	Pupa		0	SC
Protoptila sp.	1	0.19%	Yes	Larva		1	SC
Helicopsychidae							
Helicopsyche sp.	7	1.31%	Yes	Larva		3	SC
Hydropsychidae							
Cheumatopsyche sp.	3	0.56%	Yes	Larva		5	CF
Hydropsyche sp.	199	37.34%	Yes	Larva		5	CF
Lepidostomatidae							
Lepidostoma sp.	19	3.56%	Yes	Larva		1	SH
Leptoceridae							
Nectopsyche sp.	10	1.88%	Yes	Larva		2	SH
Oecetis sp.	5	0.94%	Yes	Larva		8	PR
Lepidoptera							
Crambidae							
Petrophila sp.	3	0.56%	Yes	Larva		5	SC
Coleoptera							
Elmidae							
Optioservus sp.	44	8.26%	No	Larva		5	SC
Optioservus sp.	7	1.31%	Yes	Adult		5	SC
Zaitzevia sp.	6	1.13%	No	Larva		5	CG
Zaitzevia sp.	3	0.56%	Yes	Adult		5	CG

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR006

RAI No.: **PBSJ18CFR006** Sta. Name: **Clark Fork River at Galen Road**
Client ID: **CFR-07D**
Date Coll.: **9/25/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Diptera							
Empididae							
Chelifera sp.	**3**	**0.56%**	**Yes**	**Larva**		**5**	**PR**
Hemerodromia sp.	**2**	**0.38%**	**Yes**	**Larva**		**6**	**PR**
Tipulidae							
Antocha monticola	**3**	**0.56%**	**Yes**	**Larva**		**3**	**CG**
Hexatoma sp.	**4**	**0.75%**	**Yes**	**Larva**		**2**	**PR**
Chironomidae							
Chironominae							
Microtendipes sp.	**33**	**6.19%**	**Yes**	**Larva**		**6**	**CF**
Orthocladiinae							
Cricotopus (Cricotopus) sp.	**1**	**0.19%**	**Yes**	**Larva**		**7**	**SH**
Cricotopus / Orthocladius	**34**	**6.38%**	**No**	**Larva**	**Early Instar**	**7**	**SH**
Cricotopus trifascia	**7**	**1.31%**	**Yes**	**Larva**		**7**	**SH**
Eukiefferiella sp.	**1**	**0.19%**	**No**	**Pupa**		**8**	**CG**
Eukiefferiella Brevicalcar Gr.	**3**	**0.56%**	**Yes**	**Larva**		**8**	**CG**
Eukiefferiella Devonica Gr.	**14**	**2.63%**	**Yes**	**Larva**		**8**	**CG**
Orthocladiinae	**1**	**0.19%**	**No**	**Larva**	**Damaged**	**6**	**CG**
Orthocladius sp.	**49**	**9.19%**	**Yes**	**Larva**		**6**	**CG**
Tvetenia tshernovskii	**2**	**0.38%**	**Yes**	**Larva**		**5**	**CG**
Tanypodinae							
Thienemannimyia Gr.	**1**	**0.19%**	**Yes**	**Larva**	**Early Instar**	**5**	**PR**
Sample Count	533						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR007

RAI No.: **PBSJ18CFR007** Sta. Name: **Clark Fork River at Gem Back Road**
Client ID: **CFR-11F**
Date Coll.: **9/25/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata							
Nemata	1	0.19%	Yes	Unknown		5	UN
Naididae							
Tubificinae	1	0.19%	Yes	Immature		11	CG
Ephemeroptera							
Baetidae							
Acentrella sp.	3	0.58%	Yes	Larva		4	CG
Baetis tricaudatus complex	29	5.58%	Yes	Larva		5	CG
Ephemerellidae							
Ephemerella excrucians	10	1.92%	Yes	Larva		4	SH
Heptageniidae							
Rhithrogena sp.	3	0.58%	Yes	Larva		0	SC
Plecoptera							
Perlidae							
Perlidae	1	0.19%	Yes	Larva	Early Instar	2	PR
Perlodidae							
Isogenoides sp.	2	0.38%	Yes	Larva		3	PR
Isoperla sp.	4	0.77%	Yes	Larva		2	PR
Skwala sp.	6	1.15%	Yes	Larva		3	PR
Trichoptera							
Brachycentridae							
Amiocentrus aspilus	1	0.19%	Yes	Larva		3	CG
Brachycentrus occidentalis	3	0.58%	Yes	Larva		2	CF
Glossosomatidae							
Glossosoma sp.	23	4.42%	Yes	Larva		0	SC
Glossosomatidae	1	0.19%	No	Pupa		0	SC
Protoptila sp.	25	4.81%	Yes	Larva		1	SC
Helicopsychidae							
Helicopsyche sp.	2	0.38%	No	Pupa		3	SC
Helicopsyche sp.	2	0.38%	Yes	Larva		3	SC
Hydropsychidae							
Cheumatopsyche sp.	11	2.12%	Yes	Larva		5	CF
Hydropsyche sp.	222	42.69%	Yes	Larva		5	CF
Lepidostomatidae							
Lepidostoma sp.	20	3.85%	Yes	Larva		1	SH
Rhyacophilidae							
Rhyacophila Brunnea/Vemna Gr.	1	0.19%	Yes	Larva		2	PR
Coleoptera							
Elmidae							
Optioservus sp.	3	0.58%	Yes	Adult		5	SC
Optioservus sp.	18	3.46%	No	Larva		5	SC
Zaitzevia sp.	3	0.58%	Yes	Adult		5	CG
Zaitzevia sp.	1	0.19%	No	Larva		5	CG

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR007

RAI No.: **PBSJ18CFR007** Sta. Name: **Clark Fork River at Gem Back Road**
Client ID: **CFR-11F**
Date Coll.: **9/25/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Diptera							
Empididae							
Hemerodromia sp.	1	0.19%	Yes	Larva		6	PR
Simuliidae							
Simulium sp.	2	0.38%	Yes	Larva		6	CF
Tipulidae							
Antocha monticola	2	0.38%	Yes	Larva		3	CG
Hexatoma sp.	1	0.19%	Yes	Larva		2	PR
Chironomidae							
Chironominae							
Microtendipes sp.	6	1.15%	Yes	Larva		6	CF
Orthocladiinae							
Cricotopus / Orthocladius	35	6.73%	No	Larva	Early Instar	7	SH
Cricotopus bicinctus	1	0.19%	Yes	Larva		7	SH
Cricotopus trifascia	8	1.54%	Yes	Larva		7	SH
Eukiefferiella sp.	7	1.35%	No	Pupa		8	CG
Eukiefferiella Claripennis Gr.	3	0.58%	Yes	Larva		8	CG
Eukiefferiella Devonica Gr.	30	5.77%	Yes	Larva		8	CG
Orthocladius sp.	2	0.38%	No	Pupa		6	CG
Orthocladius sp.	16	3.08%	Yes	Larva		6	CG
Parametriocnemus sp.	1	0.19%	Yes	Larva		5	CG
Thienemanniella sp.	1	0.19%	Yes	Larva		6	CG
Tvetenia sp.	2	0.38%	No	Pupa		5	CG
Tvetenia Bavarica Gr.	3	0.58%	Yes	Larva		5	CG
Tvetenia tshernovskii	3	0.58%	Yes	Larva		5	CG
Sample Count	520						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR008

RAI No.: **PBSJ18CFR008** Sta. Name: **Clark Fork River at Williams-Tavenner Bridge**
Client ID: **CFR-34**
Date Coll.: **9/26/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Trepaxonemata							
Trepaxonemata	1	0.19%	Yes	Unknown		4	PR
Odonata							
Gomphidae							
Gomphidae	1	0.19%	Yes	Larva	Early Instar	2.5	PR
Ephemeroptera							
Baetidae							
Baetis tricaudatus complex	13	2.41%	Yes	Larva		5	CG
Ephemerellidae							
Ephemerella excrucians	68	12.59%	Yes	Larva		4	SH
Heptageniidae							
Rhithrogena sp.	2	0.37%	Yes	Larva		0	SC
Leptohyphidae							
Tricorythodes sp.	9	1.67%	Yes	Larva		4	CG
Plecoptera							
Capniidae							
Capniidae	1	0.19%	Yes	Larva	Early Instar	1	SH
Chloroperlidae							
Chloroperlidae	1	0.19%	Yes	Larva	Early Instar	1	PR
Perlidae							
Claassenia sabulosa	2	0.37%	Yes	Larva		3	PR
Perlodidae							
Isoperla sp.	12	2.22%	Yes	Larva		2	PR
Skwala sp.	3	0.56%	Yes	Larva		3	PR
Pteronarcyidae							
Pteronarcyidae	1	0.19%	Yes	Larva	Damaged	2	SH
Trichoptera							
Brachycentridae							
Amiocentrus aspilus	2	0.37%	Yes	Larva		3	CG
Helicopsychidae							
Helicopsyche sp.	26	4.81%	Yes	Larva		3	SC
Hydropsychidae							
Cheumatopsyche sp.	17	3.15%	Yes	Larva		5	CF
Hydropsyche sp.	153	28.33%	Yes	Larva		5	CF
Hydroptilidae							
Hydroptilidae	5	0.93%	Yes	Pupa		4	PH
Lepidostomatidae							
Lepidostoma sp.	29	5.37%	Yes	Larva		1	SH
Leptoceridae							
Nectopsyche sp.	44	8.15%	Yes	Larva		2	SH
Oecetis sp.	37	6.85%	Yes	Larva		8	PR
Lepidoptera							
Crambidae							
Petrophila sp.	1	0.19%	Yes	Larva		5	SC

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR008

RAI No.: **PBSJ18CFR008** Sta. Name: **Clark Fork River at Williams-Tavenner Bridge**
Client ID: **CFR-34**
Date Coll.: **9/26/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Coleoptera							
Elmidae							
Optioservus sp.	34	6.30%	Yes	Larva		5	SC
Zaitzevia sp.	2	0.37%	No	Larva		5	CG
Zaitzevia sp.	1	0.19%	Yes	Adult		5	CG
Hydraenidae							
Ochthebius sp.	1	0.19%	Yes	Adult		4	SC
Diptera							
Tipulidae							
Hexatoma sp.	1	0.19%	Yes	Larva		2	PR
Chironomidae							
Chironominae							
Microtendipes sp.	24	4.44%	Yes	Larva		6	CF
Polypedilum sp.	1	0.19%	Yes	Larva		6	SH
Chironominae							
Micropsectra sp.	2	0.37%	Yes	Larva		4	CG
Diamesinae							
Potthastia Gaedii Gr.	1	0.19%	Yes	Larva		2	CG
Orthocladiinae							
Cricotopus / Orthocladius	22	4.07%	No	Larva	Early Instar	7	SH
Cricotopus trifascia	4	0.74%	Yes	Larva		7	SH
Eukiefferiella sp.	1	0.19%	No	Larva	Early Instar	8	CG
Eukiefferiella Devonica Gr.	8	1.48%	Yes	Larva		8	CG
Eukiefferiella Gracei Gr.	2	0.37%	Yes	Larva		8	CG
Orthocladius sp.	7	1.30%	Yes	Larva		6	CG
Tanypodinae							
Thienemannimyia Gr.	1	0.19%	Yes	Larva	Early Instar	5	PR
Sample Count	540						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR009

RAI No.: **PBSJ18CFR009** Sta. Name: **Clark Fork at Turah**
Client ID: **CFR-116A**
Date Coll.: **9/27/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Acari							
Acari	5	0.92%	Yes	Unknown		5	PR
Ephemeroptera							
Ameletidae							
Ameletus sp.	3	0.55%	Yes	Larva		0	SC
Baetidae							
Acentrella sp.	7	1.29%	Yes	Larva		4	CG
Baetis tricaudatus complex	5	0.92%	Yes	Larva		5	CG
Ephemerellidae							
Drunella spinifera	1	0.18%	Yes	Larva		0	PR
Ephemerella sp.	123	22.65%	Yes	Larva	Early Instar	1.5	SC
Heptageniidae							
Epeorus sp.	2	0.37%	Yes	Larva	Early Instar	2	CG
Rhithrogena sp.	32	5.89%	Yes	Larva		0	SC
Leptophlebiidae							
Leptophlebiidae	8	1.47%	Yes	Larva	Damaged	2	CG
Leptohyphidae							
Tricorythodes sp.	1	0.18%	Yes	Larva		4	CG
Plecoptera							
Perlodidae							
Isoperla sp.	47	8.66%	Yes	Larva		2	PR
Perlodidae	3	0.55%	Yes	Larva	Early Instar	2	PR
Skwala sp.	7	1.29%	Yes	Larva		3	PR
Trichoptera							
Glossosomatidae							
Glossosoma sp.	2	0.37%	Yes	Larva		0	SC
Glossosomatidae	1	0.18%	No	Pupa		0	SC
Protoptila sp.	1	0.18%	Yes	Larva		1	SC
Helicopsychidae							
Helicopsyche sp.	6	1.10%	Yes	Larva		3	SC
Hydropsychidae							
Cheumatopsyche sp.	6	1.10%	Yes	Larva		5	CF
Hydropsyche sp.	119	21.92%	Yes	Larva		5	CF
Hydroptilidae							
Hydroptila sp.	6	1.10%	Yes	Larva		6	PH
Lepidostomatidae							
Lepidostoma sp.	9	1.66%	Yes	Larva		1	SH
Leptoceridae							
Oecetis sp.	7	1.29%	Yes	Larva		8	PR
Coleoptera							
Elmidae							
Optioservus sp.	14	2.58%	No	Larva		5	SC
Optioservus sp.	1	0.18%	Yes	Adult		5	SC
Zaitzevia sp.	5	0.92%	Yes	Adult		5	CG
Zaitzevia sp.	10	1.84%	No	Larva		5	CG

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR009

RAI No.: **PBSJ18CFR009** Sta. Name: **Clark Fork at Turah**
Client ID: **CFR-116A**
Date Coll.: **9/27/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Diptera							
Simuliidae							
Simulium sp.	1	0.18%	Yes	Larva		6	CF
Tipulidae							
Cryptolabis sp.	3	0.55%	Yes	Larva		11	SH
Hexatoma sp.	2	0.37%	Yes	Larva		2	PR
Chironomidae							
Chironominae							
Polypedilum sp.	2	0.37%	Yes	Larva		6	SH
Orthocladiinae							
Cardiocladius sp.	1	0.18%	Yes	Larva		5	PR
Cricotopus sp.	2	0.37%	No	Pupa		7	SH
Cricotopus (Cricotopus) sp.	3	0.55%	Yes	Larva		7	SH
Cricotopus / Orthocladius	49	9.02%	No	Larva	Early Instar	7	SH
Cricotopus trifascia	10	1.84%	Yes	Larva		7	SH
Eukiefferiella sp.	1	0.18%	No	Larva	Early Instar	8	CG
Eukiefferiella Devonica Gr.	8	1.47%	Yes	Larva		8	CG
Orthocladius sp.	2	0.37%	No	Pupa		6	CG
Orthocladius sp.	21	3.87%	Yes	Larva		6	CG
Thienemanniella sp.	1	0.18%	No	Pupa		6	CG
Thienemanniella sp.	3	0.55%	Yes	Larva		6	CG
Tvetenia sp.	1	0.18%	No	Pupa		5	CG
Tvetenia Bavarica Gr.	1	0.18%	Yes	Larva		5	CG
Tanypodinae							
Thienemannimyia Gr.	1	0.18%	Yes	Larva	Early Instar	5	PR
Sample Count	543						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR010

RAI No.: **PBSJ18CFR010** Sta. Name: **Lost Creek at Frontage Road**
Client ID: **LC-7.5**
Date Coll.: **9/25/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Trepaxonemata							
Trepaxonemata	2	0.36%	Yes	Unknown		4	PR
Nemata							
Nemata	2	0.36%	Yes	Unknown		5	UN
Erpobdellidae							
Erpobdella sp.	1	0.18%	Yes	Unknown		8	PR
Naididae							
Naididae	1	0.18%	Yes	Immature		8	CG
Naididae							
Limnodrilus sp.	1	0.18%	Yes	Unknown		10	CG
Naididae							
Nais sp.	3	0.55%	Yes	Unknown		8	CG
Naididae							
Tubificinae	6	1.09%	No	Immature		11	CG
Sphaeriidae							
Sphaeriidae	2	0.36%	Yes	Unknown		8	CF
Lymnaeidae							
Lymnaeidae	1	0.18%	Yes	Immature		6	SC
Physidae							
Physella sp.	1	0.18%	Yes	Unknown		8	SC
Planorbidae							
Gyraulus sp.	6	1.09%	Yes	Unknown		8	SC
Gammaridae							
Gammarus sp.	2	0.36%	Yes	Unknown		4	SH
Hyalellidae							
Hyalella sp.	64	11.64%	Yes	Unknown		8	CG
Cambaridae							
Faxonius sp.	1	0.18%	Yes	Unknown		11	OM
Acari							
Acari	11	2.00%	Yes	Unknown		5	PR
Ephemeroptera							
Baetidae							
Baetis tricaudatus complex	11	2.00%	Yes	Larva		5	CG
Callibaetis sp.	1	0.18%	Yes	Larva		9	CG
Ephemerellidae							
Drunella grandis	1	0.18%	Yes	Larva		2	PR
Ephemerella sp.	3	0.55%	Yes	Larva	Early Instar	1.5	SC
Leptohyphidae							
Tricorythodes sp.	2	0.36%	Yes	Larva		4	CG
Plecoptera							
Perlodidae							
Skwala sp.	2	0.36%	Yes	Larva		3	PR

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR010

RAI No.: **PBSJ18CFR010** Sta. Name: **Lost Creek at Frontage Road**
Client ID: **LC-7.5**
Date Coll.: **9/25/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Trichoptera							
Brachycentridae							
Brachycentrus occidentalis	9	1.64%	Yes	Larva		2	CF
Hydropsychidae							
Cheumatopsyche sp.	47	8.55%	Yes	Larva		5	CF
Hydropsyche sp.	88	16.00%	Yes	Larva		5	CF
Hydroptilidae							
Hydroptila sp.	1	0.18%	Yes	Larva		6	PH
Lepidostomatidae							
Lepidostoma sp.	1	0.18%	Yes	Larva		1	SH
Coleoptera							
Elmidae							
Cleptelmis addenda	19	3.45%	No	Larva		4	CG
Cleptelmis addenda	7	1.27%	Yes	Adult		4	CG
Optioservus sp.	59	10.73%	No	Larva		5	SC
Optioservus sp.	6	1.09%	Yes	Adult		5	SC
Zaitzevia sp.	3	0.55%	Yes	Adult		5	CG
Zaitzevia sp.	6	1.09%	No	Larva		5	CG
Diptera							
Simuliidae							
Simulium sp.	6	1.09%	Yes	Larva		6	CF
Stratiomyidae							
Stratiomyidae	2	0.36%	Yes	Larva	Early Instar	7	CG
Chironomidae							
Chironominae							
Microtendipes sp.	12	2.18%	Yes	Larva		6	CF
Chironominae							
Micropsectra sp.	8	1.45%	Yes	Larva		4	CG
Tanytarsini	1	0.18%	No	Larva	Early Instar	6	CF
Diamesinae							
Diamesa sp.	19	3.45%	Yes	Larva		5	CG
Orthocladiinae							
Cricotopus sp.	7	1.27%	No	Pupa		7	SH
Cricotopus (Cricotopus) sp.	1	0.18%	Yes	Larva		7	SH
Cricotopus (Isocladius) sp.	3	0.55%	Yes	Larva		7	SH
Cricotopus trifascia	29	5.27%	Yes	Larva		7	SH
Eukiefferiella sp.	1	0.18%	No	Pupa		8	CG
Eukiefferiella Devonica Gr.	1	0.18%	Yes	Larva		8	CG
Eukiefferiella Gracei Gr.	1	0.18%	Yes	Larva		8	CG
Orthocladiinae	1	0.18%	No	Larva	Early Instar	6	CG
Orthocladius sp.	79	14.36%	Yes	Larva		6	CG
Parametriocnemus sp.	1	0.18%	Yes	Pupa		5	CG
Rheocricotopus sp.	3	0.55%	Yes	Larva		4	CG
Tvetenia Bavarica Gr.	2	0.36%	Yes	Larva		5	CG
Tanypodinae							
Thienemannimyia Gr.	3	0.55%	Yes	Larva	Early Instar	5	PR

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR010

RAI No.:	**PBSJ18CFR010**			Sta. Name:	**Lost Creek at Frontage Road**
Client ID:	**LC-7.5**				
Date Coll.:	**9/25/2018**	No. Jars:	**2**	STORET ID:	

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Sample Count	550						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR011

RAI No.: **PBSJ18CFR011** Sta. Name: **Racetrack Creek at Frontage Road**
Client ID: **RTC-1.5**
Date Coll.: **9/26/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Trepaxonemata							
Trepaxonemata	1	0.18%	Yes	Unknown		4	PR
Enchytraeidae							
Mesenchytraeus sp.	10	1.84%	Yes	Unknown		4	CG
Sphaeriidae							
Sphaeriidae	2	0.37%	Yes	Unknown		8	CF
Physidae							
Physella sp.	1	0.18%	Yes	Unknown		8	SC
Copepoda							
Copepoda	2	0.37%	Yes	Unknown		8	CG
Ostracoda							
Ostracoda	1	0.18%	Yes	Unknown		8	CG
Ephemeroptera							
Ephemerellidae							
Drunella grandis	4	0.74%	Yes	Larva		2	PR
Ephemerella sp.	92	16.94%	Yes	Larva	Early Instar	1.5	SC
Heptageniidae							
Cinygmula sp.	70	12.89%	Yes	Larva		0	SC
Rhithrogena sp.	4	0.74%	Yes	Larva		0	SC
Leptophlebiidae							
Leptophlebiidae	6	1.10%	Yes	Larva	Early Instar	2	CG
Plecoptera							
Capniidae							
Capniidae	11	2.03%	Yes	Larva	Early Instar	1	SH
Chloroperlidae							
Sweltsa sp.	78	14.36%	Yes	Larva		0	PR
Nemouridae							
Zapada cinctipes	2	0.37%	Yes	Larva		3	SH
Perlodidae							
Kogotus sp.	2	0.37%	Yes	Larva		1	PR
Skwala sp.	5	0.92%	Yes	Larva		3	PR
Pteronarcyidae							
Pteronarcella sp.	1	0.18%	Yes	Larva		4	SH
Megaloptera							
Sialidae							
Sialis sp.	2	0.37%	Yes	Larva		4	PR

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR011

RAI No.: **PBSJ18CFR011** Sta. Name: **Racetrack Creek at Frontage Road**
Client ID: **RTC-1.5**
Date Coll.: **9/26/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Trichoptera							
Glossosomatidae							
Glossosomatidae	2	0.37%	Yes	Pupa		0	SC
Lepidostomatidae							
Lepidostoma sp.	2	0.37%	Yes	Larva		1	SH
Limnephilidae							
Ecclisomyia sp.	9	1.66%	Yes	Larva		4	CG
Limnephilidae	4	0.74%	No	Pupa		3	SH
Limnephilidae	3	0.55%	Yes	Larva	Early Instar	3	SH
Polycentropodidae							
Polycentropodidae	1	0.18%	Yes	Larva	Early Instar	6	CF
Rhyacophilidae							
Rhyacophila sp.	2	0.37%	No	Larva	Early Instar	1	PR
Rhyacophila Brunnea/Vemna Gr.	1	0.18%	Yes	Larva		2	PR
Thremmatidae							
Thremmatidae	1	0.18%	Yes	Pupa		11	SC
Coleoptera							
Dytiscidae							
Liodessus sp.	1	0.18%	Yes	Adult		5	PR
Oreodytes sp.	1	0.18%	Yes	Adult		5	PR
Elmidae							
Elmidae	1	0.18%	No	Adult	Damaged	4	CG
Optioservus sp.	8	1.47%	Yes	Adult		5	SC
Optioservus sp.	8	1.47%	No	Larva		5	SC
Zaitzevia sp.	2	0.37%	Yes	Larva		5	CG
Diptera							
Muscidae							
Muscidae	1	0.18%	Yes	Larva		10	PR
Simuliidae							
Simulium sp.	1	0.18%	Yes	Pupa		6	CF
Tipulidae							
Dicranota sp.	1	0.18%	Yes	Larva		3	PR
Hexatoma sp.	3	0.55%	Yes	Larva		2	PR
Tipula sp.	15	2.76%	Yes	Larva		4	SH

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR011

RAI No.: **PBSJ18CFR011** Sta. Name: **Racetrack Creek at Frontage Road**
Client ID: **RTC-1.5**
Date Coll.: **9/26/2018** No. Jars: **2** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Chironomidae							
Chironominae							
Chironomini	1	0.18%	No	Larva	Early Instar	6	CG
Phaenopsectra sp.	9	1.66%	Yes	Larva		7	SC
Chironominae							
Micropsectra sp.	2	0.37%	No	Pupa		4	CG
Micropsectra sp.	22	4.05%	Yes	Larva		4	CG
Tanytarsini	1	0.18%	No	Larva	Early Instar	6	CF
Tanytarsus sp.	2	0.37%	No	Pupa		6	CF
Tanytarsus sp.	4	0.74%	Yes	Larva		6	CF
Diamesinae							
Pagastia sp.	2	0.37%	Yes	Larva		1	CG
Orthocladiinae							
Cricotopus (Isocladius) sp.	14	2.58%	Yes	Larva		7	SH
Diplocladius cultriger	1	0.18%	Yes	Larva		8	CG
Eukiefferiella Brevicalcar Gr.	1	0.18%	Yes	Larva		8	CG
Eukiefferiella Claripennis Gr.	2	0.37%	Yes	Larva		8	CG
Eukiefferiella Gracei Gr.	7	1.29%	Yes	Larva		8	CG
Hydrobaenus sp.	3	0.55%	Yes	Larva		8	SC
Orthocladius sp.	103	18.97%	Yes	Larva		6	CG
Prodiamesinae							
Odontomesa sp.	1	0.18%	Yes	Larva		4	CG
Tanypodinae							
Radotanypus sp.	3	0.55%	Yes	Larva		7	PR
Tanypodinae	1	0.18%	No	Larva	Early Instar	7	PR
Thienemannimyia Gr.	3	0.55%	Yes	Larva	Early Instar	5	PR
Sample Count	543						

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR012

RAI No.: **PBSJ18CFR012** Sta. Name: **Little Blackfoot River at Beck Hill Road**
Client ID: **LBR-CFR-02**
Date Coll.: **9/26/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata							
Nemata	2	0.37%	Yes	Unknown		5	UN
Acari							
Acari	17	3.18%	Yes	Unknown		5	PR
Ephemeroptera							
Baetidae							
Baetis tricaudatus complex	2	0.37%	Yes	Larva		5	CG
Ephemerellidae							
Ephemerella sp.	12	2.24%	Yes	Larva	Early Instar	1.5	SC
Heptageniidae							
Rhithrogena sp.	3	0.56%	Yes	Larva		0	SC
Leptophlebiidae							
Leptophlebiidae	6	1.12%	No	Larva	Damaged	2	CG
Paraleptophlebia bicornuta	1	0.19%	Yes	Larva		2	CG
Leptohyphidae							
Tricorythodes sp.	8	1.50%	Yes	Larva		4	CG
Plecoptera							
Chloroperlidae							
Paraperla sp.	1	0.19%	Yes	Larva		1	CG
Sweltsa sp.	33	6.17%	Yes	Larva		0	PR
Perlidae							
Claassenia sabulosa	2	0.37%	Yes	Larva		3	PR
Hesperoperla pacifica	4	0.75%	Yes	Larva		1	PR
Perlodidae							
Perlodidae	13	2.43%	No	Larva	Early Instar	2	PR
Skwala sp.	1	0.19%	Yes	Larva		3	PR
Trichoptera							
Brachycentridae							
Brachycentrus sp.	4	0.75%	No	Larva	Early Instar	1	CF
Brachycentrus occidentalis	4	0.75%	Yes	Larva		2	CF
Glossosomatidae							
Glossosoma sp.	5	0.93%	Yes	Larva		0	SC
Helicopsychidae							
Helicopsyche sp.	2	0.37%	Yes	Larva		3	SC
Hydropsychidae							
Arctopsyche sp.	4	0.75%	Yes	Larva		2	PR
Hydropsyche sp.	164	30.65%	Yes	Larva		5	CF
Parapsyche almota	6	1.12%	Yes	Larva		3	PR
Hydroptilidae							
Hydroptilidae	2	0.37%	Yes	Pupa		4	PH
Lepidostomatidae							
Lepidostoma sp.	39	7.29%	Yes	Larva		1	SH
Leptoceridae							
Oecetis sp.	3	0.56%	Yes	Larva		8	PR
Rhyacophilidae							
Rhyacophila Coloradensis Gr.	1	0.19%	Yes	Larva		0	PR

Taxa Listing

Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR012

RAI No.: **PBSJ18CFR012** Sta. Name: **Little Blackfoot River at Beck Hill Road**
Client ID: **LBR-CFR-02**
Date Coll.: **9/26/2018** No. Jars: **1** STORET ID:

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Coleoptera							
Elmidae							
Optioservus sp.	4	0.75%	Yes	Adult		5	SC
Optioservus sp.	19	3.55%	No	Larva		5	SC
Zaitzevia sp.	13	2.43%	No	Larva		5	CG
Zaitzevia sp.	7	1.31%	Yes	Adult		5	CG
Haliplidae							
Brychius sp.	3	0.56%	Yes	Larva		5	SC
Diptera							
Athericidae							
Atherix sp.	4	0.75%	Yes	Larva		2	PR
Empididae							
Hemerodromia sp.	3	0.56%	Yes	Larva		6	PR
Psychodidae							
Pericoma sp.	1	0.19%	Yes	Larva		4	CG
Simuliidae							
Simulium sp.	1	0.19%	Yes	Larva		6	CF
Simulium sp.	3	0.56%	No	Pupa		6	CF
Tipulidae							
Antocha monticola	1	0.19%	Yes	Larva		3	CG
Cryptolabis sp.	1	0.19%	Yes	Larva		11	SH
Hexatoma sp.	1	0.19%	Yes	Larva		2	PR
Tipula sp.	2	0.37%	Yes	Larva		4	SH
Chironomidae							
Chironominae							
Microtendipes sp.	1	0.19%	Yes	Larva		6	CF
Diamesinae							
Potthastia Gaedii Gr.	28	5.23%	Yes	Larva		2	CG
Orthocladiinae							
Cardiocladius sp.	1	0.19%	Yes	Larva		5	PR
Cricotopus (Nostococladius) sp.	4	0.75%	Yes	Larva		6	SH
Cricotopus trifascia	10	1.87%	Yes	Larva		7	SH
Eukiefferiella Devonica Gr.	5	0.93%	Yes	Larva		8	CG
Eukiefferiella Gracei Gr.	7	1.31%	Yes	Larva		8	CG
Orthocladiinae	1	0.19%	No	Pupa	Damaged	6	CG
Orthocladius sp.	73	13.64%	Yes	Larva		6	CG
Tvetenia Bavarica Gr.	3	0.56%	Yes	Larva		5	CG
Sample Count	535						

Metrics Report

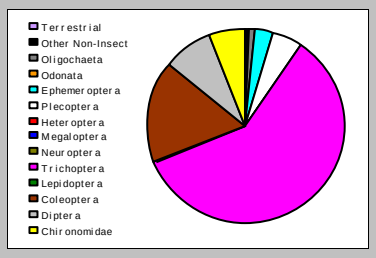
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR001
Sta. Name: Mill-Willow Creek at Frontage Road
Client ID: MCWC-MWB
STORET ID
Coll. Date: 9/24/2018
Latitude: 46.12649 **Longitude:** -112.79876

Abundance Measures

Sample Count: 546
Sample Abundance: 8,190.00 6.67% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	4	0.73%
Oligochaeta	1	7	1.28%
Odonata			
Ephemeroptera	6	17	3.11%
Plecoptera	4	25	4.58%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	8	323	59.16%
Lepidoptera			
Coleoptera	3	93	17.03%
Diptera	3	45	8.24%
Chironomidae	11	32	5.86%

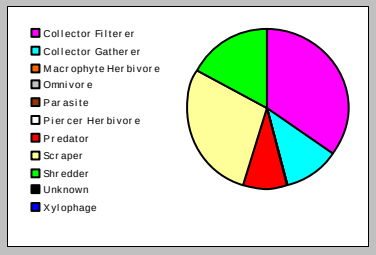


Dominant Taxa

Category	A	PRA
Hydropsyche	100	18.32%
Lepidostoma	87	15.93%
Optioservus	72	13.19%
Glossosoma	68	12.45%
Brachycentrus occidentalis	46	8.42%
Simulium	34	6.23%
Zaitzevia	19	3.48%
Sweltsa	15	2.75%
Cheumatopsyche	8	1.47%
Neoplasta	7	1.28%
Nais	7	1.28%
Orthocladius	6	1.10%
Baetis tricaudatus complex	6	1.10%
Tvetenia Bavarica Gr.	5	0.92%
Acari	4	0.73%

Functional Composition

Category	R	A	PRA
Predator	9	46	8.42%
Parasite			
Collector Gatherer	14	62	11.36%
Collector Filterer	5	189	34.62%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	7	157	28.75%
Shredder	2	92	16.85%
Omnivore			
Unknown			

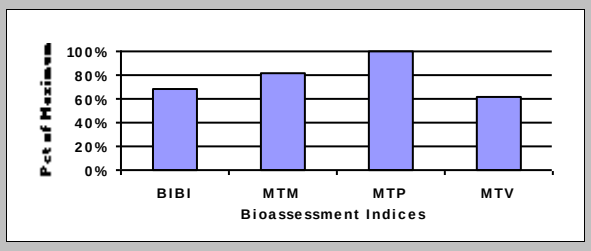


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	37
E Richness	6
P Richness	4
T Richness	8
EPT Richness	18
EPT Percent	66.85%
All Non-Insect Abundance	11
All Non-Insect Richness	2
All Non-Insect Percent	2.01%
Oligochaeta+Hirudinea Percent	1.28%
Baetidae/Ephemeroptera	0.353
Hydropsychidae/Trichoptera	0.334
Dominance	
Dominant Taxon Percent	18.32%
Dominant Taxa (2) Percent	34.25%
Dominant Taxa (3) Percent	47.44%
Dominant Taxa (10) Percent	83.52%
Diversity	
Shannon H (loge)	2.581
Shannon H (log2)	3.723
Margalef D	5.839
Simpson D	0.118
Evenness	0.715
Function	
Predator Richness	9
Predator Percent	8.42%
Filterer Richness	5
Filterer Percent	34.62%
Collector Percent	45.97%
Scraper+Shredder Percent	45.60%
Scraper/Filterer	0.831
Scraper/Scraper+Filterer	0.454
Habit	
Burrower Richness	2
Burrower Percent	2.01%
Swimmer Richness	1
Swimmer Percent	1.10%
Clinger Richness	21
Clinger Percent	73.63%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.18%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	0.18%
Air Breather Richness	1
Air Breather Percent	0.73%
Voltinism	
Univoltine Richness	17
Semivoltine Richness	6
Multivoltine Percent	7.69%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	0.73%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	12.45%
Metals Tolerance Index	3.474
Pollution Sensitive Richness	1
Pollution Tolerant Percent	18.68%
Hilsenhoff Biotic Index	3.239
Intolerant Percent	45.79%
Supertolerant Percent	2.38%
CTQa	68.485

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	34	68.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	11	61.11%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	17	80.95%	Slight



Tuesday, March 05, 2019

Metrics Report

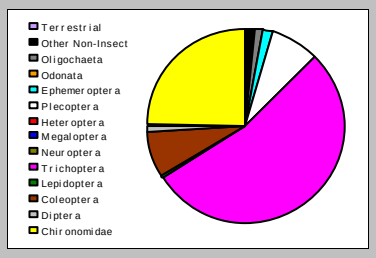
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR002
Sta. Name: Mill-Willow Bypass near mouth
Client ID: MWB-SBC
STORET ID
Coll. Date: 9/24/2018
Latitude: 46.17839 **Longitude:** -112.7827

Abundance Measures

Sample Count: 543
Sample Abundance: 32,580.00 1.67% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	3	10	1.84%
Oligochaeta	1	7	1.29%
Odonata			
Ephemeroptera	5	7	1.29%
Plecoptera	3	45	8.29%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	7	288	53.04%
Lepidoptera	1	2	0.37%
Coleoptera	2	41	7.55%
Diptera	3	8	1.47%
Chironomidae	11	135	24.86%

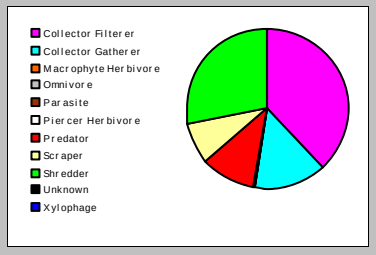


Dominant Taxa

Category	A	PRA
Hydropsyche	87	16.02%
Lepidostoma	86	15.84%
Hydropsychidae	52	9.58%
Perlodidae	43	7.92%
Brachycentrus occidentalis	31	5.71%
Optioservus	30	5.52%
Cricotopus / Orthocladius	29	5.34%
Orthocladius	19	3.50%
Cricotopus (Cricotopus)	19	3.50%
Cheumatopsyche	18	3.31%
Microtendipes	15	2.76%
Zaitzevia	11	2.03%
Eukiefferiella Devonica Gr.	9	1.66%
Tvetenia Bavarica Gr.	8	1.47%
Eukiefferiella	8	1.47%

Functional Composition

Category	R	A	PRA
Predator	7	61	11.23%
Parasite			
Collector Gatherer	11	77	14.18%
Collector Filterer	5	206	37.94%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	7	46	8.47%
Shredder	6	153	28.18%
Omnivore			
Unknown			

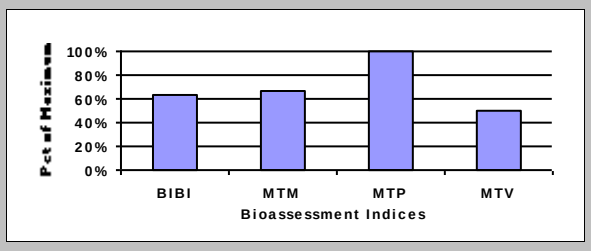


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	36
E Richness	5
P Richness	3
T Richness	7
EPT Richness	15
EPT Percent	62.62%
All Non-Insect Abundance	17
All Non-Insect Richness	4
All Non-Insect Percent	3.13%
Oligochaeta+Hirudinea Percent	1.29%
Baetidae/Ephemeroptera	0.286
Hydropsychidae/Trichoptera	0.545
Dominance	
Dominant Taxon Percent	16.02%
Dominant Taxa (2) Percent	31.86%
Dominant Taxa (3) Percent	41.44%
Dominant Taxa (10) Percent	76.24%
Diversity	
Shannon H (loge)	2.662
Shannon H (log2)	3.841
Margalef D	5.825
Simpson D	0.115
Evenness	0.743
Function	
Predator Richness	7
Predator Percent	11.23%
Filterer Richness	5
Filterer Percent	37.94%
Collector Percent	52.12%
Scraper+Shredder Percent	36.65%
Scraper/Filterer	0.223
Scraper/Scraper+Filterer	0.183
Habit	
Burrower Richness	1
Burrower Percent	0.74%
Swimmer Richness	1
Swimmer Percent	0.37%
Clinger Richness	20
Clinger Percent	68.88%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.74%
Hemoglobin Bearer Richness	2
Hemoglobin Bearer Percent	3.13%
Air Breather Richness	1
Air Breather Percent	0.55%
Voltinism	
Univoltine Richness	17
Semivoltine Richness	4
Multivoltine Percent	26.89%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	0.55%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	1.66%
Metals Tolerance Index	4.247
Pollution Sensitive Richness	1
Pollution Tolerant Percent	12.15%
Hilsenhoff Biotic Index	4.191
Intolerant Percent	32.41%
Supertolerant Percent	5.34%
CTQa	74.515

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	32	64.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	9	50.00%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	14	66.67%	Slight



Tuesday, March 05, 2019

Metrics Report

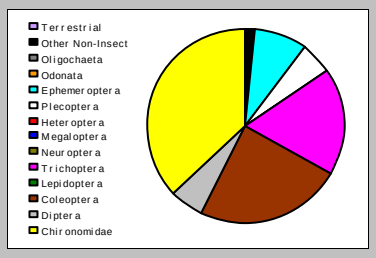
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR003
Sta. Name: Warm Springs Creek near mouth
Client ID: WSC-SBC
STORET ID
Coll. Date: 9/24/2018
Latitude: 46.18041 **Longitude:** -112.78592

Abundance Measures

Sample Count: 517
Sample Abundance: 3,877.50 13.33% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	3	10	1.93%
Oligochaeta			
Odonata			
Ephemeroptera	6	45	8.70%
Plecoptera	5	25	4.84%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	6	91	17.60%
Lepidoptera			
Coleoptera	2	123	23.79%
Diptera	4	31	6.00%
Chironomidae	8	192	37.14%

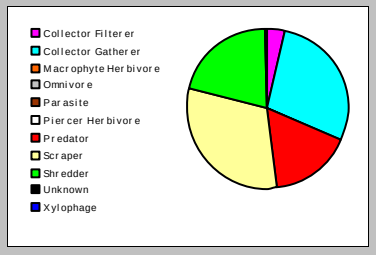


Dominant Taxa

Category	A	PRA
Optioservus	121	23.40%
Orthocladius	106	20.50%
Cricotopus / Orthocladius	57	11.03%
Lepidostoma	41	7.93%
Arctopsyche	24	4.64%
Cinygmula	16	3.09%
Simulium	14	2.71%
Chelifera	13	2.51%
Rhithrogena	11	2.13%
Glossosoma	9	1.74%
Skwala	8	1.55%
Eukiefferiella Devonica Gr.	8	1.55%
Chloroperlidae	8	1.55%
Baetis tricaudatus complex	8	1.55%
Acari	7	1.35%

Functional Composition

Category	R	A	PRA
Predator	11	86	16.63%
Parasite			
Collector Gatherer	11	141	27.27%
Collector Filterer	4	22	4.26%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	4	159	30.75%
Shredder	3	107	20.70%
Omnivore			
Unknown	1	2	0.39%

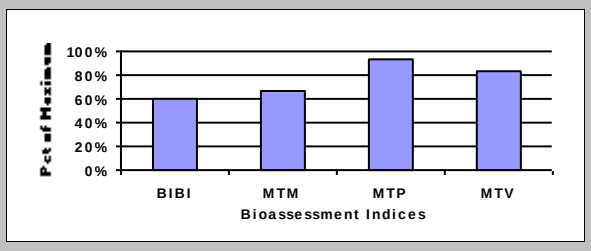


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	34
E Richness	6
P Richness	5
T Richness	6
EPT Richness	17
EPT Percent	31.14%
All Non-Insect Abundance	10
All Non-Insect Richness	3
All Non-Insect Percent	1.93%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.244
Hydropsychidae/Trichoptera	0.319
Dominance	
Dominant Taxon Percent	23.40%
Dominant Taxa (2) Percent	43.91%
Dominant Taxa (3) Percent	54.93%
Dominant Taxa (10) Percent	79.69%
Diversity	
Shannon H (loge)	2.735
Shannon H (log2)	3.945
Margalef D	5.691
Simpson D	0.123
Evenness	0.775
Function	
Predator Richness	11
Predator Percent	16.63%
Filterer Richness	4
Filterer Percent	4.26%
Collector Percent	31.53%
Scraper+Shredder Percent	51.45%
Scraper/Filterer	7.227
Scraper/Scraper+Filterer	0.878
Habit	
Burrower Richness	3
Burrower Percent	1.16%
Swimmer Richness	2
Swimmer Percent	2.13%
Clinger Richness	18
Clinger Percent	60.15%
Characteristics	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	0
Hemoglobin Bearer Percent	0.00%
Air Breather Richness	1
Air Breather Percent	0.39%
Voltinism	
Univoltine Richness	15
Semivoltine Richness	6
Multivoltine Percent	40.62%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	0.39%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	6.38%
Metals Tolerance Index	4.690
Pollution Sensitive Richness	2
Pollution Tolerant Percent	23.40%
Hilsenhoff Biotic Index	4.464
Intolerant Percent	26.69%
Supertolerant Percent	3.09%
CTQa	64.679

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	30	60.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	28	93.33%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	15	83.33%	None
MTM	Montana DEQ Mountains (Bukantis 1998)	14	66.67%	Slight



Tuesday, March 05, 2019

Metrics Report

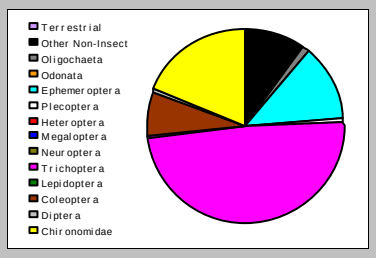
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR004
Sta. Name: Silver Bow Creek at Warm Springs
Client ID: SS-25
STORET ID
Coll. Date: 9/24/2018
Latitude: 46.18123 **Longitude:** -112.77917

Abundance Measures

Sample Count: 532
Sample Abundance: 31,920.00 1.67% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	7	55	10.34%
Oligochaeta	3	6	1.13%
Odonata			
Ephemeroptera	3	68	12.78%
Plecoptera	1	3	0.56%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	8	256	48.12%
Lepidoptera	1	1	0.19%
Coleoptera	3	40	7.52%
Diptera	3	3	0.56%
Chironomidae	14	100	18.80%

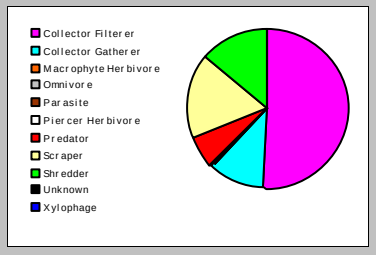


Dominant Taxa

Category	A	PRA
Hydropsyche	129	24.25%
Cheumatopsyche	83	15.60%
Ephemerella	57	10.71%
Cricotopus trifascia	36	6.77%
Optioservus	32	6.02%
Cladocera	18	3.38%
Hydropsychidae	16	3.01%
Hyalella	12	2.26%
Cricotopus / Orthocladius	12	2.26%
Brachycentrus occidentalis	11	2.07%
Tvetenia tshernovskii	10	1.88%
Lepidostoma	10	1.88%
Trepaxonemata	9	1.69%
Microtendipes	7	1.32%
Cricotopus bicinctus	7	1.32%

Functional Composition

Category	R	A	PRA
Predator	8	34	6.39%
Parasite			
Collector Gatherer	16	63	11.84%
Collector Filterer	6	267	50.19%
Macrophyte Herbivore			
Piercer Herbivore	1	1	0.19%
Xylophage			
Scraper	5	93	17.48%
Shredder	7	74	13.91%
Omnivore			
Unknown			

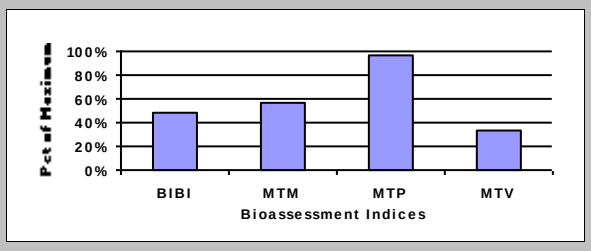


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	43
E Richness	3
P Richness	1
T Richness	8
EPT Richness	12
EPT Percent	61.47%
All Non-Insect Abundance	61
All Non-Insect Richness	10
All Non-Insect Percent	11.47%
Oligochaeta+Hirudinea Percent	1.13%
Baetidae/Ephemeroptera	0.147
Hydropsychidae/Trichoptera	0.891
Dominance	
Dominant Taxon Percent	24.25%
Dominant Taxa (2) Percent	39.85%
Dominant Taxa (3) Percent	50.56%
Dominant Taxa (10) Percent	76.32%
Diversity	
Shannon H (loge)	2.659
Shannon H (log2)	3.836
Margalef D	6.771
Simpson D	0.123
Evenness	0.707
Function	
Predator Richness	8
Predator Percent	6.39%
Filterer Richness	6
Filterer Percent	50.19%
Collector Percent	62.03%
Scraper+Shredder Percent	31.39%
Scraper/Filterer	0.348
Scraper/Scraper+Filterer	0.258
Habit	
Burrower Richness	0
Burrower Percent	0.00%
Swimmer Richness	2
Swimmer Percent	2.07%
Clinger Richness	17
Clinger Percent	77.63%
Characteristics	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	2
Hemoglobin Bearer Percent	1.50%
Air Breather Richness	1
Air Breather Percent	0.19%
Voltinism	
Univoltine Richness	19
Semivoltine Richness	4
Multivoltine Percent	27.07%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	0.38%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.683
Pollution Sensitive Richness	0
Pollution Tolerant Percent	25.00%
Hilsenhoff Biotic Index	4.863
Intolerant Percent	15.79%
Supertolerant Percent	7.52%
CTQa	86.853

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	24	48.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	29	96.67%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	6	33.33%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	12	57.14%	Slight



Tuesday, March 05, 2019

Metrics Report

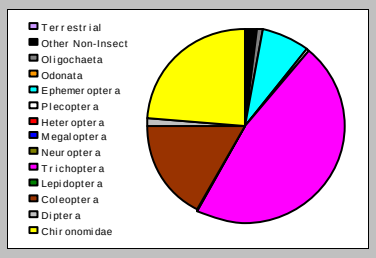
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR005
Sta. Name: Clark Fork River near Galen
Client ID: CFR-03A
STORET ID
Coll. Date: 9/25/2018
Latitude: 46.20877 **Longitude:** -112.7674

Abundance Measures

Sample Count: 541
Sample Abundance: 16,230.00 3.33% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	3	12	2.22%
Oligochaeta	3	4	0.74%
Odonata	1	1	0.18%
Ephemeroptera	3	41	7.58%
Plecoptera	1	4	0.74%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	12	250	46.21%
Lepidoptera	1	2	0.37%
Coleoptera	3	90	16.64%
Diptera	3	9	1.66%
Chironomidae	8	128	23.66%

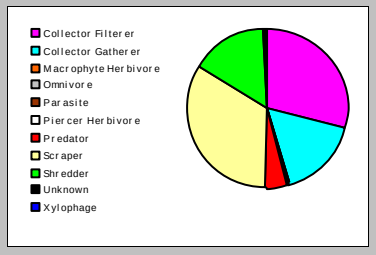


Dominant Taxa

Category	A	PRA
Protoptila	91	16.82%
Hydropsyche	87	16.08%
Optioservus	76	14.05%
Microtendipes	56	10.35%
Cricotopus (Nostococladius)	41	7.58%
Ephemerella excrucians	20	3.70%
Baetis tricaudatus complex	20	3.70%
Lepidostoma	19	3.51%
Psychomyia	15	2.77%
Orthocladius	13	2.40%
Zaitzevia	11	2.03%
Brachycentrus occidentalis	11	2.03%
Glossosoma	7	1.29%
Eukiefferiella Devonica Gr.	6	1.11%
Amiocentrus aspilus	6	1.11%

Functional Composition

Category	R	A	PRA
Predator	9	22	4.07%
Parasite			
Collector Gatherer	13	91	16.82%
Collector Filterer	4	156	28.84%
Macrophyte Herbivore			
Piercer Herbivore	1	2	0.37%
Xylophage			
Scraper	5	181	33.46%
Shredder	5	84	15.53%
Omnivore			
Unknown	1	5	0.92%

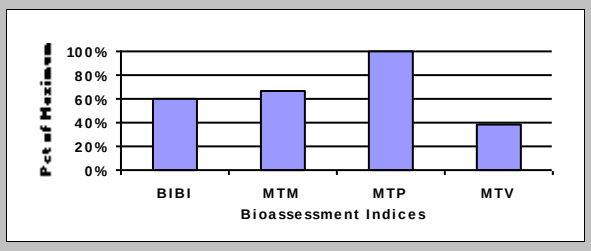


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	38
E Richness	3
P Richness	1
T Richness	12
EPT Richness	16
EPT Percent	54.53%
All Non-Insect Abundance	16
All Non-Insect Richness	6
All Non-Insect Percent	2.96%
Oligochaeta+Hirudinea Percent	0.74%
Baetidae/Ephemeroptera	0.488
Hydropsychidae/Trichoptera	0.356
Dominance	
Dominant Taxon Percent	16.82%
Dominant Taxa (2) Percent	32.90%
Dominant Taxa (3) Percent	46.95%
Dominant Taxa (10) Percent	80.96%
Diversity	
Shannon H (loge)	2.711
Shannon H (log2)	3.911
Margalef D	5.893
Simpson D	0.099
Evenness	0.745
Function	
Predator Richness	9
Predator Percent	4.07%
Filterer Richness	4
Filterer Percent	28.84%
Collector Percent	45.66%
Scraper+Shredder Percent	48.98%
Scraper/Filterer	1.160
Scraper/Scraper+Filterer	0.537
Habit	
Burrower Richness	3
Burrower Percent	7.95%
Swimmer Richness	1
Swimmer Percent	3.70%
Clinger Richness	21
Clinger Percent	76.16%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	7.58%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	10.35%
Air Breather Richness	1
Air Breather Percent	0.92%
Voltinism	
Univoltine Richness	17
Semivoltine Richness	5
Multivoltine Percent	29.02%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	1.11%
Sediment Sensitive Richness	3
Sediment Sensitive Percent	11.65%
Metals Tolerance Index	3.880
Pollution Sensitive Richness	1
Pollution Tolerant Percent	19.04%
Hilsenhoff Biotic Index	4.163
Intolerant Percent	26.80%
Supertolerant Percent	3.14%
CTQa	79.688

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	30	60.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	7	38.89%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	14	66.67%	Slight



Tuesday, March 05, 2019

Metrics Report

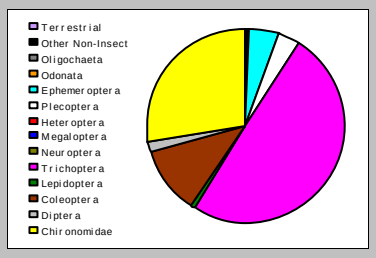
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR006
Sta. Name: Clark Fork River at Galen Road
Client ID: CFR-07D
STORET ID
Coll. Date: 9/25/2018
Latitude: 46.20833 **Longitude:** -112.76639

Abundance Measures

Sample Count: 533
Sample Abundance: 7,995.00 6.67% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	6	1.13%
Oligochaeta			
Odonata			
Ephemeroptera	4	23	4.32%
Plecoptera	2	20	3.75%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	9	263	49.34%
Lepidoptera	1	3	0.56%
Coleoptera	2	60	11.26%
Diptera	4	12	2.25%
Chironomidae	8	146	27.39%

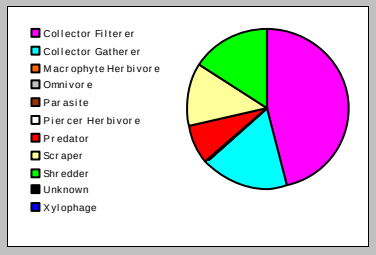


Dominant Taxa

Category	A	PRA
Hydropsyche	199	37.34%
Optioservus	51	9.57%
Orthocladius	49	9.19%
Cricotopus / Orthocladius	34	6.38%
Microtendipes	33	6.19%
Lepidostoma	19	3.56%
Eukiefferiella Devonica Gr.	14	2.63%
Ephemerella excrucians	13	2.44%
Brachycentrus occidentalis	11	2.06%
Skwala	10	1.88%
Nectopsyche	10	1.88%
Isoperla	10	1.88%
Zaitzevia	9	1.69%
Baetis tricaudatus complex	8	1.50%
Cricotopus trifascia	7	1.31%

Functional Composition

Category	R	A	PRA
Predator	8	41	7.69%
Parasite			
Collector Gatherer	8	91	17.07%
Collector Filterer	4	246	46.15%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	6	71	13.32%
Shredder	5	84	15.76%
Omnivore			
Unknown			

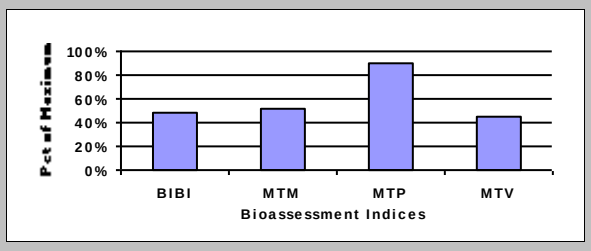


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	31
E Richness	4
P Richness	2
T Richness	9
EPT Richness	15
EPT Percent	57.41%
All Non-Insect Abundance	6
All Non-Insect Richness	1
All Non-Insect Percent	1.13%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.391
Hydropsychidae/Trichoptera	0.768
Dominance	
Dominant Taxon Percent	37.34%
Dominant Taxa (2) Percent	46.90%
Dominant Taxa (3) Percent	56.10%
Dominant Taxa (10) Percent	81.24%
Diversity	
Shannon H (loge)	2.291
Shannon H (log2)	3.305
Margalef D	4.918
Simpson D	0.223
Evenness	0.667
Function	
Predator Richness	8
Predator Percent	7.69%
Filterer Richness	4
Filterer Percent	46.15%
Collector Percent	63.23%
Scraper+Shredder Percent	29.08%
Scraper/Filterer	0.289
Scraper/Scraper+Filterer	0.224
Habit	
Burrower Richness	1
Burrower Percent	0.75%
Swimmer Richness	3
Swimmer Percent	3.56%
Clinger Richness	18
Clinger Percent	76.74%
Characteristics	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	6.19%
Air Breather Richness	2
Air Breather Percent	1.31%
Voltinism	
Univoltine Richness	17
Semivoltine Richness	3
Multivoltine Percent	30.21%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	1.31%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	1.31%
Metals Tolerance Index	4.746
Pollution Sensitive Richness	0
Pollution Tolerant Percent	16.51%
Hilsenhoff Biotic Index	4.914
Intolerant Percent	12.01%
Supertolerant Percent	4.32%
CTQa	63.731

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	24	48.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	27	90.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	8	44.44%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	11	52.38%	Moderate



Tuesday, March 05, 2019

Metrics Report

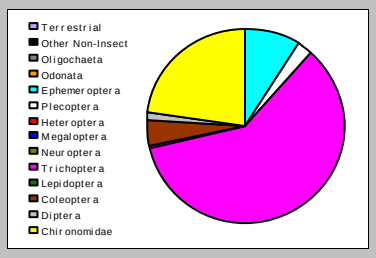
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR007
Sta. Name: Clark Fork River at Gem Back Road
Client ID: CFR-11F
STORET ID
Coll. Date: 9/25/2018
Latitude: 46.20833 **Longitude:** -112.76639

Abundance Measures

Sample Count: 520
Sample Abundance: 31,200.00 1.67% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	1	0.19%
Oligochaeta	1	1	0.19%
Odonata			
Ephemeroptera	4	45	8.65%
Plecoptera	4	13	2.50%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	9	311	59.81%
Lepidoptera			
Coleoptera	2	25	4.81%
Diptera	4	6	1.15%
Chironomidae	10	118	22.69%

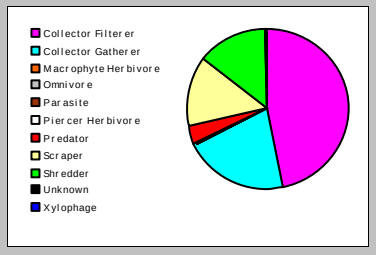


Dominant Taxa

Category	A	PRA
Hydropsyche	222	42.69%
Cricotopus / Orthocladius	35	6.73%
Eukiefferiella Devonica Gr.	30	5.77%
Baetis tricaudatus complex	29	5.58%
Protoptila	25	4.81%
Glossosoma	23	4.42%
Optioservus	21	4.04%
Lepidostoma	20	3.85%
Orthocladius	18	3.46%
Cheumatopsyche	11	2.12%
Ephemerella excrucians	10	1.92%
Cricotopus trifascia	8	1.54%
Eukiefferiella	7	1.35%
Skwala	6	1.15%
Microtendipes	6	1.15%

Functional Composition

Category	R	A	PRA
Predator	7	16	3.08%
Parasite			
Collector Gatherer	13	108	20.77%
Collector Filterer	5	244	46.92%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	5	77	14.81%
Shredder	4	74	14.23%
Omnivore			
Unknown	1	1	0.19%

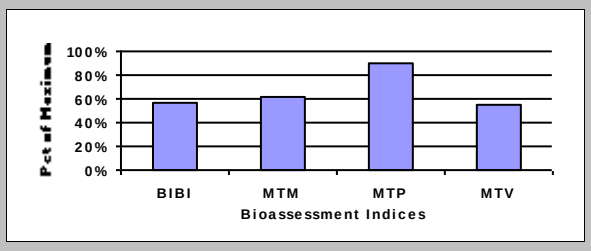


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	35
E Richness	4
P Richness	4
T Richness	9
EPT Richness	17
EPT Percent	70.96%
All Non-Insect Abundance	2
All Non-Insect Richness	2
All Non-Insect Percent	0.38%
Oligochaeta+Hirudinea Percent	0.19%
Baetidae/Ephemeroptera	0.711
Hydropsychidae/Trichoptera	0.749
Dominance	
Dominant Taxon Percent	42.69%
Dominant Taxa (2) Percent	49.42%
Dominant Taxa (3) Percent	55.19%
Dominant Taxa (10) Percent	83.46%
Diversity	
Shannon H (loge)	2.174
Shannon H (log2)	3.136
Margalef D	5.561
Simpson D	0.259
Evenness	0.611
Function	
Predator Richness	7
Predator Percent	3.08%
Filterer Richness	5
Filterer Percent	46.92%
Collector Percent	67.69%
Scraper+Shredder Percent	29.04%
Scraper/Filterer	0.316
Scraper/Scraper+Filterer	0.240
Habit	
Burrower Richness	1
Burrower Percent	0.19%
Swimmer Richness	2
Swimmer Percent	6.15%
Clinger Richness	20
Clinger Percent	75.77%
Characteristics	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	1.15%
Air Breather Richness	2
Air Breather Percent	0.58%
Voltinism	
Univoltine Richness	16
Semivoltine Richness	4
Multivoltine Percent	28.85%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	0.58%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	4.42%
Metals Tolerance Index	4.821
Pollution Sensitive Richness	0
Pollution Tolerant Percent	7.69%
Hilsenhoff Biotic Index	4.707
Intolerant Percent	15.77%
Supertolerant Percent	7.69%
CTQa	63.500

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	28	56.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	27	90.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	10	55.56%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	13	61.90%	Slight



Tuesday, March 05, 2019

Metrics Report

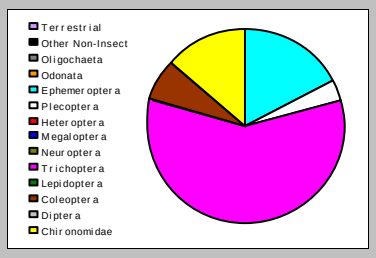
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR008
Sta. Name: Clark Fork River at Williams-Tavenner Bridge
Client ID: CFR-34
STORET ID
Coll. Date: 9/26/2018
Latitude: 46.39778 **Longitude:** -112.74194

Abundance Measures

Sample Count: 540
Sample Abundance: 12,960.00 4.17% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	1	0.19%
Oligochaeta			
Odonata	1	1	0.19%
Ephemeroptera	4	92	17.04%
Plecoptera	6	20	3.70%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	8	313	57.96%
Lepidoptera	1	1	0.19%
Coleoptera	3	38	7.04%
Diptera	1	1	0.19%
Chironomidae	9	73	13.52%

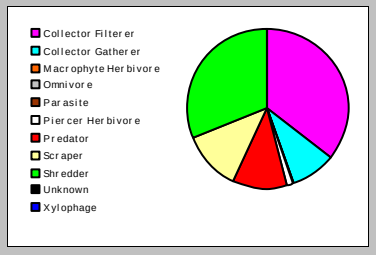


Dominant Taxa

Category	A	PRA
Hydropsyche	153	28.33%
Ephemerella excrucians	68	12.59%
Nectopsyche	44	8.15%
Oecetis	37	6.85%
Optioservus	34	6.30%
Lepidostoma	29	5.37%
Helicopsyche	26	4.81%
Microtendipes	24	4.44%
Cricotopus / Orthocladius	22	4.07%
Cheumatopsyche	17	3.15%
Baetis tricaudatus complex	13	2.41%
Isoperla	12	2.22%
Tricorythodes	9	1.67%
Eukiefferiella Devonica Gr.	8	1.48%
Orthocladius	7	1.30%

Functional Composition

Category	R	A	PRA
Predator	9	59	10.93%
Parasite			
Collector Gatherer	9	48	8.89%
Collector Filterer	3	194	35.93%
Macrophyte Herbivore			
Piercer Herbivore	1	5	0.93%
Xylophage			
Scraper	5	64	11.85%
Shredder	7	170	31.48%
Omnivore			
Unknown			

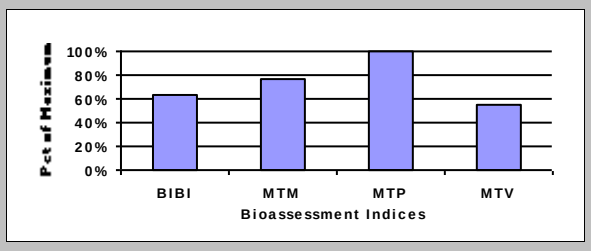


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	34
E Richness	4
P Richness	6
T Richness	8
EPT Richness	18
EPT Percent	78.70%
All Non-Insect Abundance	1
All Non-Insect Richness	1
All Non-Insect Percent	0.19%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.141
Hydropsychidae/Trichoptera	0.543
Dominance	
Dominant Taxon Percent	28.33%
Dominant Taxa (2) Percent	40.93%
Dominant Taxa (3) Percent	49.07%
Dominant Taxa (10) Percent	84.07%
Diversity	
Shannon H (loge)	2.515
Shannon H (log2)	3.629
Margalef D	5.285
Simpson D	0.132
Evenness	0.713
Function	
Predator Richness	9
Predator Percent	10.93%
Filterer Richness	3
Filterer Percent	35.93%
Collector Percent	44.81%
Scraper+Shredder Percent	43.33%
Scraper/Filterer	0.330
Scraper/Scraper+Filterer	0.248
Habit	
Burrower Richness	2
Burrower Percent	0.37%
Swimmer Richness	2
Swimmer Percent	10.56%
Clinger Richness	20
Clinger Percent	77.59%
Characteristics	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	2
Hemoglobin Bearer Percent	4.63%
Air Breather Richness	1
Air Breather Percent	0.19%
Voltinism	
Univoltine Richness	16
Semivoltine Richness	6
Multivoltine Percent	17.04%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	1.85%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.119
Pollution Sensitive Richness	1
Pollution Tolerant Percent	31.67%
Hilsenhoff Biotic Index	4.560
Intolerant Percent	17.04%
Supertolerant Percent	8.89%
CTQa	69.828

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	32	64.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	10	55.56%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	16	76.19%	Slight



Tuesday, March 05, 2019

Metrics Report

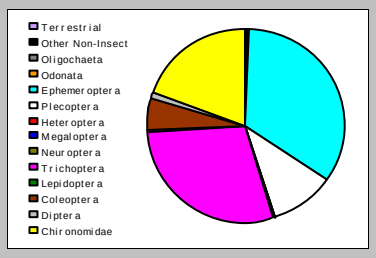
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR009
Sta. Name: Clark Fork at Turah
Client ID: CFR-116A
STORET ID
Coll. Date: 9/27/2018
Latitude: 46.12649 **Longitude:** -112.79876

Abundance Measures

Sample Count: 543
Sample Abundance: 18,511.36 2.93% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	5	0.92%
Oligochaeta			
Odonata			
Ephemeroptera	9	182	33.52%
Plecoptera	3	57	10.50%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	8	157	28.91%
Lepidoptera			
Coleoptera	2	30	5.52%
Diptera	3	6	1.10%
Chironomidae	9	106	19.52%

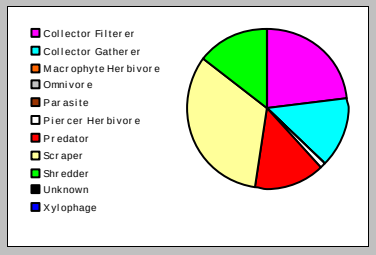


Dominant Taxa

Category	A	PRA
Ephemerella	123	22.65%
Hydropsyche	119	21.92%
Cricotopus / Orthocladius	49	9.02%
Isoperla	47	8.66%
Rhithrogena	32	5.89%
Orthocladius	23	4.24%
Zaitzevia	15	2.76%
Optioservus	15	2.76%
Cricotopus trifascia	10	1.84%
Lepidostoma	9	1.66%
Leptophlebiidae	8	1.47%
Eukiefferiella Devonica Gr.	8	1.47%
Skwala	7	1.29%
Oecetis	7	1.29%
Acentrella	7	1.29%

Functional Composition

Category	R	A	PRA
Predator	9	74	13.63%
Parasite			
Collector Gatherer	10	76	14.00%
Collector Filterer	3	126	23.20%
Macrophyte Herbivore			
Piercer Herbivore	1	6	1.10%
Xylophage			
Scraper	7	183	33.70%
Shredder	5	78	14.36%
Omnivore			
Unknown			

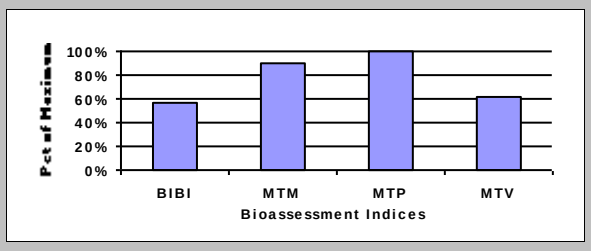


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	35
E Richness	9
P Richness	3
T Richness	8
EPT Richness	20
EPT Percent	72.93%
All Non-Insect Abundance	5
All Non-Insect Richness	1
All Non-Insect Percent	0.92%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.066
Hydropsychidae/Trichoptera	0.796
Dominance	
Dominant Taxon Percent	22.65%
Dominant Taxa (2) Percent	44.57%
Dominant Taxa (3) Percent	53.59%
Dominant Taxa (10) Percent	81.40%
Diversity	
Shannon H (loge)	2.430
Shannon H (log2)	3.506
Margalef D	5.541
Simpson D	0.156
Evenness	0.684
Function	
Predator Richness	9
Predator Percent	13.63%
Filterer Richness	3
Filterer Percent	23.20%
Collector Percent	37.20%
Scraper+Shredder Percent	48.07%
Scraper/Filterer	1.452
Scraper/Scraper+Filterer	0.592
Habit	
Burrower Richness	3
Burrower Percent	1.10%
Swimmer Richness	3
Swimmer Percent	2.76%
Clinger Richness	19
Clinger Percent	84.35%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.18%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	0.37%
Air Breather Richness	2
Air Breather Percent	0.92%
Voltinism	
Univoltine Richness	20
Semivoltine Richness	2
Multivoltine Percent	23.76%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	0.55%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	0.37%
Metals Tolerance Index	4.737
Pollution Sensitive Richness	1
Pollution Tolerant Percent	10.31%
Hilsenhoff Biotic Index	3.753
Intolerant Percent	43.09%
Supertolerant Percent	2.95%
CTQa	68.438

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	28	56.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	11	61.11%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	19	90.48%	None



Tuesday, March 05, 2019

Metrics Report

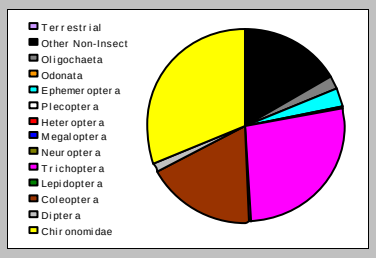
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR010
Sta. Name: Lost Creek at Frontage Road
Client ID: LC-7.5
STORET ID
Coll. Date: 9/25/2018
Latitude: 46.22665 **Longitude:** -112.76017

Abundance Measures

Sample Count: 550
Sample Abundance: 8,250.00 6.67% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	11	93	16.91%
Oligochaeta	3	11	2.00%
Odonata			
Ephemeroptera	5	18	3.27%
Plecoptera	1	2	0.36%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	5	146	26.55%
Lepidoptera			
Coleoptera	3	100	18.18%
Diptera	2	8	1.45%
Chironomidae	13	172	31.27%

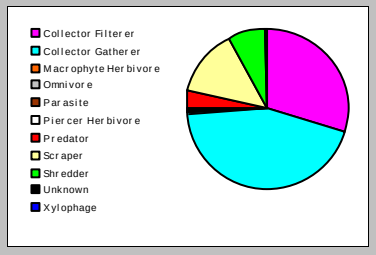


Dominant Taxa

Category	A	PRA
Hydropsyche	88	16.00%
Orthocladius	79	14.36%
Optioservus	65	11.82%
Hyalella	64	11.64%
Cheumatopsyche	47	8.55%
Cricotopus trifascia	29	5.27%
Cleptelmis addenda	26	4.73%
Diamesa	19	3.45%
Microtendipes	12	2.18%
Baetis tricaudatus complex	11	2.00%
Acari	11	2.00%
Zaitzevia	9	1.64%
Brachycentrus occidentalis	9	1.64%
Micropsectra	8	1.45%
Cricotopus	7	1.27%

Functional Composition

Category	R	A	PRA
Predator	6	20	3.64%
Parasite			
Collector Gatherer	18	242	44.00%
Collector Filterer	6	165	30.00%
Macrophyte Herbivore			
Piercer Herbivore	1	1	0.18%
Xylophage			
Scraper	5	76	13.82%
Shredder	5	43	7.82%
Omnivore	1	1	0.18%
Unknown	1	2	0.36%

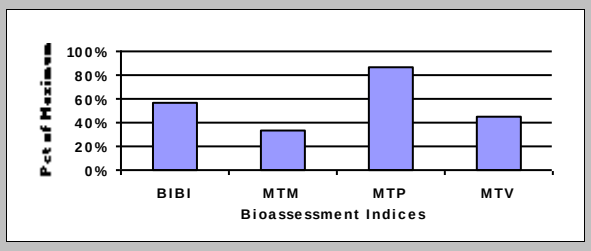


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	43
E Richness	5
P Richness	1
T Richness	5
EPT Richness	11
EPT Percent	30.18%
All Non-Insect Abundance	104
All Non-Insect Richness	14
All Non-Insect Percent	18.91%
Oligochaeta+Hirudinea Percent	2.18%
Baetidae/Ephemeroptera	0.667
Hydropsychidae/Trichoptera	0.925
Dominance	
Dominant Taxon Percent	16.00%
Dominant Taxa (2) Percent	30.36%
Dominant Taxa (3) Percent	42.18%
Dominant Taxa (10) Percent	80.00%
Diversity	
Shannon H (loge)	2.697
Shannon H (log2)	3.891
Margalef D	6.875
Simpson D	0.108
Evenness	0.717
Function	
Predator Richness	6
Predator Percent	3.64%
Filterer Richness	6
Filterer Percent	30.00%
Collector Percent	74.00%
Scraper+Shredder Percent	21.64%
Scraper/Filterer	0.461
Scraper/Scraper+Filterer	0.315
Habit	
Burrower Richness	0
Burrower Percent	0.00%
Swimmer Richness	2
Swimmer Percent	2.18%
Clinger Richness	15
Clinger Percent	56.18%
Characteristics	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	3
Hemoglobin Bearer Percent	3.45%
Air Breather Richness	1
Air Breather Percent	0.36%
Voltinism	
Univoltine Richness	19
Semivoltine Richness	4
Multivoltine Percent	36.00%
Tolerance	
Sediment Tolerant Richness	4
Sediment Tolerant Percent	1.82%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.715
Pollution Sensitive Richness	1
Pollution Tolerant Percent	24.91%
Hilsenhoff Biotic Index	5.636
Intolerant Percent	2.55%
Supertolerant Percent	15.09%
CTQa	93.529

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	28	56.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	26	86.67%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	8	44.44%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	7	33.33%	Moderate



Tuesday, March 05, 2019

Metrics Report

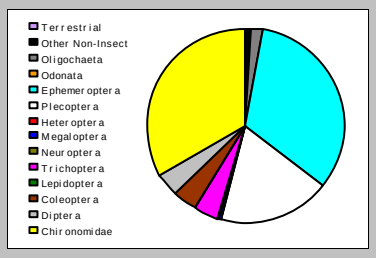
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR011
Sta. Name: Racetrack Creek at Frontage Road
Client ID: RTC-1.5
STORET ID
Coll. Date: 9/26/2018
Latitude: 46.28406 **Longitude:** -112.74484

Abundance Measures

Sample Count: 543
Sample Abundance: 16,290.00 3.33% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	5	7	1.29%
Oligochaeta	1	10	1.84%
Odonata			
Ephemeroptera	5	176	32.41%
Plecoptera	6	99	18.23%
Heteroptera			
Megaloptera	1	2	0.37%
Neuroptera			
Trichoptera	7	25	4.60%
Lepidoptera			
Coleoptera	4	21	3.87%
Diptera	5	21	3.87%
Chironomidae	14	182	33.52%

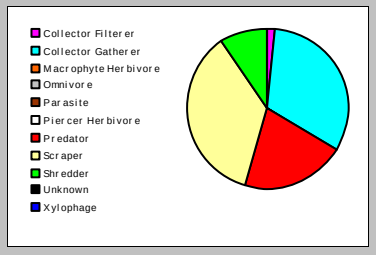


Dominant Taxa

Category	A	PRA
Orthocladius	103	18.97%
Ephemerella	92	16.94%
Sweltsa	78	14.36%
Cinygmula	70	12.89%
Micropsectra	24	4.42%
Optioservus	16	2.95%
Tipula	15	2.76%
Cricotopus (Isocladius)	14	2.58%
Capniidae	11	2.03%
Mesenchytraeus	10	1.84%
Phaenopsectra	9	1.66%
Ecclisomyia	9	1.66%
Limnephilidae	7	1.29%
Eukiefferiella Gracei Gr.	7	1.29%
Leptophlebiidae	6	1.10%

Functional Composition

Category	R	A	PRA
Predator	14	109	20.07%
Parasite			
Collector Gatherer	14	173	31.86%
Collector Filterer	4	11	2.03%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	9	198	36.46%
Shredder	7	52	9.58%
Omnivore			
Unknown			

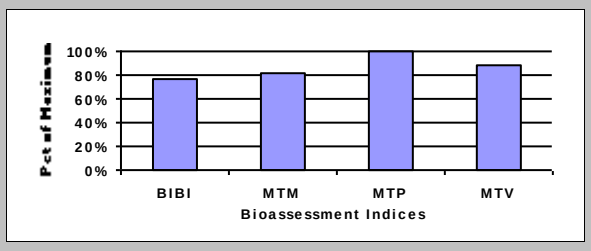


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	48
E Richness	5
P Richness	6
T Richness	7
EPT Richness	18
EPT Percent	55.25%
All Non-Insect Abundance	17
All Non-Insect Richness	6
All Non-Insect Percent	3.13%
Oligochaeta+Hirudinea Percent	1.84%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	18.97%
Dominant Taxa (2) Percent	35.91%
Dominant Taxa (3) Percent	50.28%
Dominant Taxa (10) Percent	79.74%
Diversity	
Shannon H (loge)	2.683
Shannon H (log2)	3.871
Margalef D	7.513
Simpson D	0.115
Evenness	0.693
Function	
Predator Richness	14
Predator Percent	20.07%
Filterer Richness	4
Filterer Percent	2.03%
Collector Percent	33.89%
Scraper+Shredder Percent	46.04%
Scraper/Filterer	18.000
Scraper/Scraper+Filterer	0.947
Habit	
Burrower Richness	3
Burrower Percent	3.87%
Swimmer Richness	2
Swimmer Percent	0.37%
Clinger Richness	20
Clinger Percent	60.41%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	1.66%
Hemoglobin Bearer Richness	2
Hemoglobin Bearer Percent	2.21%
Air Breather Richness	5
Air Breather Percent	3.87%
Voltinism	
Univoltine Richness	25
Semivoltine Richness	5
Multivoltine Percent	34.25%
Tolerance	
Sediment Tolerant Richness	4
Sediment Tolerant Percent	3.68%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	2.877
Pollution Sensitive Richness	2
Pollution Tolerant Percent	4.05%
Hilsenhoff Biotic Index	3.022
Intolerant Percent	51.38%
Supertolerant Percent	3.87%
CTQa	71.824

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	38	76.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	16	88.89%	None
MTM	Montana DEQ Mountains (Bukantis 1998)	17	80.95%	Slight



Tuesday, March 05, 2019

Metrics Report

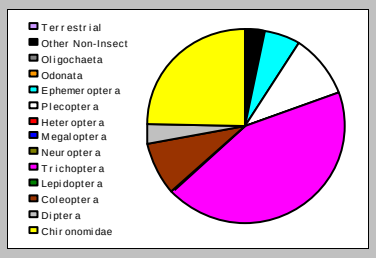
Project ID: PBSJ18CFR
RAI No.: PBSJ18CFR012
Sta. Name: Little Blackfoot River at Beck Hill Road
Client ID: LBR-CFR-02
STORET ID
Coll. Date: 9/26/2018
Latitude: 46.51964 **Longitude:** -112.79312

Abundance Measures

Sample Count: 535
Sample Abundance: 1,605.00 33.33% of sample used
Coll. Procedure:
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	19	3.55%
Oligochaeta			
Odonata			
Ephemeroptera	5	32	5.98%
Plecoptera	5	54	10.09%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	10	234	43.74%
Lepidoptera			
Coleoptera	3	46	8.60%
Diptera	8	17	3.18%
Chironomidae	9	133	24.86%

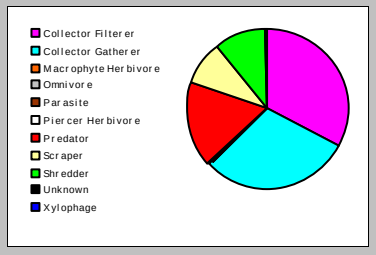


Dominant Taxa

Category	A	PRA
Hydropsyche	164	30.65%
Orthocladius	73	13.64%
Lepidostoma	39	7.29%
Sweltsa	33	6.17%
Potthastia Gaedii Gr.	28	5.23%
Optioservus	23	4.30%
Zaitzevia	20	3.74%
Acari	17	3.18%
Perlodidae	13	2.43%
Ephemerella	12	2.24%
Cricotopus trifascia	10	1.87%
Tricorythodes	8	1.50%
Eukiefferiella Gracei Gr.	7	1.31%
Parapsyche almota	6	1.12%
Leptophlebiidae	6	1.12%

Functional Composition

Category	R	A	PRA
Predator	13	93	17.38%
Parasite			
Collector Gatherer	12	157	29.35%
Collector Filterer	4	177	33.08%
Macrophyte Herbivore			
Piercer Herbivore	1	2	0.37%
Xylophage			
Scraper	6	48	8.97%
Shredder	5	56	10.47%
Omnivore			
Unknown	1	2	0.37%

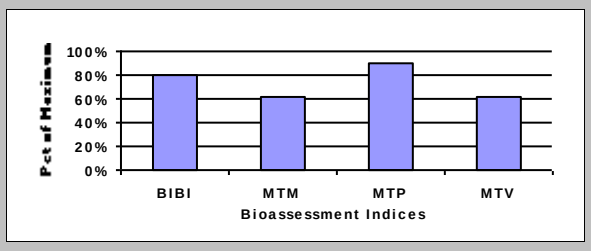


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	42
E Richness	5
P Richness	5
T Richness	10
EPT Richness	20
EPT Percent	59.81%
All Non-Insect Abundance	19
All Non-Insect Richness	2
All Non-Insect Percent	3.55%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.063
Hydropsychidae/Trichoptera	0.744
Dominance	
Dominant Taxon Percent	30.65%
Dominant Taxa (2) Percent	44.30%
Dominant Taxa (3) Percent	51.59%
Dominant Taxa (10) Percent	78.88%
Diversity	
Shannon H (loge)	2.529
Shannon H (log2)	3.649
Margalef D	6.650
Simpson D	0.160
Evenness	0.677
Function	
Predator Richness	13
Predator Percent	17.38%
Filterer Richness	4
Filterer Percent	33.08%
Collector Percent	62.43%
Scraper+Shredder Percent	19.44%
Scraper/Filterer	0.271
Scraper/Scraper+Filterer	0.213
Habit	
Burrower Richness	6
Burrower Percent	1.87%
Swimmer Richness	2
Swimmer Percent	0.56%
Clinger Richness	23
Clinger Percent	60.93%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.75%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	0.19%
Air Breather Richness	5
Air Breather Percent	1.12%
Voltinism	
Univoltine Richness	21
Semivoltine Richness	8
Multivoltine Percent	28.79%
Tolerance	
Sediment Tolerant Richness	4
Sediment Tolerant Percent	2.24%
Sediment Sensitive Richness	3
Sediment Sensitive Percent	2.43%
Metals Tolerance Index	4.440
Pollution Sensitive Richness	3
Pollution Tolerant Percent	11.78%
Hilsenhoff Biotic Index	4.039
Intolerant Percent	30.47%
Supertolerant Percent	2.80%
CTQa	60.474

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	40	80.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	27	90.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	11	61.11%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	13	61.90%	Slight



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APPENDIX H

FISH SAMPLING LOCATIONS AND METHODS

Table H-1. Fish sampling locations in the Clark Fork River Operable Unit, 2018.

Watershed	Section Name	Section Length (m)	Estimate Type	Downstream Latitude	Downstream Longitude
Barker Creek	Lower RM 0.5	100	Depletion	46.15737	-113.12189
Boulder Creek	RM 6.5 Princeton Bridge	120	Depletion	46.41325	-113.16090
Foster Creek	Lower RM 1.0	100	Depletion	46.17497	-113.13055
Twin Lakes Creek	Lower RM 1.3	96	Depletion	46.15655	-113.17270
Upper Clark Fork River	PH Shack	2,570	Mark/Recapture	46.19658	-112.76772
	Bottom of PH Shack to Perkins Lane	2,410	Mark/Recapture	46.20856	-112.76762
	Below Sager Lane	5,150	Mark/Recapture	46.35108	-112.74109
	Williams Tavenner	4,020	Mark/Recapture	46.48631	-112.72647
	Phosphate	3,380	Mark/Recapture	46.57443	-112.89466
	Morse Ranch	12,300	Mark/Recapture	46.65427	-113.14620
	Bearmouth	10,600	Mark/Recapture	46.69818	-113.41624
Warm Springs Creek	Garrity WMA	970	Mark/Recapture	46.16270	-113.06291
	Veronica Trail RM 26.0	100	Depletion	46.17413	-113.15636
Beaver Dam Creek	Near Mouth	100	Depletion	46.59088	-112.54892
	Corrals	100	Depletion	46.58709	-112.53894
	Below upper diversion	100	Depletion	46.58566	-112.53698
Cottonwood Creek	Rock Creek Cattle Ditch	100	Single pass	46.39983	-112.64392
	McQueary Ditch Below Baggs Creek	41	Single pass	46.39936	-112.63961
	McQueary Ditch Above Baggs Creek	100	Single pass	46.39874	-112.63883
Valiton Ditch of upper Clark Fork River	Below Headgate	100	Single pass	46.29493	-112.72375
	Swimming Hole area	200	Single pass	46.33434	-112.72991
	Below Sager Lane	100	Single pass	46.31840	-112.73185
Alvie-Beck Ditch of upper Clark Fork River	Below Headgate	100	Single pass	46.24585	-112.75172
Upper Clark Fork River	Grant Kohrs	4,180	Mark/Recapture	46.42401	-112.74286
	Below Sager Lane	5,150	Mark/Recapture	46.35108	-112.74109
Racetrack Creek	Berg Diversion Ditch	100	Depletion	46.27713	-112.79255
	Carl Johnson Ditch	100	Depletion	46.27967	-112.76920
Gold Creek	Lower Beck Ditch	100	Single Pass	46.54231	-112.93884
	Thomas/Hollenbeck Ditch	100	Single Pass	46.54189	-112.93915
	Mennonite 1 Ditch	100	Single Pass	46.54105	-112.94033
	Mennonite 2 Ditch	100	Single Pass	46.53974	-112.94212
	Upper Beck Ditch	100	Single Pass	46.52624	-112.97804